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THE

ARCHITECT

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Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

*"Image the whole, then execute the parts—
Fancy the fabric
Quite, ere you build, ere steel strike fire from quartz,
Ere mortar dab brick."*
ROBERT BROWNING.

VOL. LXVI.

JULY TO DECEMBER 1901.

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THE ARCHITECT AND CONTRACT REPORTER. A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

THE WEEK.

THE majority of exhibitors at the Paris International Exhibition were not, we believe, successful in attracting orders, but the administrators of the Government pottery work of Sèvres can be congratulated on their success. They calculate on receiving about 20,000*l.*, a sum which is sufficiently large to convince amateurs that, in spite of opposition from so many quarters, the artistic beauty of Sèvres can still command admirers. Between 400 and 500 pieces were exhibited, and not only were they all sold, but replicas of every one of them were ordered. In one case, the *Phryne* by M. RIVIÈRE, no less than 276 examples have to be prepared. A piece by M. LEONARD must be reproduced 150 times. Some very costly works have been sold a dozen times, but the average of all is about twenty. This is a satisfactory result, for whatever changes may occur in France, the Sèvres standard has been always maintained, although purchasers grumble about the time required to execute their orders.

THE Corporation of Aberdeen have entered into arrangements which will put an end to the litigation with the University Court of Aberdeen, but which will not save the old parish church of Greyfriars, which was the main cause of the dispute. In return for University land, which will be used for the widening of Broad Street, the Corporation will surrender property in order to provide an open space in front of University Buildings. Within two years the Corporation are also to erect a new church in substitution for the existing church. The new church is to have accommodation for not less than 800 sittings, and is to be erected and fitted up according to plans and specifications to be prepared by an architect employed by the Corporation and approved of by the Presbytery and kirk session. The Corporation will remove at their own expense the existing church of Greyfriars, and shall be entitled to use in the erection of the new church any of the old materials which may be suitable. Should the old church become unfitted for public worship before the new church is ready the University Court will allow the Mitchell Hall to be used as a substitute. The University Court undertake to employ all means in their power to raise funds for the completion of the university extension scheme.

If English art does not become familiar to Frenchmen and wherever *L'Art* finds an entrance it will not be the fault of the conductor, M. PAUL LEROI. In the number for July he has introduced an etching by M. LALOUZE of REYNOLDS'S *Lady Cockburn and Children*. There is also an illustration of Mr. GOSCOMBE JOHN'S statue of the late Duke of DEVONSHIRE, which is described as a "fort belle statue, d'un arrangement parfait, d'un goût rare et d'une exécution irréprochable dans toutes ses parties." Finally, it is said that it is stamped with character, and that the honour paid to it in the Salon of a first medal was inevitable. The principal illustration, however, is the lithograph *Le Pont de Grez*, after COROT, by M. THÉOPHILE CHAUVEL, the art director of *L'Art*. M. CHAUVEL is not only an *étcher*, but also the honorary president of the French

society of aquafortists. In this case he proves himself to be one of the most delicate of lithographers, and he has admirably translated the peculiar charm which belongs to COROT'S best works.

IN America the waterworks companies are suffering loss through the electrolysis which is caused by the tramway cars. The English Parliament would therefore be justified to insist on measures which would prevent a like injury occurring in London and provincial towns. At the recent convention of the American Waterworks Association in New York the following resolutions were adopted:—"That the American Waterworks Association, as a national organisation, herewith unanimously maintains that street railways have no right to so operate their cars as to cause injury and destruction to water-pipes." "That street railways now operating under the single-trolley system ought to be required to remove their return current from the ground, and that if they continue to operate by current transmitted from the power station to motors on the cars they should be required to provide a complete metallic circuit of sufficient capacity to convey all the current, and in a manner to absolutely insulate it from the rails and from the earth." In several cases there has been litigation on the subject, and although there was no doubt about the extent of the damage, the Courts did not always decide against the tramway companies.

ONE of the latest services which Germany has rendered to Greece consists in the production of two maps of Attica of the most scrupulous accuracy. The survey was made by officers of the Royal Prussian General Staff, at the request of the German Archæological Institute in Athens. The whole undertaking has occupied about a quarter of a century. The larger of the two maps is on a scale of $\frac{1}{25000}$. There are twenty-four sheets. Care has been taken to introduce on the map all the remains of Grecian antiquity. The second map is on the scale of $\frac{1}{100000}$. All the sheets have been executed with German thoroughness, and will be invaluable in public libraries throughout the world. Besides the map the German Institute in Athens will produce a collection of the reliefs on monuments in Attica, as well as complete copies of inscriptions. By these works Germany has again demonstrated its claim to be regarded as the best upholder of Greek archæology.

AN exhibition has just been held in the School of Industrial Art, Geneva, which would delight all those who wish to see natural objects employed as a basis for decoration. It consisted of a series of casts taken from fruits, flowers and vegetables. During many months in the year those objects are not obtainable, and as substitutes for them casts have been prepared. The operations were difficult, and required dexterity as well as patience, but the results are most successful. Flowers, thistles, bunches of grapes, stems of plants, branches, &c., have been reproduced with fidelity. The casts will be of the utmost use to ornamentists, and the School of Geneva is to be congratulated on experiments which will render invaluable service to artists.

CHICHESTER CATHEDRAL.*

WHEN England was conquered by the Normans the country was divided into fifteen dioceses, viz. Canterbury, York, London, Winchester, Chichester, Rochester, Salisbury, Bath and Wells, Exeter, Worcester, Hereford, Coventry and Lichfield, Lincoln, Norwich and Durham. The majority of them, it will be observed, were connected with cities which had been Roman settlements. A number of circumstances had combined to determine the selection in early Saxon times of the places which were best adapted for episcopal seats, and among them were the associations which belonged to the dominion of Rome. WILLIAM THE CONQUEROR was too able a ruler to be indifferent to the value which arose from the connection with the old imperialism, and he was careful to allow the ecclesiastical divisions to remain as he found them. HENRY I. introduced some changes, but they were not of a revolutionary character. One was the creation of the diocese of Ely in order to gratify Abbot HERVEY, who wished to be independent of the Bishop of Lincoln; the other was the formation of the diocese of Carlisle out of parts of Cumberland and Westmoreland, a district in which episcopal control was somewhat indefinite.

In the second place, it is to be remarked that in some instances there was no rigid rule observed in England respecting the retention of the bishop's chair in the place originally assigned as the centre of authority. REMIGIUS was the first to determine that Lincoln should be the episcopal residence, for previously the cathedral was to be found in Dorchester. Sidnaster and Leicester also possessed cathedrals, which were superseded by Lincoln. Before Norwich was selected there were cathedrals for the diocese in Dunwich, Elmham and Thetford. Exeter was not recognised as a cathedral city until the reign of EDWARD THE CONFESSOR. The bishop encountered dangers in travelling between Crediton in Devonshire and St. Germans in Cornwall, the sites of the two cathedrals. As Exeter was a fortified city he preferred it as being more secure, and in 1046 he took possession of St. Peter's Church. The great northern diocese, now known as Durham, was ruled from Lindisfarne for two centuries and a half, and from Chester-le-Street for a century and a half. Chester and then Coventry for a time superseded Lichfield as cathedral cities. Old Sarum supplanted Sherborne, and in turn yielded its supremacy to Salisbury.

The removal of the cathedral of the kingdom of the South Saxons from Selsey to Chichester in 1082 was, therefore, warranted by precedents, and there was, moreover, a change from a fishing village to a town which had been an influential Roman station. In a historical sense Selsey was, however, of importance. When St. WILFRID was deprived of the Archbishopric of York, and was banished in 680, he was compelled to become a wanderer. At length he found a refuge with ÆTHELWOLD or ÆTHELWEALH, the king of the South Saxons, who dwelt at Selsey, surrounded by people who were wreckers rather than fishermen. WILFRID instructed them in making nets, and in that way earned their gratitude. He used his influence over them to obtain aid in building a church which became a cathedral, for, under the circumstances, there could be no opposition to the Archbishop of York constituting himself a Sussex bishop. From the king and his successor, CEADWALLA, he obtained large grants of land. But let no one believe the transaction was carried out in the ridiculous manner represented by a pseudo-German painting on a screen of the transept of Chichester cathedral.

We have nothing remaining to suggest the character of WILFRID's cathedral or of its successors, for we cannot suppose that during four centuries one building could have survived in a district which was liable to invasions by northern rovers. Even the site is doubtful. According to the song, the fisherman on Lough Neagh's banks sees the round towers of former days in the waves beneath him shining, but at Selsey there is no vision of that kind. A part of the sea is still known as the Bishop's Park, and a part of the shore as the Bishop's Copse, but the names are enough to signify the absence of stones. In the graveyard fragments of masonry are found, which probably formed

a part of old buildings, but whether of a church or a monastery has not been ascertained. In the cathedral of Chichester are a few sculptured slabs which are assumed to have been derived from Selsey, and in style they are pre-Norman. They are the only relics of the primitive cathedral to which any importance can be attached.

After the Conquest, STIGAND, who was one of the numerous chaplains of WILLIAM I., obtained the bishopric of Selsey. Whether he was the first to suggest the removal of the see to Chichester, or what were the reasons which led to the change are unknown. It is certain, however, that at a council held in London in 1075 it was decided to substitute Old Sarum for Sherborne, Chester for Lichfield, and Chichester for Selsey. In Chichester a church dedicated to St. PETER and belonging to a nunnery was, it is said, first utilised as a cathedral, until on the site a new building could be raised. But there is no evidence that STIGAND took any part in the erection of a cathedral. He died in 1087, and as he was involved in disputes about his privileges with WILLIAM I. and Archbishop LANFRANC, STIGAND may have been worried enough without undertaking the cares of building.

In 1091 RALPH LUFFA was appointed to the see. By 1108 he had a cathedral erected, but seven years afterwards it suffered much from a fire. Whether a new building became necessary is uncertain, but it is supposed that owing to the generosity of HENRY I. a long period did not elapse before there was a cathedral in which services could be held. Much of the existing building is to be credited to Bishop RALPH. Sussex at the time could not be considered as prosperous, and the severity of the style at Chichester was no doubt owing to the difficulty of obtaining money to pay for ornament in any form. The nave and triforium are as severely plain as any to be found in England. Although the aisles are doubled, two being found on each side of the nave, yet from the plainness of the treatment the interior appears to be less in area than is suggested by the exterior. When seen from the west entrance the cathedral seems to be one of the smallest of its class. The transepts, from their position, do not aid in increasing the effect, and it must be allowed that the interior as a whole is disappointing.

After standing for about sixty years, RALPH's church was nearly all destroyed by a fire in 1187, during the episcopate of the second SEFFRID. It was necessary to reconstruct the clerestory, and the introduction of the pointed arch in the side arches shows the development which had taken place in architectural style. An important change is also to be seen in the stone vaulting of the nave, which necessitated the erection of buttresses on the exterior. The presbytery had to be constructed, and in the triforium and clerestory of this part of the building the pointed arch was used. The three chapels which formed the termination of Bishop RALPH's building were removed and transeptal chapels were built instead. SIMON of Wells, the successor of SEFFRID, also carried on the alterations, and to those ecclesiastics are to be attributed the deviations from the original Norman work of Bishop RALPH.

It is believed that parts of the Norman church were a low central tower and two western towers. There is a record of the fall of two towers in Chichester in 1210, and it has been assumed that they must have belonged to the cathedral. RALPH NEVILLE, the chancellor, was bishop from 1224 to 1244, and took great interest in its restoration. He bequeathed money for the finishing of a stone tower which may have been the central tower. There were several chantry chapels added in the thirteenth century, but they no longer exist, for by removing the divisions between them they became the outer aisles, which are a peculiarity of the cathedral. The lady chapel was erected between 1288 and 1305 by Bishop GILBERT, and although it sometimes is only used for storing benches it is simple and refined in style. At one time it was utilised as the cathedral library. So little is known about the original purpose of the chapel, there are clergymen's wives in Sussex who believe it was set apart for their special use as a feminine chapter-house. JOHN OF LANGTON, who was elected in 1305, completed the presbytery and south transept. The history of the detached bell-tower, which is unique in England, is a blank, for we cannot tell under what circumstances it was created or by whom it was designed. At the

* See Illustration.

present time its decayed condition is in marked contrast with the new work of the cathedral.

For many a year the history of the cathedral was uneventful. But on two occasions the building suffered to a remarkable extent. In December, 1642, Chichester sustained a siege against the Parliamentary army. On its surrender the soldiers at once went to the cathedral. After a thanksgiving for their victory, we are told by Dean RYVES how they "ran up and down the church with their swords drawn, defacing the monuments, hacking and hewing the seats and stalls, scratching and scraping the painted walls, Sir W. WALLER and the rest of the commanders standing by as spectators and approvers of these impious barbarities."

Another disaster occurred forty years ago. The ground at Chichester is not adapted for sustaining great weights unless special precautions are taken. The central tower and spire for many years caused anxiety through settlements. In the eighteenth century large sums were expended on repairs. A legacy of Dean CHANDLER in 1859 for the restoration of the choir was the cause of an unexpected catastrophe. It was the means of revealing the occasional weakness of Mediæval masonry. The oratory of Bishop ARUNDEL, which was placed between the nave and choir, was bounded on the west side by an elaborate screen which supported the organ. In the course of the restoration the screen was removed. It was then found that the piers supporting the tower, which the screen served to stay or shore, were formed of a core of loose rubble cased with ashlar. As if to increase the weakness, the bases had been cut away to make room for the stalls and organ stairs. In spite of the efforts of the architect, Sir GILBERT SCOTT, and the builders, it became evident that the danger increased from day to day. Finally warning had to be given to the inhabitants who lived near the cathedral. On February 21, 1861, the spire descended, crushing through all obstacles, and eventually broke into fragments. No time was lost in meeting the disaster. Six years afterwards a successor to the vanished structure was raised at a cost of 60,000*l.*—an evidence of enthusiasm which could hardly be surpassed in Mediæval times.

THE VALUATION OF PROPERTY.*

THE influence of the Government valuation system on the modern history of Ireland has not been sufficiently considered. When RICHARD GRIFFITH, the Welsh civil engineer and geologist, was first given a commission to value Irish lands, all that was intended was to bring some unity into the assessment for taxation, which hitherto had been arrived at in a haphazard way. GRIFFITH was not satisfied with taking counties, baronies or parishes in bulk. He did not believe there would be a sufficient basis for any general calculations until he had settled the value of every field. He devised instructions for his assistants which form a very remarkable document. As a geologist he insisted on a description of all the varieties of soils. The worth of arable land would, of course, depend upon its productiveness, and he prepared a schedule of prices which were to be used when calculating the value of the corn or potatoes which were grown. Subsequently the principle of the survey was extended in order that the valuation of every farm and tenement should be ascertained.

The returns, of which copies could be obtained at a cheap rate, were not long in circulation without producing an effect that was almost revolutionary. The old method by which the agents of needy landlords exacted disproportionate rents from tenants at will, or, as KOHL, the German traveller, called them, "chasable tenants," appeared more unjust when tested by the amounts which had been ascertained by impartial official valuers. For the first time a general standard of value was furnished, and by its aid the Irish farmers were able to discover the exact degree of excess which they were compelled to pay. All the changes in the law of landlord and tenant in Ireland which have occurred during the last half century can be traced to the influence of GRIFFITH'S valuation. The rates of produce have been altered from time to time, but there has been

no important alteration in the principle, and land is now held under conditions which would be amazing to the old race of proprietors and occupiers. The effects produced in Ireland testify to the importance of the valuer as an agent in sociology.

It has been often said that a similar system should be introduced into England, and all who are acquainted with the agricultural classes are aware of the complaints which are constantly made about the disproportionate rents which have to be paid for land. The conditions of tenure adopted in England are unlike those which prevailed in Ireland, and which Parliament has been so often obliged to amend. In England the ownership of land has been accepted as a privilege, and in consequence a smaller return on outlay is expected than has to be forthcoming in trade. In Ireland the landlords depended for their income on land alone, and the squeezing of tenants was necessary, regardless of the injustice. "We were real gentlemen to the backbone," says one of LEVER'S characters, "and there was not one of the name for five generations that could earn sixpence if he were starving." With such potentates it mattered little what was left to a tenant, for his mission in life was to uphold the landlord in luxury.

The English system of placing business on an equitable basis is seen in every page of the "Hints to Young Valuers." The book comprises instructions for dealing with the varieties of property which generally come under the investigation of valuers, but although it contains over a thousand pages there is no advice in it which would be unworthy of a gentleman to follow. In the chapter on "Dilapidations" we find Mr. CRAGG saying:—"An over-zealous surveyor is sometimes tempted to strain unduly a tenant's liability for repair, especially with regard to hidden portions of the buildings, such as joists for example, but by such a course of conduct a surveyor generally does his client more harm than good." That sentence is sufficient to indicate the spirit which inspires the book. The author wishes to have dealings with farmers and others who possess a practical knowledge of what they propose to undertake, for there can be no victory in overcoming a man who is a greenhorn without suspicion. It is also pointed out how considerate landlords can let farms at their full market value, whereas those who think only of revenue and are always ready to distrain for rent, find fewer intending tenants. It is suggested that in the latter case from 5 to 10 per cent. should be deducted from the valuation "to cover the tenant's liability in case of contingencies which even arise under a good landlord." The desire for fair play and honest dealing on all sides is not the least important of the "hints."

It is not to be supposed that so large a volume is made up of platitudes which, although interesting, do not meet a tyro's difficulties. Mr. CRAGG says it is quite impossible to frame any fixed set of rules capable of application to the computation of the worth of any given property under all circumstances; but by giving details of the cost of agricultural operations and of the produce which may be assumed, as near an approximation is obtained as can be derived from books. In valuing property practice is the best teacher, and in consequence many valuers become farmers, in the same spirit that compels engineers to make experiments on materials. It is difficult by a passage to suggest the character of the instructions given in the pages, but the following remarks about the examination of roofing may be taken as a sample:—

If it is true—that is, if the surface be uniform—the roofing timbers are doubtless good; if "sagged," they are weak; if sunk at distinct points, decayed. The condition of the slates or tiles is also an important matter, because defects in these details will, by admitting wet, soon convert a good sound building into a bad one. Slates or tiles which show signs of decay must be noted for renewal. The laths or battens must be looked to. If they are defective or weak, the horizontal lines of the roof will be crooked. If there are evidences of much patching, the probabilities are the nails are bad. The pointing or "flashing" round the chimneys, or where the roof abuts against a wall, is often, like ironmongery, an index of the general character of the construction of the building. Good finish in these matters is rarely met with in an inferior erection. Without entering into a more lengthy description, I may say generally that when such details are substantially carried out we shall invariably find a good sound building; but when

* *Hints to Young Valuers*: a Practical Treatise on the Valuation of Property. By A. R. Cragg, F.G.S. With explanations of the legal principles involved by J. R. V. Marchant, M.A. Second edition. London: The Land Agents' Record, Ltd.

shoddy fittings and zinc flashings are used we ought to be very suspicious of the rest. Sometimes the materials may be proper but the execution is unworkmanlike. For instance, the durability of gutters, valleys, or flats depends in a great measure upon the execution of the work. If lead is laid in too long lengths (over 10 feet) the action of the sun causes it to warp and crack, especially if the lead is too light. In many recently built professedly good houses it is not uncommon to find 3 or 4 lb. lead (per foot square) used in valleys, &c., and such work soon becomes a constant source of expense and annoyance.

The subject of dilapidations is considered at length, and is brought down to the recent *DE FALBE* case, which related to the removal of tapestries which were supposed to have been fixtures, and therefore to have belonged to the estate. Custom has led people to suppose that a valuator's business is mainly with land, but Mr. CRAGG in his work deals not only with land, but with town properties. A young architect, therefore, although he may not be called in to examine farms or market-gardens, will find much relating to his own profession which will repay a study of the book. The remarks on town properties might have come from a house agent of long experience. For example, it is not everyone who is aware that in London "a good position for a fishmonger's shop is in the immediate neighbourhood of a large railway station, where there is a good deal of suburban traffic." It is not only in established streets there is an opportunity for the exercise of valuation; building land also deserves special attention. It is pointed out that a desirable building site is not every elevated spot, but land which is affected by the two causes, necessity and desire. The eagerness to obtain a high price for ground that is of little importance diminishes the chance of finding purchasers for it. Mr. CRAGG says:—

The value of many estates is greatly injured by the method of putting them on the market. A large area of land is repeatedly exposed for sale before there is a real demand for it, and all sorts of expedients are resorted to in the endeavour to dispose of a portion. The speculative builder is introduced, and probably financed, and badly-built houses are the result. There are many building estates on the outskirts of London and elsewhere which have been thus permanently injured. Instead of thrusting land upon the market, and permitting any description of building to be put upon it in order that it may become covered, it is more judicious to offer only a limited area—according to the demand—at a time, and to insist upon a good class of houses being erected at the commencement. This encourages desirable tenants and gives a character to the estate, the growth of which may at first be more slow, but its development will be upon a sounder basis.

The valuer has sometimes to examine artificers' work, and he should therefore be acquainted with the quantity surveyor's methods. The system recommended by the Manchester Society of Architects for quantities and measuring-up is described according to the revised form of 1886. Every variety of surveyor's work comes within the compass of Mr. CRAGG's comprehensive treatise. Throughout he has kept in view that he is instructing young valuers, and accordingly enters at more length into the different subjects than is usual in professional books. The pages are clearly written, and the author's meaning is not likely to be misunderstood by novices. The book supplies a void in technical literature, and can be recommended as an excellent guide to the profitable business of valuation.

ROMAN ART IN COLCHESTER.

IN October 1845 the three bronzes shown in the illustrations were discovered during the excavations of the line of railway between Colchester and Ipswich, about a mile to the east of the Colchester terminus, and half a mile north of the town. They were dug up at the depth of about 5 feet from the surface. Portions of red pottery, bronze and lead were found near them, and, at the distance of about 6 feet, a human skull and some horses' teeth. The spot presented no indications of having been a place of dwelling or of sepulture, but 200 or 300 yards nearer the terminus is a small rising ground, in cutting through which the railway labourers are said to have found urns containing bones.

The larger of the two heads, according to the late Sir Charles Newton, has evidently ornamented a vase, the loop with which it is surmounted having formed the place of inser-

tion of a handle attached like that of a bucket. The type which this bronze presents is a peculiar one. The beard falls in parallel spirals, the ears are pointed, the under lip is full and sensual; the hair is bound with an ivy-wreath, from which, behind each ear, hangs a bunch of grapes; the hair is parted over the forehead. In the countenance there is something of majestic gravity, but the surface of the features has suffered so much injury that it is not certain whether the expression they now convey is that intended in the original design. The general cast of the features, the sensual overhanging under lip, the furrowed beard, the pointed ears, are characteristic of Silenus; but the low forehead, and the hair parted in front of the wreath, seem hardly reconcilable with any known type of this deity. It is possible that the bronze represents Priapus, whose statue in the Museo Pio-Clementino has the hair similarly arranged, and of whom both the ivy and vine-wreath were attributes; or again, we may have here one of those combinations of the Bacchic and Satyric types which were not unfrequent in ancient mythology, particularly in the latter days of paganism.

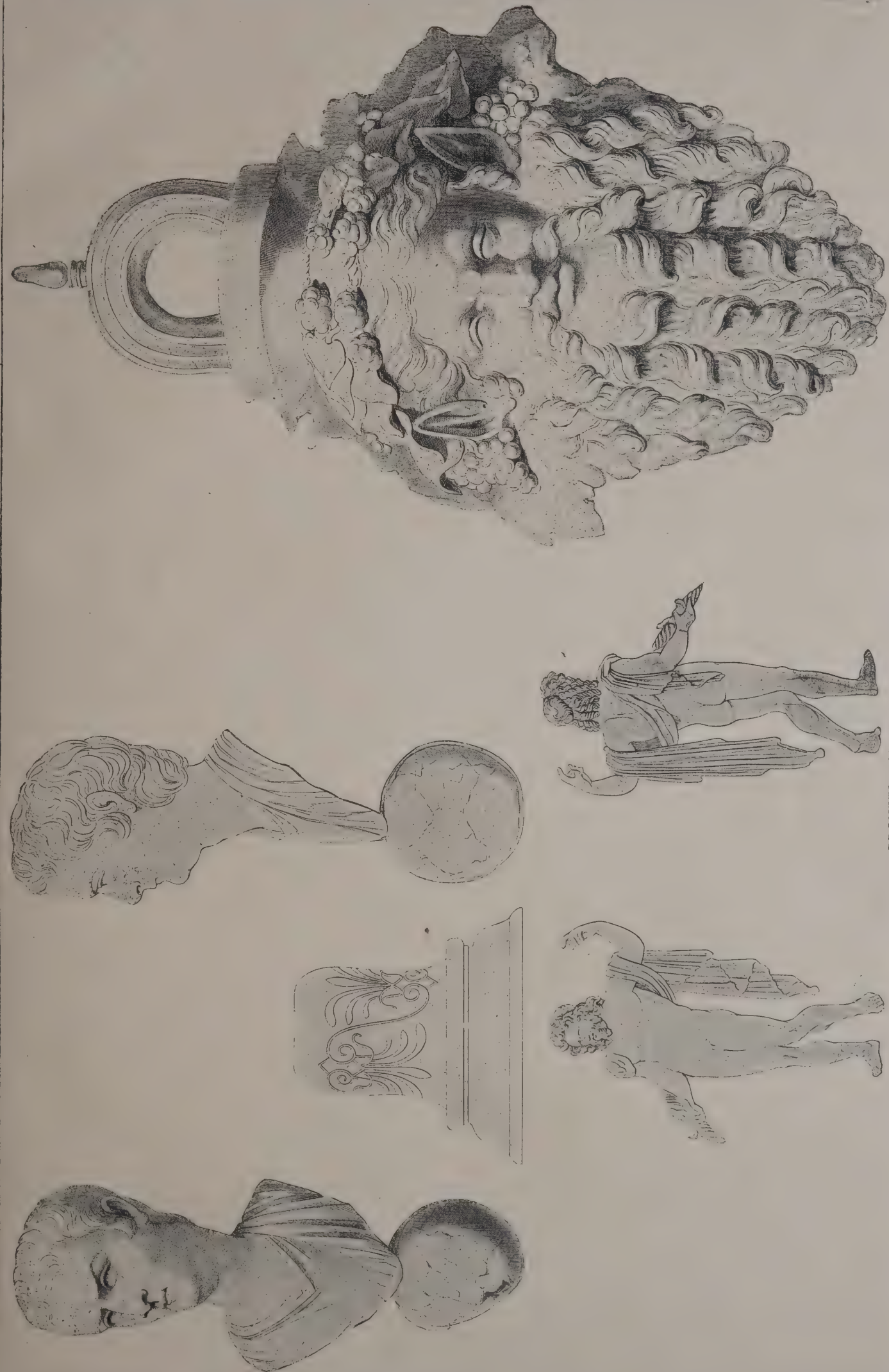
In this fragment we still discern the excellence of the art, notwithstanding the great decay of the original surface. In the design the characteristic and the beautiful are singularly and happily contrasted. The grotesque expression of the features does not disturb the general harmony of the composition; the flowing lines of the hair are skilfully contrasted with the sharp, well-defined forms of the leaves, and the different surfaces are wrought with great knowledge, and judiciously relieved by undercutting. On one side of the beard the edge of the metal has the shape of a vine leaf, but this may be nothing but the accident of fracture. In the collection of antiquities at Corsham House, Wilts, is a bronze head of Bacchus, very similar in the general character of the composition, and apparently of the same period of art, and which probably has also formed the ornament of a vase. It was formerly in the collection of Dr. Mead, and is now the property of Lord Methuen.

Another head engraved is that of the Emperor Caligula. The portrait is a good example of the skill of the ancient artist in what may be called ethography, or the delineation of character, and completely embodies the idea which we have formed from history of the disposition and habits of mind of this emperor. The contracted brow and sinister gaze express his implacable cruelty; in the careworn hollowness of the cheeks and eyes we may trace the workings of those vague terrors with which the mind of this tyrant was ever haunted. The lips and corners of the mouth are pinched and drawn in, as if trained to conceal emotion—a sign of long and early habits of dissimulation such as Caligula was compelled to practise in his youth in order to elude the suspicions of Tiberius.

It is interesting to observe how nearly this portrait corresponds with the description of the personal appearance of this emperor handed down to us by Roman writers of his period. They remark that his eyes were fixed and sunk in his head, his temples hollow, his brow stern and lowering, and Suetonius relates that he enhanced the natural hatefulness of his aspect by studying before a mirror how to give his features the most cruel and forbidding expression. This head is modelled with great care and knowledge, and from the rarity of statues and busts of Caligula is very valuable as presenting so finished a portrait. It bears a most striking resemblance to a bronze head engraved in the "*Recueil des Antiquités*" of Caylus, and wrongly attributed to Claudius in that work. Under the bust is placed a globe, a well-known symbol of Roman sovereignty variously combined and associated in their art. On a copper coin struck at Romula Bætica, in Spain, the bust of the Empress Livia occurs so placed, and analogously on a silver coin struck at Antioch the bust of Trajan rests on the imperial eagle, and other coins of early emperors may be cited in illustration.

This bust was probably mounted on the small bronze stand found lying near it, the surface of which is inlaid with a floral ornament in silver. The celebrated bronze Mercury from the collection of Mr. R. P. Knight, now in the British Museum, and many of the bronzes found at Pompeii are placed on stands similarly ornamented; indeed, this species of inlaying formed the usual decoration of the candelabra and other bronze ornaments of the Romans.

There seems every reason for supposing that Colchester occupies the site of the Roman colony founded at Camulodunum in the reign of Claudius, destroyed by the Britons in their insurrection in the time of Nero, but probably soon recovered and permanently occupied by the conquerors. We may presume that the bronzes described in this paper were brought from Italy by the Romans shortly after their first settlement in this station. Very extensive Roman remains have, as is well known, been found at Colchester; and here, as elsewhere, we are enabled to estimate the permanence of the settlement and the wealth and luxury of the inhabitants by the abundance of their coins, tessellated pavements and archi-



BRONZES FOUND IN COLCHESTER IN 1844-45.

tectural materials. The bronzes here described furnish new and important evidence of this nature, and, distinguished by the beauty of the art from almost all the works of Roman times hitherto discovered in this country, are tokens of a degree of social refinement beyond the general standard of civilisation in the remote and half-reclaimed province of Roman Britain.

The small bronze figure of Jupiter Conservator was discovered in 1844 at Colchester. The attitude of this bronze is simple and dignified; the pallium, thrown gracefully over the shoulders, hangs over the left arm, the hand of which doubtless held a sceptre; in the right hand is the thunderbolt. The head is designed and treated with the grandeur of manner which the type requires, but the lower limbs are coarse, and the modelling exhibits none of the refinement observable in the treatment of the two bronzes we have described. The cavities which represent the circles of the eyes were, we must suppose, originally filled with silver. This statue was probably executed during the best period of Roman art, some time between the reigns of Augustus and Marcus Aurelius. The type of this deity, inscribed Jovi Conservatori, is a very frequent one on Roman imperial coins.

ST. PATRICK'S CATHEDRAL, DUBLIN.

THE following letter has been sent by Sir Thomas Drew, president of the Royal Hibernian Academy, to the Dean of St. Patrick's:—

St. Patrick's Cathedral: June 24, 1901.

Dear Mr. Dean,—In your absence I have the pleasure to report to you perhaps the most interesting of the successive archaeological discoveries which seem to have followed each other at St. Patrick's during your time, and in my connection with it in twelve years, viz. the finding of the undoubted site and record of the Ancient Well of St. Patrick, from which this most ancient church's foundation had its origin. It occurred on June 18, and by the vigilance of Mr. Spencer Harty, the city surveyor.

It is, of course, matter of general knowledge that the present cathedral of St. Patrick is a great Anglo-Norman church, which in the thirteenth century superseded and occupied the site of a still more ancient church of Irish foundation—of St. Patrick in Insula. This more ancient church owed its origin in the low-lying valley of the Coombe to the existence of a venerated Well of St. Patrick, at which the great missionary saint was reputed to have baptized converts. In centuries succeeding the thirteenth native Irish and pilgrims from distant lands are recorded to have not ceased to visit and venerate the well; but under the rule of the Anglo-Norman ecclesiastics, who do not appear to have held enthusiastically in honour a mere Irish saint, the well seems to have fallen into neglect, and finally to have disappeared since the end of the sixteenth century.

It is a strange incident of survival of history that passing and quite disconnected records by three or four writers in different ages should have happened to present themselves to me about the same time some years ago, and to supplement each other so remarkably as to point out the exact situation of the lost well.

First came Archbishop Ussher, who seems to have been among the last to see the well itself about 1590. He said:—"In the enclosure of the church of St. Patrick, not far from the tower, we have seen that Fount of St. Patrick at which Dublin neophytes were baptized, lately enclosed among houses and choked up."

A previous writer, Andowé, in 1509, described the well as "near the house of the Prebendary of Howth."

Dr. John Lyon, the famous antiquary, treasurer of St. Patrick's, and compiler of the "Novum Registrum" of Christ Church in the eighteenth century, who lived his long life a resident of his own proper manse in the precincts of St. Patrick's Cathedral, quotes from an ancient record that the well was "in the outer court of the Archdeacon of Glendaloch's Cloister."

Latest of all, Malton, the illustrator of "Dublin Architecture" in 1795, described with his published view of the west front of St. Patrick's how the site of the well "was under the hall of the house seen beyond the ruin" in his view.

You will remember the recovery about eleven years ago of ancient survey maps of the properties of the cathedral within its liberty of St. Patrick's, made by Kendrick about 1750, which are now in Marsh's Library, and from which, with the aid of Rocque's map, 1754, and the Ordnance Survey and other authentic data, I was enabled to draw a definite map of all the ancient surroundings and holdings of the cathedral of which ancient lines then remained, and which are now eliminated. These maps defined specifically the house indicated by Malton and Archbishop Ussher, a leasehold of a family named Rotton previous to 1750. With such a concurrence of record before

me it was no difficulty to mark by a cross on my map the near spot in the roadway of Patrick Street, and under the pavement, where any survival of the well might be looked for.

The occasion has arisen in the progress of the great drainage works by the Corporation of Dublin. Mr. Spencer Harty, the city surveyor, who has always an intelligent interest in the historic landmarks of old Dublin, has not failed to keep an eye on the prophetic cross on St. Patrick's map, and personally superintended the excavations at the indicated spot. He soon found the ancient causeway of Patrick Street lower by 6 feet than the present one, within a few feet of the spot instinctively indicated. The record of the well was at once verified by the finding of a very ancient cross, or rather two crosses, inscribed in high relief on a great granite stone. The well itself had disappeared. Mr. Harty, with me, attributes this to a diversion of the Poddle by an arched culvert which directed the water-power along the west front of the cathedral, turned a corn mill built against the west front of the cathedral itself, and gave its name to the "Cross Poddle," and went on to grind at other mills. This diversion and its great stone culvert was probably made in the time of Charles II., and eliminated the well itself. It could be no mere coincidence that this remarkable stone found by Mr. Harty built into the north wall of the Poddle-culvert was on the exact spot where St. Patrick's Well was looked for. It has seen the light once more on June 18, 1901, after centuries of oblivion.

The stone has been removed to the cathedral in your absence, as the popular interest about it required its safe-keeping until your direction about it can be had. It affords a most interesting example for the antiquarian of that most archaic type of Celtic cross enclosed in the mystic circle with a faint development of those cryptic rays, the tradition of which is a puzzle for speculative archaeologists. It is in such high and clear relief, despite the very ancient surface texture of the granite stone, that it suggests that this was a stone which had seen little weather exposure, and had been protected under some roof or canopy. I, who am familiar with all the stones found about the cathedral, have no doubt whatever that this new find must be grouped with other granite stones and inscribed crosses now to be identified as relics of the far-off Celtic St. Patrick's. So archaic an impression does it give that it might not be unreasonable to assign it conjecturally to any time in the ninth century. It certainly must date back to a long time before the transfer of Celtic St. Patrick's to the Anglo-Norman Archbishop Comyn in 1190.

It is possible that there will be a feeling aroused that this recovered record of the very birth of Public city, and the church, now identified as one with a tradition of 1,300 years of pious veneration, should not be disregarded, and that some memorial should mark the very site of the Well of St. Patrick.—I am, dear Mr. Dean, yours faithfully,

THOMAS DREW, Cathedral Architect.

The Very Rev. Dean Jellett.

ARCHÆOLOGY IN NORTHAMPTONSHIRE.

ABOUT two years ago a committee was formed in connection with the Northamptonshire Natural History Society for the purpose of the systematic examination of prehistoric remains in the county. The committee consisted of eight members—Mr. Frederick Bostock, Mr. Christopher A. Markham, F.S.A., Mr. F. Shepherd, Mr. W. B. Shoosmith, Mr. Beby Thompson, Mr. T. Turner and Mr. E. Turner. As one would expect, funds were not available for investigations on a large scale, and the committee have therefore been content with such examinations of selected sites as could be done with the assistance of two or three labourers. These examinations have been systematic and careful; not a spadeful of earth has been overturned in the absence of one or other members of the committee; and the result of last year's working on such lines, as it is natural to expect, has been considerable, and has produced no small addition to the sum of our knowledge regarding ancient Northamptonshire.

The report of the first year's working of the committee says that the most important investigations have been made at Holdenby, where in 1864 an Anglo-Saxon cemetery was found. With the sanction of Lord Annaly, the owner of the estate, and of Mr. Painter, the tenant, the committee spent a week in investigating this old burial-place. In 1864 six skeletons were found, in 1900 twelve. With the skeletons were discovered various relics, and as nine of the twelve bodies were those of women, it follows that the relics were mostly articles of personal adornment, such as necklaces and brooches. Two iron spears were found; beads of amber, glass and earthenware; fibulae of bronze, a few silvered and one gilt; some elaborate cross-shaped brooches of a pattern not found elsewhere; fragments of ivory, which are very rare in such interments; and a crushed cinerary urn. The cemetery dates probably from soon after the Roman evacuation of

Britain in the fifth century, and there are no doubt other interments on the spot. As the exploration committee, however, had done enough to ascertain beyond doubt what the place was, the excavations were not continued. Lord Annaly has had the finds admirably mounted by British Museum experts, and by the kindness of Lady Annaly they are now at the Northampton Museum. Two pages of illustrations of the relics accompany the report, which are faithful reproductions.

The committee, owing to the fact that the Roman tessellated pavement at Harpole, discovered fifty-five years ago, was, through the operations of agriculture, being destroyed, commenced work, with the sanction of the owner of the land, Mr. Watts, for its removal to a place of safety. The work is still in progress. There is a coloured drawing of the pavement in the Northampton Museum. The committee discovered that the tumulus at Sywell was probably nothing more nor less than the site of a burnt windmill. Excavations were made at Burnt Walls, Daventry; The Berry, Rothersthorpe, and in the moat at Clifford Hill, but with negative results. An interesting Roman well was carefully examined at Brixworth ironstone workings.

ROYAL INFIRMARY RECONSTRUCTION.

THE annexed letter has been addressed by the Glasgow Institute of Architects to the executive committee of the contributors to the Royal Infirmary reconstruction scheme:—

Gentlemen,—I duly received your letter of 18th ult., which has already been acknowledged, and I am instructed to state that the Glasgow Institute of Architects regrets that no more explicit reply has been vouchsafed to its protest and appeal by the managers and the executive than what is contained in the official statement issued to the public. Nothing in that statement in any way answers or refutes the objections previously raised by the Institute. The statement, indeed, rather confirms them; and the Institute therefore remains of the opinion that the plans as adopted "are in many vital particulars inadequate and out of date;" that their distribution on the site, particularly with regard to the Jubilee block facing Cathedral Square is bad; and that in consequence, if the reconstruction is proceeded with according to those plans, "the Infirmary will not conform to the most modern standards of design in this class of building."

The criticisms of the Institute on the previous occasion were chiefly concerned with (1) the manner in which the competition was conducted, according to which solutions of the problem other than those put forward by the managers did not receive unbiassed and adequate consideration; and (2) the insistence on the Jubilee block as an integral part of the scheme. Such a block the Institute considered to be objectionable, because (a) it would shut out from the rest of the buildings the sun and air from the southern and most open part of the surrounding area, and (b) it would dwarf and irretrievably injure the external appearance of the cathedral.

With regard to the first of these two points, while the managers in their letter refer to the block plans which they had prepared with much time and labour as being "suggestive and illustrative only," and "this is repeated in the statement and appeal of the executive, one learns also from this letter that "when the final selection was made the executive committee fixed on a plan which the assessor reported as being one of two which most closely conformed to the sketch plans," i.e. those drawn up by the managers. As further reason for the adoption of this particular plan, the executive give a list of special characteristics in respect to internal arrangements which they consider to be essential or desirable features; yet these were all contained in other designs submitted, which were at the same time free from the radical defects referred to.

As to the Jubilee block, the managers now state as their sixth conclusion—"That the new hospital and not a section of it should be regarded as alone worthy of the city of Glasgow, and as a fitting memorial to the sixty-three years' illustrious reign of the Queen." This is exactly the position adopted by several of the competitors and by the Institute, while objecting, from practical reasons already stated, to its inclusion as part of the scheme. With reference to the cathedral, it is therefore quite beside the point for the executive to state that "the buildings must be lofty if the hospital requirements of the public are to be adequately met;" for, while the buildings must be lofty, on other portions of the site (if that site is to be retained) there is no necessity for their being lofty in the direct alignment with the cathedral, nor, indeed, for there being any buildings at this point at all, as was shown in one or more of the plans submitted. The Institute does not admit that the injury to the cathedral is a question of architectural style, it is one of comparative height and scale. As regards these, the plan adopted is especially objectionable in that not only is the block itself seven storeys high, but it has in addition a lofty

spire which would further and quite unnecessarily assist to dominate and destroy the effect of the cathedral.

The Institute of Architects feel it to be their duty, in the interests of the public (for whom they speak as a body of technical experts in such matters), to thus repeat and emphasise their protest, and to again most earnestly urge the executive, before committing themselves and the public to the erection of any portion of the building as designed, to have the plans submitted to one or more independent hospital authorities of recognised and outstanding position for consideration and report. Further, should the executive object to the outlay involved in such a course, the Institute would be prepared to arrange for it and to meet the cost provided the report did not bear out their contention, while submitting beforehand the name or names of the experts proposed, on obtaining the necessary facilities from the executive.—Yours truly,

C. J. MACLEAN, Secretary.

A PARSİ TEMPLE.

IN the Parsi section of the London Necropolis Company's cemetery at Brookwood a new agiary and mausoleum, erected in memory of the late Mr. N. N. Wadia, C.I.E., were consecrated last week. The agiary and mausoleum have been erected from designs prepared under the direction of Sir George Birdwood. A fire was lighted on the altar of the chapel and prayers of consecration were uttered by Zoroastrian priests. Afterwards the company gathered round the mausoleum, from the steps of which Sir George Birdwood delivered an address on the history of the Parsi religion. Referring to the buildings which were that day consecrated, he said the erection of the mausoleum involved the removal of the old unsightly agiary or fire temple, which formerly occupied the centre of that narrow corner of ground consecrated to the Parsi dead in Europe, and the entire relaying out of the ground in harmony with the mausoleum and new agiary and the four gateways to be built on it. He resolved to lay out that Yimahi-vara, or cemetery, on the traditional plan of the Persian paradise, the ground plan to this day of all Oriental formal gardens. The mausoleum in the centre represented the seven-staged "heavenly mountain" from which the four paths went towards east, south, west and north, and for replanting the Yimahi-vara he had selected such herbaceous plants and flowering shrubs and trees as were originally natives of Persia. The new agiary had been designed from the ruins of a double gateway of the Palace of Xerxes, closing in one end and both sides, and lighting up the two sides with windows copied from the modern Persian palace of Bash No, at Shiraz. The mausoleum was a reproduction of the tomb of Cyrus, at Pasargadae, a square sepulchral chamber set on a base of seven steps and covered in with a pent roof gabled at either end. Mr. Thomas Collcutt, who designed it, had no details for his guidance, but had produced the tomb of Cyrus as it might have been had it been renovated by Greek workmen at the time of the visit of Alexander the Great. Sir M. M. Bhownaggee then delivered a eulogium on the late Mr. N. N. Wadia, who introduced in India the manufacture of thread, hosiery and the art of dyeing, and was thus a benefactor to his people. Mr. Boyce delivered an address on the late Mr. Merwanjee Dalal, after which Mr. N. N. Wadia asked the managers of the Zoroastrian Fund on behalf of his mother to take charge in perpetuity of the agiary and mausoleum. Mr. D. Naoroji (chairman of the committee) accepted the charge.

THE LIVERPOOL CATHEDRAL SITE.

THERE has been handed to the Lord Mayor for presentation to the City Council a memorial signed by several hundred ratepayers, property owners, &c., against the adoption of the St. James site for the proposed Liverpool Cathedral. The memorialists, who reside in Everton, Breckfield, West Derby, Netherfield and St. Domingo Wards, point out that they understand a site could be obtained further to the north and not so near the existing cemetery, and they were of opinion that the people in the neighbourhood should not be deprived of the Mount Gardens. They further submitted that if the decision of the bishop's site committee was not withdrawn, it would be regarded by a large number of ratepayers as a gross injustice, inasmuch as, in effect, it was a proposed desecration of St. James Cemetery. The memorialists fully recognise that it was at last disclosed that the committee were nursing a plot and ruthlessly pushing aside those who had dear ones buried there, and they felt that the Liverpool Corporation should offer opposition to this proposed sacrilege. They therefore hoped that the Council would reject the proposal.

NOTES AND COMMENTS.

THE majority of the monastic orders gained a footing in England, but with one exception they were foreign creations. That exception was the Gilbertian order. It was peculiarly English, for no belief in reciprocity gained for the order any local habitation on the Continent. The order was founded by the son of a Norman knight in the twelfth century, and it will suggest the remoteness of the period when it is known that the founder and some of his monks incurred the anger of HENRY II. for assisting St. THOMAS A BECKET to escape from England. A peculiarity of the order was that convents for monks and nuns formed part of the same establishment, but the greatest care was taken to keep the two separate. All the religious obeyed strict rules. GILBERT was a friend of the great St. BERNARD, and acted on his advice in all the arrangements for the new order. Great as BERNARD was in oratory and dialectics, he was indifferent to whatever was artistic. The Gilbertian churches were consequently of a more severe type than the Cistercian. In the remains which have survived this is apparent. Moreover, although the Gilbertian canons enjoyed many privileges, poverty was one of their characteristics. The principal house was at Sempringham. By the co-operation of Mr. ST. JOHN HOPE and Mr. H. BRAKSPEAR a plan of one of the priories is given in the new book, "S. Gilbert of Sempringham and the Gilbertines," by ROSE GRAHAM, F.R.Hist.S. (London: ELLIOT STOCK), and it suggests the peculiar arrangement by which two convents could be contiguous and yet independent. In the churches a wall was carried through the entire length from east to west, and at Walton it was 5 feet in thickness. In the nunnery the window through which the sisters spoke to their relations was "of the length of a finger, and hardly of a thumb in breadth." Under the circumstances, it is not possible to have a complete account of the buildings, but in Miss GRAHAM'S volume there is much that is interesting about the life in an order whose members offered no resistance to the scheme of HENRY VIII. for their dissolution.

FRENCH circumlocutionism is not far behind the English variety in absurdity. One curious case has been lately exhibited in connection with a project for a theatre which it was proposed to erect in Paris on a site bounded by the Boulevard des Capucines, the Place de l'Opéra, the Ruës 4-Septembre and Louis le Grand. The theatre was to accommodate about 600 people, and the plans were duly prepared. M. MORTIER, the projector, then applied to the prefecture of police and the prefecture of the Seine for permission to erect the building. In reply he was told he was at liberty to construct a theatre, or not to construct one, as he preferred. Not the least objection would be made to a theatre of the kind represented on the plans. The Commission of Security and Hygiene would simply reserve the right to prohibit the public from entering if the building did not satisfy the Commission. It would involve too much trouble to the officials if the plans had to be examined. Perhaps they might be puzzling, but a building is an object-lesson which it is easy to understand. If M. MORTIER will undertake the risk of constructing the building on such indefinite terms, he will show himself courageous as well as regardless of money.

THE castle of Pau has interest for Frenchmen, for in it HENRI QUATRE, who, all things considered, is the most admired of their kings, was born in 1553. From its position it becomes a picturesque object, while it is also an example of fourteenth-century construction. The donjon was erected in 1375, and, according to the contract deed, GASTON PHÆBUS, Comte de FOIX, agreed to furnish the bricks that were required for the walls. In spite of the regard for HENRI IV. the castle was sacked by the Revolutionists in 1793. Afterwards it was used as a barrack. The restoration of the castle was undertaken by LOUIS PHILIPPE, and at great expense he endeavoured to replace the decorations. The walls of the principal rooms were

hung with tapestry. Among the pieces are four representing scenes in the life of St. JOHN. They are of such splendid quality they were taken to Paris in order to form part of the decoration of the Petit Palais during the International Exhibition. They were afterwards sent to the Louvre. The municipal council and people of Pau protested against the breach of faith on the part of the Government, and with so much effect, the tapestries have been sent back to the old castle. In the present state of France the Ministers cannot afford to lose the support of a much less important place than the ancient capital of Navarre.

A CONGRESS of architects, surveyors and engineers was recently held in Melbourne. The most important business transacted was the discussion about the selection of a site for the contemplated Federal capital. The resolutions adopted were as follows:—"That in order to secure the best possible position, before any site be decided upon for the Federal capital, an independent report be obtained from a commission comprising members of the engineering, architectural and surveying professions, together with medical and business experts. That it is important the Federal capital should be laid out in the most suitable manner possible; to avoid the mistakes made in many other cities by preserving existing buildings it is desirable that for any site selected all buildings that would in any way prevent the adoption of the most perfect plan should be removed." The planning of Washington in the United States was not sufficiently considered after the Revolutionary war, and the consequence is that the buildings in the "city of magnificent distances" are not seen to advantage, and any alteration of the streets would be too costly an experiment to undertake. The Australian Governments will be wise if they derive a lesson from the American failure.

IF the report of the commission appointed by the General Assembly to consider the state of Blackbraes Church can be taken as applying to other churches in Scotland, it would be well if a second Mr. CARNEGIE were to arise to provide funds for reparations. The worshippers in the Blackbraes Church might as well perform their devotions in the open air. Although, no doubt, it is considered an advantage to be able to contemplate the sky through the holes in the roof, on wet Sabbaths the congregation have to protect themselves with their umbrellas. Since the church was erected no effort has been made to find substitutes for any slates that may have fallen, or to repair any defects in the building. There was no one who could deny the neglect, which was described by one of the committee as a disgrace to any Christian body. Reparation now would be so costly, it is judged by some members to be more economical to erect a new building, and at present the subject of temporary accommodation is engaging the attention of a committee.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: FROM ST. RICHARD'S WALK.

EMBLEY PARK, NEW ENTRANCE HALL.

THIS drawing, which was hung in the Royal Academy Exhibition two years ago, shows the new entrance hall recently carried out to this house, together with extensive internal alterations. The new hall was formed by taking out the floor over and throwing it up two storeys in height, with a new staircase at one end. The whole of the joinery work is in wainscot, and was executed by Messrs. NORMAN & BURT, of Burgess Hill, Sussex. The architect was Mr. H. O. CRESSWELL, of 17 Buckingham Street, Adelphi, W.C.

NEW TECHNICAL SCHOOL AND EXTENSION OF MUSEUM, LIVERPOOL.

CASTLE GROVE, LEEDS: DINING-ROOM.

STAINED GLASS IN ENGLAND SINCE THE GOTHIC REVIVAL.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays among French Cathedrals," &c.

A BRIEF REVIEW OF ECCLESIOLOGICAL PROGRESS, 1855 TO 1875.

(Continued from page 404, vol. lxxv.)

HAD it not been for his untimely decease—accelerated it is said by grief at the rejection of his statues of the Latin Doctors from the north porch of Bristol Cathedral—Redfern might have become one of the greatest Christian sculptors of the age. This is apparent in the groups composing the reredos of Gloucester Cathedral, in the statues on the western façade of Salisbury, in the reredos of the same cathedral, in the group of the Resurrection within the tympanum of the doorway to the mortuary chapel at Sherborne, and above all, perhaps, in the reredos of St. Andrew's, Wells Street, erected between 1865 and 1868, from the designs of Street, and most probably on the motif of certain great Spanish retabula which that architect had then lately returned from studying.

It was Rev. Benjamin Webb—co-founder of the Ecclesiological Society and third vicar of St. Andrew's, and whose

colouration of this reredos at St. Andrew's, Wells Street, was pressed by Mr. Bodley, but to this course Mr. Webb always entertained a strong objection, and rightly, seeing that the groups are of alabaster.

In the case of the reredos at St. Augustine's, Haggerston,* a work of singular beauty from the designs of Mr. Woodyer and the chisel of Mr. Thos. Nicholls, the recent application of colour under the direction of Mr. R. A. Briggs, F.R.I.B.A., was an absolute necessity, five-and-thirty years of accumulated smoke and dirt having so begrimed the stone as to render futile either scraping or cleaning. At present the hues of this colouration rather overpower the surroundings, but time and the atmosphere of north-east London will do much towards toning them down to a soberer key.

One of the most important and extensive works in the department of decorative sculpture undertaken in England since Mediæval times is that upon the west front of Lichfield Cathedral, which had been completely cased in Roman cement by Bernasconi between 1820 and 1822.† Some ameliorations were effected here in 1867-68, when the present west window was inserted by Sir Gilbert Scott in lieu of one, debased certainly, but not without character, and dating from the time of Charles II. Early in the seventies a project had been formed for effecting a more complete restoration of the façade and for filling its almost entirely denuded niches with statuary upon a well-considered and carefully prepared scheme of iconography.



THE REREDOS, ST. AUGUSTINE'S, KILBURN. (J. L. Pearson, Architect. Thos. Nicholls, Sculptor.)

taste convoked an assemblage of instrumenta which invest that early Tractarian church with an interest apart from its primary one, and that was not inconsiderable—who discovered Redfern. This was during the fifties, when Mr. Webb held his first benefice—St. Luke's, Sheen—in a limestone district of Staffordshire which had already produced Chantrey. Although a stranger to any carving, Redfern was found by the Vicar of Sheen amusing himself with modelling in the round in alabaster from cuts in the *Illustrated London News*. Finding the youth had some genius he introduced him to Mr. Beresford Hope, and through the united instrumentality of these two vigorous pioneers of the Gothic movement, the future sculptor of the St. Andrew's, Wells Street, reredos was sent to London and placed with Mr. Clayton, so that when in 1862 Mr. Webb became vicar of St. Andrew's, and shortly after set on foot numerous works for the ornamentation and improvement of that somewhat gloomy edifice, he did not forget his former protégé when the amelioration and enrichment of its most sacred portion came under consideration. During the lifetime of Rev. Benjamin Webb the

The work—entrusted to four sculptors, Mr. Seale, Mr. Ingram, Mr. Bridgeman and Miss Grant—was commenced in 1877, and seven years later stood almost completed, an undertaking reflecting the greatest credit upon all concerned

It would prolong this history to an interminable length were a catalogue *raisonnée* of all the works in decorative sculpture executed for ecclesiastical purposes during this busy epoch of the Gothic movement to be given. Yet it would be unpardon-

* Illustrated and described in *The Architect*, Sept. 21, 1900.

† With the exception of four or five effigies upon the north-west tower, and which can readily be distinguished from the modern sculpture by their darker hue, all the imagery that had been defaced by the Puritans during the siege was removed from the west front of Lichfield Cathedral in 1749. Bernasconi's work included a row of seated figures of kings in the series of arcades extending across the façade immediately above the three doorways, and standing effigies of the Virgin and Child and four other saints against the shafts of the recessed central portal. Although undertaken with the best intentions, the work was wretched and purely conjectural; its removal, therefore, upon the commencement of the true restoration of the façade, was by no means to be regretted.

able to omit mention of such works as Mr. Nicholls's four groups from the infancy of Our Lord, which, designed by William Burges, form the reredos in Waltham Abbey church; the same sculptor's recumbent effigies of St. Andrew's, Wells Street, second incumbent, Rev. Jas. Murray—an Italianising Pointed recessed tomb in the south aisle, also designed by Burges; the reredoses in St. Augustine's, Kilburn, and the chapel of the House of Mercy at Clewer—characteristic designs of Mr. Pearson and Mr. Woodyer respectively—both from Mr. Nicholls's ateliers; Mr. Pfeiffer's bas-relief of the "Conversion of King Ethelbert" in the chapel of St. Augustine's College, Canterbury; Mr. Theed's beautiful *coenacolo* in statuary marble above the altar of St. Saviour's, Croydon; some Early English arcading from Mr. J. K. Colling's designs at the east end of the pseudo-Gothic St. Mary's, Somers Town; Mr. Boulton's work in Worcester Cathedral; and Mr. Geflowski's tier of niched figures forming the reredos in All Souls College Chapel, Oxford, both these last-named works being restorations of, and supplementary to, ancient existing remains.

Streater, who enjoyed much celebrity as a court painter under the Merry Monarch, was commissioned to paint a mural picture of the "Last Judgment" in oil of turpentine, and although it is recorded that the carved oaken *misereres* were to be "altered and made suitable," little damage seems to have been done in this direction. John Evelyn, who saw the picture shortly after its completion, declared it to be "too full of naked for a chapel," and Baskerville, who, visiting the building some fifteen years later, described it as a "very good chappel, pav'd with black and white marble," noticed that "on ye wall at ye east ende is painted ye Resurrection, among the rest old Chichele rising out of his tombe. But the colours have now lost much of their beauty, and I believe people in these dayes have not the skill to paint on walls as in former times." Streater's painting remained only until early in the eighteenth century, when it was replaced by one representing the "Apotheosis of Chichele," by Sir Jas. Thornhill. An altar-piece, with its pediment supported by Corinthian pillars coupled, was filled in 1770 with a "Noli me Tangere," by Raphael Mengs. A view in Ackermann's "Oxford" (1814)* shows the appearance presented by



THE REREDOS, ALL SOULS COLLEGE CHAPEL, OXFORD.
(Restored by Geflowski under the direction of Sir Gilbert Scott.)



THE REREDOS, OXFORD CATHEDRAL.
(G. F. Bodley, Architect.)

The accompanying illustration of the reredos in Archbishop Chichele's graceful chapel of All Souls, built on the same plan as those of New and Magdalen, and, like them, destitute of an east window owing to the contiguous hall, precludes a lengthened description of this the most beautiful work of its kind in England. A few words, however, relative to its discovery and restoration may not be uninteresting, merely premising that, the photograph having been taken about twenty years ago, the bare portion of walling between the group of the Crucifixion and the altar has since been filled with a retabulum of three groups in sculpture. This glorious work, which stood completed in 1493, was, little more than a century later, pitilessly defaced by the Reformers and its niches despoiled of their effigies. Thus it remained until 1665, when during the wardenship of Dr. John Meredith the chapel was "remodelled," that is to say, the hammer-beam roof was concealed by a stucco ceiling panelled, and the mutilated fifteenth-century reredos masked by a coating of mortar and plaster, upon which

All Souls College Chapel until 1872, when Sir Gilbert Scott was called in to superintend its restoration, as far as possible, to its pristine fifteenth-century form. The Caroline ceiling of 1665 being removed the exquisite hammer-beam roof was disclosed, and on denuding the east wall of Thornhill's and Streater's paintings, the mutilated reredos was brought to light—a discovery "causing no little excitement both in and outside Oxford, and even in the prosaic business reports of the committee can be read the thrill of surprise and delight inspired by this unlooked-for revelation. But the discovery was terribly embarrassing; much money had already been spent; to bring the chapel back to its original form meant an outlay from which the most ardent Mediævalist might well shrink. At this point Lord Bathurst saved the situation 'by expressing his wish to restore the reredos at his own expense.' A fresh appeal, stimulated by this munificence, was made to, fellows and quondams, with the result that,

* The hammer-beam roof shown in Ackermann's view must have been "restored in imagination."

under Sir Gilbert Scott's direction, by 1879 the chapel took the form so familiar to every visitor to-day. . . . In the features of the reredos figures the sculptor has 'immortalised' many of the then fellows, while a well-known college joke tells how one member, anxious for a like privilege, was informed the only vacancy left was amongst 'the lost souls.' (Grant Robertson.)

Next to that of All Souls, the most beautiful and successful reredos in a city whose ecclesiastical treasures present an *embarras de richesses* to the visitor, is that placed two-and-twenty years ago in the cathedral by an anonymous donor. The general design of the work due to Mr. G. F. Bodley is based upon a study of the best fifteenth-century examples, its triptych-like character being most refreshing after the formality of too many altar-pieces set up previously in our cathedrals and churches. The effigies, carved in rosso antico by Mr. Brindley, jun., are—to the left of the Crucifixion, St. Michael in armour and St. Stephen in albe and dalmatic, and to the right St. Augustine vested in cope and mitre, and St. Gabriel. Rich side hangings materially enhance the effect of the reredos, besides assisting to impart an appearance of warmth to this end of the building.

Of altar-pieces executed in mosaic those in Westminster Abbey by Messrs. Clayton & Bell, completed in 1866 under the superintendence of Sir Gilbert Scott,* and that in Chester Cathedral a little later by Messrs. Heaton, Butler & Bayne, from Sir Arthur Blomfield's designs, deserve mention. Both representing the Last Supper are very beautiful in conception and design, but less suited in merely historical treatment for this position in a church than for a refectory, as, for instance, in the famous *cenacolo* at Milan.

Tryptichal and painted altar-pieces were not so extensively used as they have been of late, but the few produced during the sixties and seventies were of a very high order; one of them indeed, that in Llandaff Cathedral, finished in 1862 by Dante Gabriel Rossetti, and representing in a subdued pre-Raphaelite style "Christ sprung from high and low as united in the person of David, who was both shepherd and king, and worshipped by high and low at His birth," having attained a wide celebrity for excellence of design and originality of treatment.

We must not forget Sir Frederic Leighton's mural painting of the parable of the Ten Virgins above the altar of Lyndhurst Church, which, though it may not seem to some to accord from an architectural standpoint, is of its kind a remarkably fine work; nor Sir Edward Burne-Jones's altar-piece in St. Paul's, Brighton; nor the triptych by Mr. N. H. J. Westlake in St. Mary's, Aberdeen, which, in many particulars pre-Raphaelite in feeling, possesses great dignity and character, especially observable in the figures of The Crucified, St. Mary and St. John. Indeed, the whole design is pervaded by a calm severity, yet a richness and warmth, which latter qualifications caused it to come as a welcome relief from the, in too many instances, unsatisfactory stone editions of the same feature. An oblong stone slab, painted by Messrs. Lavers & Barraud, with a representation of the Last Supper, in St. Michael's, London Fields, Hackney, falls into this category.

Mr. Somers Clarke, junior's, church of St. Martin, Brighton, was equipped shortly after its completion (c. 1875) with a painted reredos, which for size and gorgeousness defies description while Mr. Bodley's church of St. Michael at the opposite extremity of the town had received somewhat earlier a triptych altar-piece, greatly enhancing the already beautiful and solemn sanctuary of that now, alas! spoilt church; while Messrs. Clayton & Bell's altar-piece, formerly above the high altar, but now in the side chapel, of St. John Divine, Kennington, consisting of a cinquefoliated centre and triptych wings, must be considered one of the most successful works of its class.

The Yarmouth Town Council have unanimously appointed Mr. Herbert A. Millington, deputy town clerk of Richmond, to be town clerk of Yarmouth, at a salary of 600*l.* a year, rising to 800*l.* There were twenty-seven candidates.

* For the carved cornice of this *cenacolo*, as well as for the statues of Moses, St. Peter, St. Paul and King David in the niches, Mr. Henry Hugh Armstead, R.A., was responsible. A reredos by this gifted sculptor was executed about the same time for St. Mary the Great, Cambridge.

JOHN HOPPNER, R.A.

THE payment of the unprecedented sum of 14,050 guineas for a three-quarter length portrait of Lady Louisa Manners, afterwards Countess of Dysart, by John Hoppner, has revived the name of the artist. No less remarkable was the price, 8,000 guineas, given for a full length of a Mrs. Farthing, which has been attributed to Beechey, Shee and Owen, but is now assumed to be a work by Hoppner. The liberality of the dealers may be interpreted as a sign that Hoppner is no longer to be neglected, but is to become a source of profit. As his career must, under the circumstances, have interest, we reprint Allan Cunningham's biography of the painter:—

John Hoppner was born in London some time in the summer of 1759. There is a mystery about his birth which no one has ventured to explain: all that is known with certainty is that his mother was one of the German attendants at the royal palace. The king caused the child to be carefully nursed and well educated; when he grew up, as his voice was sweet and melodious, he was made one of the choristers in the royal chapel. All this benevolence was misunderstood. George III. was pious and generous, and such acts of kindness became him, but slanderers were not wanting to insinuate that His Majesty had good natural reasons for all this tenderness, and it is said some such gossips actually possessed the boy himself with a notion of very lofty parentage. I believe there is no doubt that when he grew up he was willing enough to have it understood that he owed something more than his nursing and education to the throne. This was most probably the mere ruse of a shrewd man, who felt how much such a surmise would help his fortune; but it received some sort of countenance from the very active patronage of the Prince of Wales (George IV.) who supported him against the rising fame of Lawrence and Owen, and the settled reputation of Opie, and crowded his studio with princes, peers and fine ladies.

Of the boyish studies of Hoppner we have heard little on which we can rely. He availed himself of the advantages held out by the Royal Academy, and entering a probationer with his chalk and paper, ascended slowly and systematically through all the steps required till, with paint on his palette and a brush in his hand, he contended for the highest prizes of the institution. With such success did he study, and so fortunate was he in his sketches and his early attempts, that before his twenty-fourth year he was looked upon as one likely to become great in landscape, and who already painted heads in a way worthy of a more established name. As soon as it was safe as a matter of taste to befriend him, he found patrons, and powerful ones. Mrs. Jordan sat to him in the character of the Comic Muse, supported by that

— goddess fair and free,
In heaven yclep'd Euphrosyne,

to whom the artist confided the task of repelling the advances of a satyr. We know not what might be meant by this; but the work was much liked. The fair dame sat again as "Hippolite." Another was a lady of quality shadowed forth under the not very flattering name of a Bacchante; but as the colours were glowing and the face lovely the audacity of the name might be forgiven. Then followed the portraits of the Duke of York, of his duchess, of the Prince of Wales and the Duke of Clarence, afterwards King William IV., with ladies of quality and noblemen not a few and gentlemen without number. His time, however, was not as yet so wholly occupied with sitters as to hinder him from continuing to work in what artists technically call the "fancy way." A Sleeping Venus, a Belisarius, Youth and Age and other productions, half natural and half ideal, belong to his early days.

All this, and much more, had befallen him before his thirtieth year; and as his colouring was rich, and his style of portraiture captivating to the vain side of human nature, his commissions increased in number, money poured in and fame grew and spread. The light of the Prince of Wales's countenance was of itself sufficient to guide the courtly and the beautiful to his easel. Suffice it to say that before he was forty years of age he had been enabled to exhibit no less than fifteen ladies of quality, for so are they named in the catalogues, a score of ladies of lower degree and noblemen unnumbered. By this time another court star had arisen destined to outshine that of Hoppner, though some at that period, willing to flatter the older practitioner, called it a meteor that would but flash and disappear; we allude to Lawrence. Urged upon the Academy by the king and queen, and handed up to notice by royal favour, this new aspirant rose rapidly in the estimation of the public; and by the most delicate flattery, both with tongue and pencil, became a formidable rival to the painter whom it was the prince's pleasure to befriend. The factions of Reynolds and Romney seemed revived in those of Hoppner and Lawrence. If Hoppner resided in Charles Street, at the gates of Carlton House, and wrote himself "portrait painter to the

Prince of Wales," Lawrence likewise had his residence in the court end of the town, and proudly styled himself, and that when only twenty-three years old, "portrait painter in ordinary to His Majesty." In other respects, too, were honours equally balanced between them: they were both made Royal Academicians; but in this youth had the start of age—Lawrence obtained that distinction first. Nature, too, had been kind—some have said prodigal—to both; they were men of fine address and polished by early intercourse with the world, and by their trade of portrait-painting could practise all the delicate courtesies of drawing-room and boudoir; but in that most fascinating of all flattery, the art of persuading with brushes and fine colours very ordinary mortals that beauty and fine expression were their portions, Lawrence was soon without a rival.

The preference of the king and queen was for a time balanced by the affection of the Prince of Wales. The latter was supposed to have the best taste, and as he kept a court of his own, filled with young nobility and all the wits of that great faction known by the name of Whig, Hoppner had the youth and beauty of the land for a time, and it cannot be denied that he was a rival every way worthy of contending with any portrait-painter of his day. The bare list of his exhibited portraits will show how and by whom he was supported. To twenty ladies of quality, who lent their looks but withheld their names, we may add the following:—1, the Countess of Clare; 2, the Hon. Miss Chetwynd; 3, Lady Anne Lambton; 4, Countess of Oxford; 5, Hon. Mrs. Edward Bouverie; 6, Mrs. Whitbread; 7, Miss Grimstone; 8, Lady Grenville; 9, Lady Mildmay; 10, Lady E. Bligh; 11, Miss Cholmondeley; 12, Lady Mulgrave; 13, Hon. Miss Mercer; 14, Mrs. Jerminham; 15, Mrs. Manning; 16, Miss St. Clair; 17, Countess of Essex; 18, Lady Melbourne; 19, the Countess of Sutherland. It is well said by Williams, in his "Life of Lawrence," that "the more sober and homely ideas of the king were not likely to be a passport for any portrait-painter to the vanity of ladies; and hence Mr. Hoppner for a long time almost monopolised the female beauty and young fashion of the country." He had his share, too, of the men. In the period of time (six years) over which the list we have given of beauty extended he had the following male sitters:—1, the Bishop of Durham; 2, Bishop of Carlisle; 3, Duke of Grafton; 4, Lord Camden; 5, Sir Arthur Wellesley; 6, Sir William Scott; 7, Right Hon. H. B. Frere; 8, Lord King; 9, Right Hon. T. Grenville; 10, Lord Hawkesbury; 11, Right Hon. C. Long; 12, Sir Samuel Hood; 13, Earl of Essex; 14, Sir George Beaumont; 15, Earl Spencer; 16, Earl St. Vincent; 17, Earl of Chatham; 18, Duke of Rutland; 19, Archbishop of York; 20, the Prince of Wales. The Duke of York's portrait was painted twice, the Duke of Clarence thrice, and the Prince of Wales thrice.

This rivalry of the court painters continued for a time in the spirit of moderation; that spiteful courtesy which the world teaches,

Willing to wound, and yet afraid to strike,

was visible between them. Lawrence, the gentler and the smoother of the two, kept silence longest; the warm nature of Hoppner broke out at last. "The ladies of Lawrence," said he, "show a gaudy dissoluteness of taste and sometimes trespass on moral as well as professional chastity." For his own he claimed, by implication, purity of look as well as purity of style. This sarcastic remark found wings in a moment, and flew through all coteries and through both courts; it did most harm to him who uttered it; all men laughed and then began to wonder how Lawrence, limner to perhaps the purest court in Europe, came to bestow lascivious looks on the meek and sedate ladies of quality about St. James's and Windsor, while Hoppner, limner to the court of a gallant young prince, who loved mirth and wine, the sound of the lute and the music of ladies' feet in the dance, should to some of its gayest and giddiest ornaments give the simplicity of manner and purity of style which pertained to the quakerlike sobriety of the other. Nor is it the least curious part of this story that the ladies, from the moment of the sarcasm of Hoppner, instead of crowding to the easel of him who dealt in the loveliness of virtue, showed a growing preference for the rival who "trespassed on moral as well as on professional chastity." After this Lawrence had enough of gentle sitters. It must not be supposed that he heard Hoppner's injurious words with patience; he vindicated the professional as well as moral purity of his style in firm and temperate language; but he was on the winning side, and could the better take moderation for his motto.

The king all this time was of the Lawrence faction, for which various reasons have been assigned. Hoppner was an enthusiastic admirer of Reynolds, and when young had filled the palace with praises of his kindness as a man and his genius as an artist. His Majesty never liked Sir Joshua. This offence was trebled when Hoppner, resenting perhaps the coldness with which his earliest works were received at St. James's, openly joined the party of the Prince of Wales

and added his wit, which was ever ready, and his influence, which was on the rise, to the ranks of Whiggism. This was, perhaps, less than prudent in a man of genius, who, born for his country, should not give himself up to either of those parties whose fierce hostility had so long torn the island; but it was doubly imprudent in one who had become a husband and a father, and who had to win bread and fame from the patronage of the population at large. When the crop of handsome Whigs was reaped, he could not put his sickle into the ripe harvest of the Tories. Lawrence, meantime, with a prudence which Hoppner called hypocrisy, was silent in the matter of politics, belonged to neither faction, and so kept his easel ready and his colours in order for all.

Those who merely consider Hoppner as a limner of men and women's heads, who dashed them off at a few sittings, pocketed the price, replenished his palette, and prepared himself for any new-comer, do his memory injustice. He was a fine free-spirited manly fellow, overflowing with wit and humour, inconsiderate in speech, open-hearted, and as well acquainted with the poetry and history of his native country as the most gifted of her sons. The fame of his conversational powers survives among his companions. He was considered one of the best-informed painters of his time, and in the company of the learned, not less than among the gay and the noble of that day, he was easy and unembarrassed. Amongst his brethren of the easel he was still more at home, and made himself welcome by his ready wit and various knowledge. It was sometimes his pleasure, in the midst of a serious discussion, to start aside into the whimsical or the humorous, and in the midst of boisterous mirth he would as suddenly return to seriousness. Few could be quite sure when they had his sympathy, except, indeed, in the hour when it was really wanted—for then it failed not. He loved to surprise his friends, and if he raised a laugh, seemed to care little whether it was for him or against him. He and Edridge and two other artists once went into the country, quartered themselves at an inn where the ale was good, and as a fair was held in the neighbourhood, they walked out about sunset, when merriment begins, and mingled in the crowd. There was much din and drollery. Hoppner addressed his companions:—"Listen, you have always seen me in good company and playing the courtier, and in fine took me for a damned well-bred fellow and genteel withal. A mistake, I assure you. I love low company, and am a bit of a ready-made blackguard—see." He gave his coat a queer pull, his neckcloth a twitch, knocked his hat awry, and putting on a face of indescribable devilry started into the midst of a mob of reeling rustics, and in a moment was "hail fellow, well met," with the wildest of them. But rough gambols and homespun wit seemed not enough for his new character; he edged himself into a quarrel with a brawny waggoner, and had a capital set-to with the fists, in which the latter, though a powerful boor and withal a practised boxer, was roughly handled. He gave his antagonist half a guinea, set his hat and neckcloth right, and retired amid the applause of the crowd.

Though Hoppner confined himself chiefly to portraiture, he was not only skilful in landscape, but a most ardent lover of the higher branches of the art. He was not one of those who imagined when he painted a portrait he had done something historical, and who recognised in his likenesses of the ladies of the hour the great leading principle and moral and intellectual loveliness. He was an admirer, too, of the labours of such of his brethren as went to poetry and history for their subjects, and the following letter to Cumberland concerning Stothard's *Canterbury Pilgrimage* will show how justly he could feel and how well he could express himself. It is dated May 30, 1807:—"This intelligent group is rendered still more interesting by the charm of colouring, which, though simple, is strong, and most harmoniously distributed throughout the picture. The landscape has a deep-toned brightness which accords most admirably with the figures; and the painter has ingeniously contrived to give a value to a common scene and very ordinary forms that would hardly be found by unlearned eyes in the natural objects. He has expressed, too, with great vivacity and truth, the freshness of morning at that season when nature herself is most fresh and blooming—the spring; and it requires no great stretch of fancy to imagine we perceive the influence of it on the cheeks of the fair Wife of Bath, and her rosy companions, the monk and friar. In respect of the execution of this very pleasing design, it is not too much praise to say that it is wholly free from that vice which painters term manner; and it has this peculiarity beside, which I do not remember to have seen in any picture, ancient or modern, namely, that it bears no mark of the period in which it was painted, but might very well pass for the work of some able artist of the time of Chaucer. The effect is not, I believe, the result of any association of ideas connected with the costume, but appears in primitive simplicity and the total absence of all affectation either of colouring or pencilling."

Hoppner was one of many artists who imagine they behold in the high prices and ready sale of the works of the great

Italian masters a settled prejudice on the part of the public against all works of living men of modern times. He was in the habit of saying, when he looked upon a fine work of his own day, "Ay, it is a noble picture; but it has one damning defect—it is a modern one. Prove it, sir, to be but 200 years old, and from the brush of a famous man, and here's 2,000 guineas for it."

The time was, however, at hand when Hoppner was to be no more moved in spirit either by the success of Lawrence in portraiture or by the general preference of the public for the historical pieces of long buried masters. A visible change had for some time appeared in his looks; his conversation had grown rambling and incoherent; few works came from his hand; and though his skill seemed not impaired he wrought, at best, by fits and starts. A gentleman has told me that towards the close of Hoppner's days he carried a message to him from the Prince of Wales concerning a picture then on his easel. He found the painter violently agitated; he had his palette in his left hand, and was dipping his pencil in the colours, and running to and fro, giving a touch here and a touch there to the picture. He turned suddenly round, and said in a tone of great mildness, "Sir, a thought struck me as you came in; I was unwilling to lose it; the picture has the benefit of it, and that must excuse my seeming rudeness to you." An anecdote related by Northcote is characteristic. "I once went with Hoppner to the hustings to vote for Horne Tooke; and when they asked me what I was, I said, 'A painter.' At this Hoppner was very mad all the way home, and said I should have called myself a portrait-painter. I replied the world had no time to trouble their heads about such distinctions."

During the early part of the year 1810 it was generally known that the health of Hoppner was declining, and it was the feeling of his friends that he had not long to live. His wife was careful and affectionate; his sons were growing up and their minds expanding, and he loved, as all fathers love, to talk of the hopes he had in them—hopes amply fulfilled, though he did not live to see them. It was thought that want of success in some later works weighed on him a little, but when the constitution begins to give way there is no need to press the body down with imaginary ailments. He felt that internal feebleness and sinking of mind against which all medicine is weak and kindness of friends unavailing. Many inquirers came, and kind ones, one among the most anxious, it is pleasing to know, being Lawrence, who went repeatedly. Hoppner, it is said, saw in such visits more of joy at his approaching death than of true sympathy for the sorrows of a brother. But this, I doubt not, was unjust to Lawrence, who, amidst too much of the silken show of courtesy, was naturally kind-hearted and of a generous nature. He shall speak for himself; these are his words to a friend:—"You will be sorry to hear that my most powerful competitor—he whom only to my friends I have acknowledged as my rival—is, I fear, sinking into the grave; I mean, of course, Hoppner. He has always been afflicted with bilious and liver complaints, and to these must be greatly attributed the irritation of his mind, and now they have ended in a confirmed dropsy. But though I think he cannot recover, I do not wish that his last illness should appear to be reported by me. You will believe that I sincerely feel the loss of a brother artist, from whose works I have often gained instruction, and who has gone by my side in the race these eighteen years." Hoppner did not live long after the writing of this letter; he died in the beginning of April 1810 in the fifty-first year of his age.

The worth of his works has been widely acknowledged; he was one of those painters who, with powers and skill for the higher line of art, are compelled by omnipotent taste to labour in the lower line, where employment is certain and recompense sure. Yet labourer in the humbler department of portraiture though he was, he strove to unite with mere likeness the higher qualities of art, and in that simplicity and austere composure of style which he claimed for himself, when he satirised the loose touches of Lawrence, he beheld a closer affinity to the spirit and sentiment of those noble works which he set up as his models. Yet Hoppner was no blind worshipper of the gods of others; his chief deity was nature—nature exalted and refined; he sought for elegant simplicity of form and poetic loftiness of sentiment, and often found both.

BRONZE RELICS IN BRIGHTON.

WHILE digging foundations for a house in Bonchurch Road, Brighton, the workmen discovered, says the *Sussex Daily News*, two fine bronze bracelets belonging to the Bronze Age. The bracelets are of a design which might recommend itself to any modern jeweller for grace and simplicity of form, though it would be as well to reduce the design to a lighter weight, for although these ornaments were apparently worn by ladies of the Bronze Age

with as small, if not smaller hands and wrists as any tennis belle of the present day, they are no less than a pound in weight. They would appear to be of special interest to Brighton ladies, since all the recorded examples of these bracelets, which, however, are very rare, have been discovered in the vicinity of Brighton, the ancient camp at Hollingbury Hill being about the centre of the area of discovery. These two bracelets are technically described as having been "formed from a long bar of bronze (one being quadrangular and the other circular in section), doubled over so as to leave a broad loop to the middle and then curved round so as to form the bracelet, the two ends of the bar being bent over to form hooks which engage the centre hoop, and which, from the stoutness of the metal, must have been immovable when fixed."

They have been found ornamented with minute serrations at the angles and engraved with a herring-bone design. Some of the finest examples of the art of the Bronze Age have been discovered at and near Brighton, but the fine amber cup in the town museum and these bracelets (of which the museum, unfortunately, does not possess an example), are among the finest examples yet discovered in England. Some years ago two pairs of bracelets of the same design were discovered at Hollingbury Hill, and formed part of the collection of the late Dr. G. Mantell. These seem to have been secreted within a hole beneath the turf by some Brighton belle many hundreds of years before the Christian era. They were then, no doubt, as bright as gold, and the fair owner had arranged them lovingly and carefully around a fine twisted bronze necklet or torque, and so left them in their long home amid the wild thyme of the Sussex Downs. The recent discovery of similar bracelets led Mr. Dawson to hope that other ornaments might have been associated with them, and a search was made, an adjoining house being partially undermined for the purpose, but, unhappily, without success. Brighton seems to have been as popular, if not so populous, in the Bronze Age as it is in the age of "Hardened Steel." Quite recently no less than one hundredweight of bronze axe-heads were discovered in excavating for a house in the Dyke Road at Brighton. All these, with the exception of a solitary example, found their way to a "marine store" in Brighton, and thence to the melting-pot.

THE RESTORATION OF BATH ABBEY.

THE Rector of Bath says:—The restoration of Bath Abbey has now reached a stage when help from outside the city and county is required. The restoration of the famous west front has already been completed. Of itself this work has been no small one. A front erected four centuries ago, containing some seventy figures, and representing Jacob's Vision at Bethel, accredited to a dream of Bishop Oliver King, might have meant an expenditure heavy indeed; but this has been avoided by the careful and conservative repair executed by the architect, Mr. T. G. Jackson, R.A. As it is, however, the cost of this and other necessary work is from 3,000*l.* to 4,000*l.* Funds are sought for further repairs, which the architect regards as urgently necessary. These are structural, and involve the restoration and in some cases rebuilding of some of the flying buttresses, which are so vital and beautiful a feature of the church. It is hoped that a sum of 5,000*l.* to 6,000*l.* will cover the whole of the present expenditure on the building. The historic associations of Bath Abbey date from A.D. 676; it was the scene of the coronation on Whit Sunday A.D. 973 of King Edgar, "an inauguration of the king of all the nations of England," who was crowned by Archbishops Dunstan of Canterbury and Oswald of York; next to Westminster Abbey it is said to be most famous for its monuments to the illustrious dead; and, in its present condition, it is quoted as a noble specimen of Perpendicular architecture and one of the very last great churches built in England previous to the Reformation.

SOCIETY OF ARTS CONVERSAZIONE.

AN ideal summer evening, a charming locale, and an ample and admirably arranged programme assured the success of the al-fresco soirée given by the Society of Arts in the gardens of the Royal Botanic Society on Friday last, when a numerous company assembled in the beautifully illuminated grounds and enjoyed the music discoursed by the bands of the H.M. Royal Artillery and Grenadier Guards. In the club-house the Royal Criterion Hand-bell Ringers and Glee Singers gave a pleasing selection of vocal and instrumental music, and a pastoral play was performed in a glade adjacent to the east lawn. An exhibition of rhododendrons was on view in a marquee in the gardens. In another was a magnificent display of growing and cut roses, shown by Messrs. Wm. Paul & Son, of Waltham Cross, while innumerable little tables were grouped in tents or in the open air, at which visitors could partake of refreshments while enjoying the music and watching the throng of promeneurs.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE following gentlemen have passed the Midsummer examinations:—

Preliminary.

Bagot, Walter Hervey, South Australia; Benjamin, Ashley Florian, London; Billings, Percival Upton, Sale; Birkett, Stanley, Manchester; Booth, Alfred, Barnsley; Bown, Harold Linley, Harrogate; Bray, Arthur George, Bolton; Brook, Tom Harvey, Holmfirth, near Huddersfield; Bulmer, Francis Holles, Woolwich; Burbage, James Herbert Ransome, Southampton; Burke, Martin Joseph, Dublin; Cartwright, Harry, Finchley; Chamberlain, Arthur, Newcastle-on-Tyne; Chaundler, James Herbert, Eastbourne; Cheate, Roland Henry, Burford, Oxon; Clay, Herbert, Gainsborough; Clifford-Smith, Wm., Poole, Dorset; Clissold, William, Minchinhampton; Cobbett, Guy Bernard, Addlestone; Collins, Alfred Francis, Windsor; Cooper, Charles Sydney, Gainsborough; Crabb, Henry Ralph, Exeter; Culley, Norman, Huddersfield; Curwen, Robert Babington, South Woodford; Dahl, John Love Seaton, Liverpool; Davidson, George Veitch, Paisley; Day, Victor Albert George, Old Aberdeen; Dick, Norman Aitken, Edinburgh; Dicks, Harold Edward, Cheltenham; Dod, Edwin James, Birkdale, Southport; Donnelly, Robert, Holywood, co. Down; Downs, Harry Beecroft, Guiseley, Yorkshire; Duncan, Alexander McLachlan, Perth, N.B.; Durston, Cecil Campbell, Weston-super-Mare; Eaton, Charles William, Leicester; Edwards, Sidney Albert, Essex; Ellis, Theodore Moorhouse, Hull; Fifoot, Louis Stanley, Cardiff; Gibson, George McLean, London; Gill, Charles Lovett, London; Gott, Joseph Harold, Margate; Gould, George Harry Bertram, Ipswich; Gutteridge, Reginald Fowler, Southampton; Gwynne, Gordon Iltydd, Boscombe; Hall, Stanley Alexander, London; Halliday, James Theodore, Plymouth; Hart, Francis James Watson, London; Hastewell, Robert Edwin, Haltwhistle; Hedges, Frank Russell, Wisbech; Higson, Herbert Walker, Bolton; Hill, Samuel Woods, London; Hird, Henry Dennis, Halifax; Hodges, William Ashford, Wimbledon Park; Holland, Harry Dawber, Pemberton, near Wigan; Holmfeldt, Arnold Pearson, Hull; Holt, Harold Guy, Bolton; Huddart, Richard Melvil Fane, London; Hunter, Robert Cameron, Edinburgh; Iron, William Stanley, London; Jackson, Walter, Hitchin, Herts; Jaques, Sydney, London; Jennings, Daniel Strachan, London; Johnson, William Herbert, Great Yarmouth; Jones, Frank Henry, Leicester; Jones, Percy Charles, Leicester; Joynes, William James, Bristol; Kerr, Thomas, Inverness; Keys, Hubert Percy, London; Körner, Theodore Walter Frederick, Sunderland; Lambert, Arthur Peplow, London; Langham, Claude Stephens, Leicester; Le Gassie, Arthur Henry, Plympton, Devon; Linnell, Henry Rupert, Leyton; Lloyd, John Willott, Taunton; Lynham, Arthur George, Bristol; Macdonald, Donald, Muir of Ord, Ross-shire; MacGeorge, Archie Clair, London; Macmillan, Alec Lowe, Southport; MacRae, Ebenezer James, Edinburgh; Marshall, Frederic, Stockport; Matley, James, Oldham; Mitchell, Daniel, London; Mitchell, James, Edinburgh; Mitchell, William Henry, Sale, Manchester; Morland, Geoffrey, London; Morran, Henry Stanley, Plumstead, Kent; Murray, George Cumbe, Stoke, Devonport; Murray, Robert Howson, London; Newton, Percy Gerald, Kingstown, co. Dublin; Noël, Joseph Hyde, Wakefield; O'Connell, Vincent James, Dublin; Paice, William, jun., Egham; Pearson, Ernest Walter, Bradford; Petch, Ernest Scott, Wakefield; Phipp, Reginald Arthur Hyatt, Devizes; Pinsent, Cecil Ross, London; Prentice, Robert Russell, London; Pryor, Ernest Langman, London; Pursglove, Archibald, Heaton Moor, near Stockport; Rainger, Herbert Thompson, Cheltenham; Reid, James, Glasgow; Rigby, Alfred, Manchester; Robinson, Kenneth Duncan Stuart, London; Roe, Cyril Kenneth, London; Rowe, Percy John, Marlow-on-Thames; Saunders, Francis Southouse Morley, London; Scriveners, Alwynne Twyford, Stoke-on-Trent; Smith, John, Alnwick; Smith, Walter John, Richmond, Surrey; Snow, Alan Leslie, Chislehurst; Stenner, William James, Bristol; Street, Arthur William, Birkenhead; Sturgess, Alfred Dawson, London; Taylor, Charles Norman, Prestwich Park, near Manchester; Thomas, Charles Samuel, Swansea; Thomas, Hugh, Swansea; Thomas, Percy Edward, Penarth; Thompson, James Osbert, Poppleton, near York; Thorp, Ralph Windsor, Headingley; Thunder, Charles, London; Travers, Wilfrid Irwin, London; Vardy, Charles Alfred Silver, Maidenhead; Vaux, Norman, London; Vincent, Edwin Arthur Joseph Augustus, Chertsey; Wagstaff, Alexander, Glasgow; Walker, Ewart G., London; Walker, Frank Hugh, Windermere; Walton, William Billington, Blackpool; Webster, Frank H., Norwich; West, James Grey, Cardiff; Wilson, Edward Latham, Southport; Wood, George Arthur, Bradford; Woodcock, Richard Stanley, Aldeburgh-on-Sea; Wren, Edward Lancelot, Leicester.

Intermediate.

The following have passed the intermediate examination in

order of merit as placed by the board of examiners:—Messrs. P. B. Dannatt; J. S. Brocklesby; Baxter Greig; E. G. H. Gunn; A. G. Maitland, Tain, N.B.; W. Greenwood, Blackburn; J. H. Belfrage; R. T. Longden, Burslem; E. P. Archer; Edgar Quiggin, Liverpool; Herbert Ryle, Newcastle-on-Tyne; C. F. Callow, St. Leonards-on-Sea; Herbert Black; T. F. Amery, Sheffield; W. E. A. Brown; J. A. Fletcher, Leicester; W. J. Delbridge; Sydney Bridges; H. P. Gordon; H. E. Rider; G. E. Elkington; Richard Wylie, Gateshead; G. M. Page, Lincoln; H. M. Pritchard, Cardiff; J. O. Raymond, Tring; G. S. Salomons, Manchester; Jordan Green, Birmingham; F. G. Newton; F. J. Toop, Lincoln; W. E. Brooks; H. Dru Drury; E. H. Walker; F. J. Lucas; R. J. Archibald, York; A. F. Warth, Birmingham; W. P. Watson, Coventry; I. A. Hossack, Banff, N.B.; A. N. Campbell; Joseph Boyle, Bolton; H. F. Buckley, Halifax; F. J. A. Corfield; Bertram Drummond, Fleetwood; E. F. M. Elms; F. J. Forster, Darlington; E. T. Goff, Lowestoft; L. A. Loades, Morpeth; H. J. Mauchip, Bristol; Stanley Salisbury, Harpenden; J. H. Shearer, Exeter; W. H. Watkins, Bristol.

The following have passed the final examination, qualifying for Associate R.I.B.A.:—John Percival Bishop, London; Wm. Mackereth Dean, Gravesend; Lionel Gordon Detmar, London; Leonard Wm. Ensor, Huddersfield; Chas. H. Gage, London; Leolin Chas. Gregory, London; John Percy Hall, London; Sidney Joseph Halse, London; Alex. G. R. Mackenzie, Aberdeen; Clement Stretton, Leicester; Edgar John Pullar, London; Raymond Cyril Wrinch, Ipswich; Fredk. Dare Clapham, London; Wm. Bruce Dawson, London; Ernest Godfrey Page, London; Cyril E. Power, London; Thos. Wilson Aldwinckle, London; C. H. E. Bridgen, London; Dean John Brundrit, Cheshire; H. Cayley, Cambridge; H. D. Day, Godalming; T. Norman Dinwiddy, Greenwich; K. Gammell, London; G. R. C. Harding, London; Chas. Llewellyn Hall, Lancs.; Abraham Holstead, Alnwick; Edw. Vincent King, South Shields; Arthur Pickup, Blackburn; Louis Edw. Pryke, Surbiton; Arthur Henry Roe, London; Reg. Bertie Rowell, London; John Geo. Walker, Wakefield.

DRURY LANE THEATRE.

THE alterations which are now being carried out, from the plans of Mr. Philip Pilditch, at Drury Lane Theatre will have the effect of considerably improving the interior of the house by the time the autumn play is produced. The first and grand circles are being reconstructed in fireproof materials, and the timber beams, &c., replaced by steel girders, carrying a concrete floor, all the supporting pillars with the exception of a single row being done away with. In both these circles a new row of seats is to be added in front of those now existing, and this change, together with a rearrangement of the existing seats, will bring the total number of rows up to six in the grand circle and to seven in the first circle, the view from many of the seats being at the same time much improved. In the stalls, too, extensive alterations are being made. Two boxes on each side are to be abolished, and the space thus gained is to be filled with seats, two central gangways being constructed to facilitate ingress and egress. The accommodation of the stalls will in this way be increased by eighty-eight, to 462 in all. Improvements are also to be made in the remaining boxes on this level, and a new refreshment bar is to be added on the prompt side. Attention is also being paid to ventilation and heating, and a system has been adopted whereby electric fans pump in air, heated or cooled as may be necessary to maintain an equable temperature all over the house. To minimise the chance of the theatre being left in darkness owing to a breakdown or other accident, the wiring for the electric light is in duplicate, half the lamps being connected to the mains of one supply company and half to those of another, though, of course, there are switches which enable all the lamps to be fed from one supply if necessary. The cost of these changes, together with the redecoration of the house, is put at from 12,000*l.* to 15,000*l.*, a sum which brings up the total amount that has been expended on the theatre within quite recent years to 40,000*l.* or 50,000*l.*

THE TOTTENHAM EXCAVATIONS.

A LARGE party of the Essex Field Club on Saturday afternoon visited the excavations for the East London Water Company's new reservoirs at Tottenham and Walthamstow. When completed these reservoirs will double the storage capacity of the Company, raising it to 2,400,000,000 gallons. A locomotive, with three trucks fitted with seats, took the party over the bed of the reservoirs, and at various points Mr. Sharrock explained the engineering aspect of the

works, the diversion of the Lea from its old channel, and the formation of the new course. He mentioned incidentally that there was plenty of water in the river, and if the new reservoirs did not prove adequate it was proposed to construct others higher up the Lea Valley. The party then inspected the so-called Viking ship, which had been uncovered in what had been a backwater in the river channel at some period. The archaeologists of the party, however, were by no means satisfied that the ship had a rightful claim to anything like so high an antiquity, and it was considered that from 200 to 400 years was the greatest age that could be allowed. The discovery of fragments of coarse ware, certainly not earlier than the sixteenth century, in the same bed as the ship, and not far from it, supports this opinion. At this point Mr. T. V. Holmes, F.G.S., who knows the ground well, having visited it constantly during the last eighteen months, gave a practical demonstration of the shell marl and peat exposed during the course of the works, and pointed out evidences of the shifting character of the course of the old river. Another trip took the party to the offices, where in a shed near they saw the dug-out boat, about which there can be no doubt that it is Early British. It was found on a bed of fine sandy silt, mixed with fresh-water shells, apparently the bank of an old river. Within a hundred yards from it, and practically in the same bed, the workmen discovered several pieces of Roman pottery and a well-made iron spear-head. From the constant shifting of the river bed, due to floods, it would, however, be unsafe to lay much stress on this fact. It was hoped to secure this interesting relic for the Club Museum at Chingford, but the British Museum has established a prior claim.

THE HELLENIC SOCIETY.

THE annual meeting of the Society for the Promotion of Hellenic Studies was held on the 27th ult. Sir Richard Jebb, M.P., the president, was in the chair, and in opening the proceedings said that their past session had been one of satisfactory activity. It was especially gratifying to be able to record that the accession to the number of their members during the past year had been considerably larger than it had been in any recent year. They had long felt that there were many cultivated people in London and in the country generally who would probably be disposed to join the ranks of their Society if they were fully acquainted with its objects and with the advantages which it afforded, and it was very satisfactory to find that there was a tendency recently developed to a larger enlistment of new members. They had lost by death several distinguished members, including their honorary member Professor Kumanudes, of Athens. The name of Professor Rufus B. Richardson, director of the American School at Athens, had been added to the roll of honorary members in the place of Professor Kumanudes. They had also lost the Marquis of Bute, Dr. Creighton, Bishop of London, Dr. Stubbs, Bishop of Oxford, Professor Henry Sidgwick and other men of eminence, to whose memory they owed and rendered a tribute of gratitude for support and sympathy in the work of the Society.

Mr. George A. Macmillan, the hon. secretary, read the report of the Council, which stated that three general meetings had been held, and had been well attended. Special interest was excited by the meeting on February 28, when, through the courtesy of one of the honorary members of the Society, M. P. Cavadias, the Ephor-General of Antiquities in Greece, members had the privilege of hearing an account, illustrated by lantern slides, of the remarkable recovery of bronze and marble statues from the sea, off the coast of Cythera. Members would be aware that the excavations begun in Crete last year by Mr. Arthur Evans, working with the help of the Cretan Exploration Fund, and by Mr. Hogarth, as Director of the British School at Athens, led to discoveries of startling interest and importance. Mr. Evans himself described the remarkable Palace at Knossos, with its wonderful wall-paintings and hoard of inscribed tablets, at the annual meeting of last year, and fuller accounts had since appeared in the *Annual of the British School at Athens*, while other aspects of the subject had been dealt with in the valuable paper on "Tree and Pillar Worship," contributed by Mr. Evans to the last number of the *Journal of Hellenic Studies*. The extraordinary interest excited by these discoveries happily brought in contributions of upwards of 2,000*l.* to the Cretan Exploration Fund (including a second grant of 50*l.* from this Society), so that Mr. Evans was enabled to proceed with the further excavation of the site of Knossos, where his labours have already been rewarded with continued success, while Mr. Hogarth, working at Kato Zakro, on the eastern coast of the island, had discovered a Mycenaean town, containing within cyclopean walls a series of private houses in a remarkable state of preservation. At the same time Mr. R. Carr Bosanquet, the new director of the British School at Athens, had begun upon the site of Praesos,

at the eastern end of the island, excavations which were expected to yield valuable material for the study of the early civilisation in the Aegean, upon which the attention of scholars and archaeologists was now concentrated. There also interesting discoveries had been made, though belonging to a somewhat later period than was anticipated. The balance-sheet showed the present financial position of the Society. Ordinary receipts during the year were 1,039*l.*, against 960*l.* during the financial year 1899-1900. Sixty-two new members had been elected during the year, while forty had been lost by death or resignation. The present total of subscribing members was 747, and of honorary members twenty-three. Three new libraries had joined the list of subscribers, and three had stopped payment, making the number at the present time 142, or with the five public libraries, 147. On the whole, the general state of the Society might be regarded as highly satisfactory.

Mr. Arthur Evans's report from Knossos was then read.

Sir John Evans and Mr. Ernest Gardner also addressed the meeting, which then proceeded to the election of officers and council.

RELICS OF ANCIENT PARIS.

A SOCIETY exists, writes a correspondent of the *Glasgow Herald*, whose special function it is to preserve from annihilation vestiges and relics of the long ago or even more recent past. This association, called the "Société du Vieux Paris," was founded some time since, and is firmly supported by most of our archaeologists, as well as by intelligent Frenchmen, who hear with pain of the destruction of marks of civilisation left by our forefathers, whether very ancient or, relatively speaking, more modern.

Just now members of the Society are once more prominently before public notice. Their protective efforts have assumed an active form. St. Denis, the outskirts of the capital so rich in historic souvenirs, is the battlefield. A plot of ground on which an old church called "Les Trois Patrons" once stood is fraught with interest for archaeologists. It has long been thought that excavations would bring to light many valuable remains of the past, and a little more than a month ago the Société du Vieux Paris decided to dig the ground.

The work has gone on steadily, and the yield in the shape of relics, very valuable both from an historic and archaeological point of view, has been already abundant, the prevailing impression being, moreover, that there is a good chance of discoveries of yet greater general interest.

Amongst the things brought to the surface are a quantity of pottery, believed to be of exceedingly ancient date, some of which, however, is in an excellent state of preservation. Then we have jewels, and amongst them a Merovingian brooch set in gold of really exquisite workmanship, the design thereof displaying a certain knowledge of the jeweller's art. In the centre is a beautiful sapphire, surrounded with four large amethysts, the interstices being filled with rubies and clear yellow amber. Another find is a finely-chiselled *agrafe*, equally in gold; another a belt buckle artistically carved in copper. Tiles, a Frankish lance, a quantity of vases of all shapes and sizes have also been unearthed, as well as a piece of gold money cast under Philip the Bold, Duke of Burgundy, in the middle of the fourteenth century. This latter find is so bright and unused that it might have been struck yesterday.

On the ground itself all manner of things meet the eye and interest the lover of relics of bygone centuries. Sculptured stones lie here, piles of human bones or imperfect skeletons there and a variety of objects calculated to interest the antiquarian. The committee of the Society had, up to the present, deposited all that was found in the shop of a furniture maker of the locality, believing them to be in perfect safety. The event, however, was nearly proving the unwisdom of this proceeding. An attempt has just been made to sack the place, and though it happily turned out unsuccessful, the alarm was sufficient to cause the removal of the relics to a place of greater security.

The desire of the Société du Vieux Paris is to continue the excavations which have already led to such interesting discoveries. But it so happens that the ground belongs to a practical-headed business man, whose ambition it is to build a five-storey tenement house on the site of the ancient church. Evidently, since the ground is his he can do what he lists with it, and, being apparently profoundly indifferent to relics of the past or "rubbish" ancient historic souvenirs, he seems disinclined to waive his right to run up a modern dwelling-house on the spot dear to our archaeologists. The latter, however, are appealing to the local magnates of St. Denis, urging that the site where the ancient church stood should be purchased, if its owner will consent, and a museum be built thereon at the expense of the town, in which articles discovered in St. Denis or the neighbourhood could be placed. The plan has evidently much to be said in its favour, but the practical

headed tradesman bids fair to be a difficult customer. So, for the present, no solution has been reached. Most certainly since this Société du Vieux Paris has been founded it has rendered sterling service in its own particular line by protecting relics of the past from destruction.

A species of sister society, it may be mentioned, was formed not long ago with the object of protecting interesting sites and monuments in France from the vandalism of the multitude. It is well known that tourists, especially of the lower class, have an inveterate and incorrigible liking for cutting or chipping their names on any historic site or monument they may chance to visit whilst on a holiday. Brittany, it appears, so rich in interesting souvenirs, has suffered to an extraordinary degree by the habit, and this in spite of the efforts of appointed guardians or of notices posted up begging visitors to respect the place. Members of the society for the protection of sites and monuments from acts of vandalism have sought to interest legislators in their mission. Measures, it is said, are to be studied for preventing Jean or Jacques and their womankind, whether of French or foreign extraction, from handing down to posterity the date of their visit and other personal particulars by chipping these interesting items on monuments erected to perpetuate the memory of some glorious deed in the history of France.

TESSERÆ.

Local Characteristics in Paintings.

WHEN we think of the celebrated personages of sacred history we have little thought of their local character, but regard them as typical of human nature in general rather than of any particular race; and the clinging tenderness of Ruth, or the lofty courage of Judith, can be fully imparted to a face without insisting on any peculiarity of feature in the nation to which they belonged. Take, for instance, one of those gorgeous supper scenes painted by Paul Veronese; whatever dissatisfaction is felt on looking at the picture arises from the absence of divinity in the representation of Our Saviour or of any other sacred character introduced, rather than from a want of attention to local truth. By the introduction of Jewish men and women in lieu of Venetians he might have imparted a more correct idea of the locality of the scene, but most certainly what he might have gained thereby in truth he would have lost in beauty. Perhaps the most satisfactory representation of Our Saviour as man is that painted by Titian in a picture called "The Tribute Money," now in the gallery at Dresden. The elevated character of the face with its solemn and sorrowing expression go far to realise our idea of that divine personage, and yet, no doubt, it was painted from a Venetian, for it has no resemblance to the peculiar character of the Jewish race; and, as an eloquent writer has truly observed, he who cannot paint a Madonna from an Englishwoman could scarcely hope to succeed were he to ransack the whole world of Jewry for a model. This strict attention to local truth is, therefore, of no real assistance in imparting grandeur, nor can it be accepted as a token of high ability. For all great work in every art, rejecting the feeble tribute of delight or curiosity, produces a mysterious feeling akin to awe, and so absorbs the mind as to make it forgetful of that particular art which is the immediate object of contemplation. It appeals by its whole and not by its parts, every quality contributing its proper force to the unfolding of the artist's conception.

Lombardie Columns.

The capital was larger in proportion to the rest of the column, thereby affording a greater surface or impost for the arches to rest upon, and also combining the appearance of security at that point with general lightness of appearance. The shaft was mostly plain, yet frequently highly ornamental, striated or carved in different ways, and sometimes twisted, either singly or with two stems twining spirally around each other. Columns furnishing examples of all these different modes occur in the cloisters of San Paolo and San Giovanni Laterano at Rome, and the capitals present quite as much variety, it seeming to have been the aim on such occasions to introduce as much diversity as possible, instead of so arranging the columns as to have two of the same kind placed together, a practice probably originating in making use of columns and fragments taken from other buildings, and afterwards retained as conducing to variety and richness. Although the arches were, as frequently as not, quite plain, and without archivolt mouldings of any kind, the use of archivolts was by no means uncommon, sometimes consisting of merely a single moulding enclosing a plain border around the arch, at others divided into *faciæ*, and more or less enriched, as in the front of the cathedral of Pisa, in which building the arches describe more than a semicircle above the capitals of the columns, being prolonged downwards by a deep abacus, consisting in some places of two, in others of a single plain block resting immediately on the capital, a mode certainly preferable to that

of placing a mere lump of entablature upon the column, and not ungraceful in itself, because it gives greater height and importance to the arches, which being narrow would else appear stumpy, depressed and overloaded by the ornament around them. Similar blocks or abaci occur in the remains of Frederick Barbarossa's palace at Gelnhausen, where small heads or masks are introduced immediately above such abaci, so as to fill up the space there between the arches, and continue in some degree the vertical lines produced by the columns.

Roman Afforesting.

Rome was full of sacred woods (*luci*) which had been planted evidently for reasons of public health, and it is very interesting to take an accurate note of the places where these woods were to be found. There is a plan of ancient Rome, taken by an engineer from Perugia, whose name was Agretti, from which we may learn that there were not less than 44 "*luci*" in the interior of the town. A copy of this plan is to be seen in Perugia, and it is considered one of the most remarkable works on the subject. These "*luci*" are:—The Vatican "*lucus*," of which Pliny speaks; the Aventine "*lucus*"; the "*lucus*" of Vesta, on both sides of the Velabrian Marsh; the Mavortian "*lucus*" around the Palus Caprea, near the Pantheon; the Esquilian "*lucus*," near the Flavian amphitheatre; the "*lucus*" of Bellona; and the "*lucus Tarpeius*" on the Capitol, and many others which are to be seen in the above-mentioned plan. All these woods of a religious character had been certainly planted in order to render more healthy the different parts of the town. We must notice that the Romans, instead of draining the marshes, surrounded them with trees, because they thought that vegetation would absorb every miasma. The fact proved they were right, and we really do not know of any Latin author speaking about malaria in Rome.

GENERAL.

Messrs. Doulton & Co., Ltd., have been appointed by Royal warrant potters to His Majesty.

Mr. Robert Wilson, architect to the School Board of Edinburgh, died a few days ago from pneumonia.

Mr. W. Vaughan, who for nineteen years has been chief architectural assistant to the Bradford Corporation, has been recommended for appointment as architect to the Bradford School Board. There were sixty-four applications.

The Tomb of Adelaide of Savoy, wife of Louis VI. and afterwards wife of Mathieu de Montmorency, has been discovered at Montmartre on the site of the abbey founded by her. The tombstone, though mutilated, answers to contemporary descriptions of it.

Sir Alexander Binnie, chief engineer of the London County Council, has resigned his position, in order to follow the private practice of his profession. The resignation is to take effect on December 31 next.

The Art Loan Exhibition of works of Spanish painters at the Guildhall, it is proposed, with the consent of the owners of the pictures, to keep open until Wednesday, the 28th prox.

A Mortuary Chapel is to be erected at Hawarden Church, and will contain an altar tomb bearing the recumbent figures of Mr. and Mrs. Gladstone, which Sir William Richmond will execute. A faculty is to be applied for to make the necessary alterations to the fabric of the church.

The Late Mr. John Kirby has bequeathed on the death of the survivor of his daughters a sum of 3,000*l.* to be held on trust to partly apply the income to the repair of the stained-glass windows, reredos and monuments in the church of St. Mary, Wallingford, Berks.

The Northern Architectural Association will go tomorrow, July 6, to Edinburgh for their annual excursion meeting.

The Worthing Town Council have rejected after a long discussion a scheme for the introduction of electric tramways in the borough.

The Horniman Museum and Park were formally accepted on Saturday by the London County Council, to be for ever dedicated to the use of London. The building containing the collection has cost 40,000*l.*

The London County Council, at a conference with representatives of the Metropolitan Borough Councils, passed a resolution "that it is desirable, with a view to avoiding dual control and overlapping expenditure, that no scheme for the housing of the working classes in any metropolitan borough should be promoted by either the London County Council or the Council of any metropolitan borough pursuant to Part III. of the Housing of the Working Classes Act, 1890, except after due consultation between the two Councils (a) as to the desirableness of the scheme, and (b) in order that the cost of such scheme may be fairly apportioned between the county and the particular borough."



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"CASTLE GROVE" I FEELS: DINING-ROOM

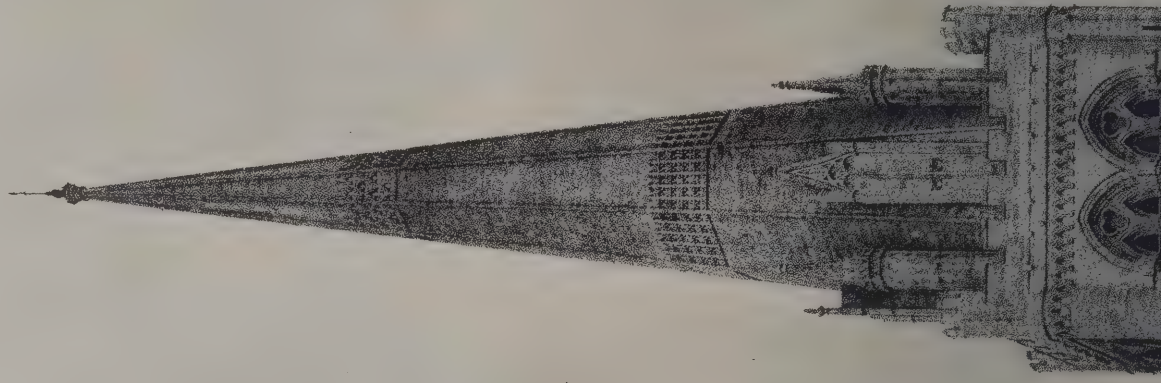


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"CASTLE GROVE," LEEDS: DINING-ROOM.

Messrs. BUTLER WILSON & OGLESBY, Architects

The Architect, July 5th 1901.



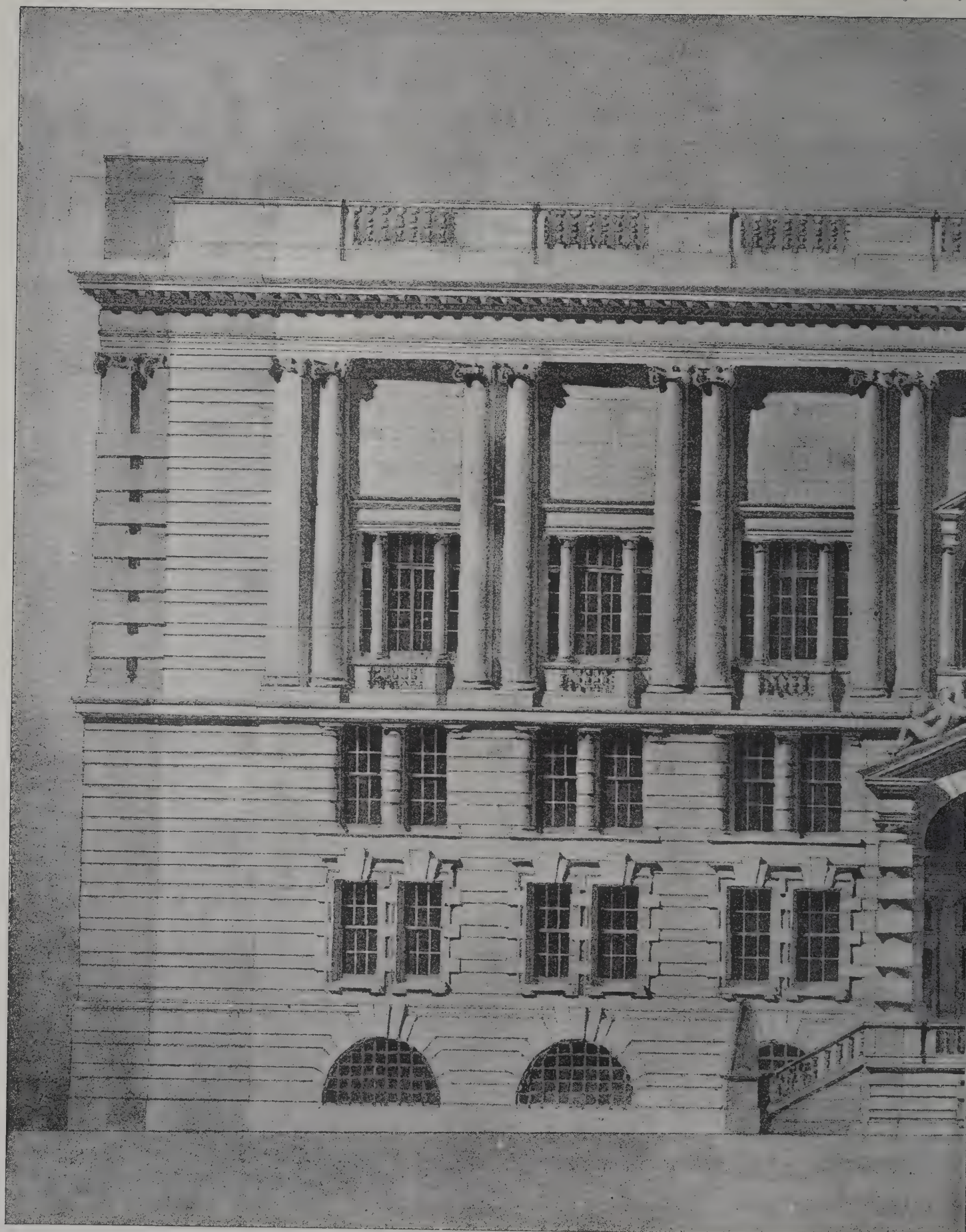


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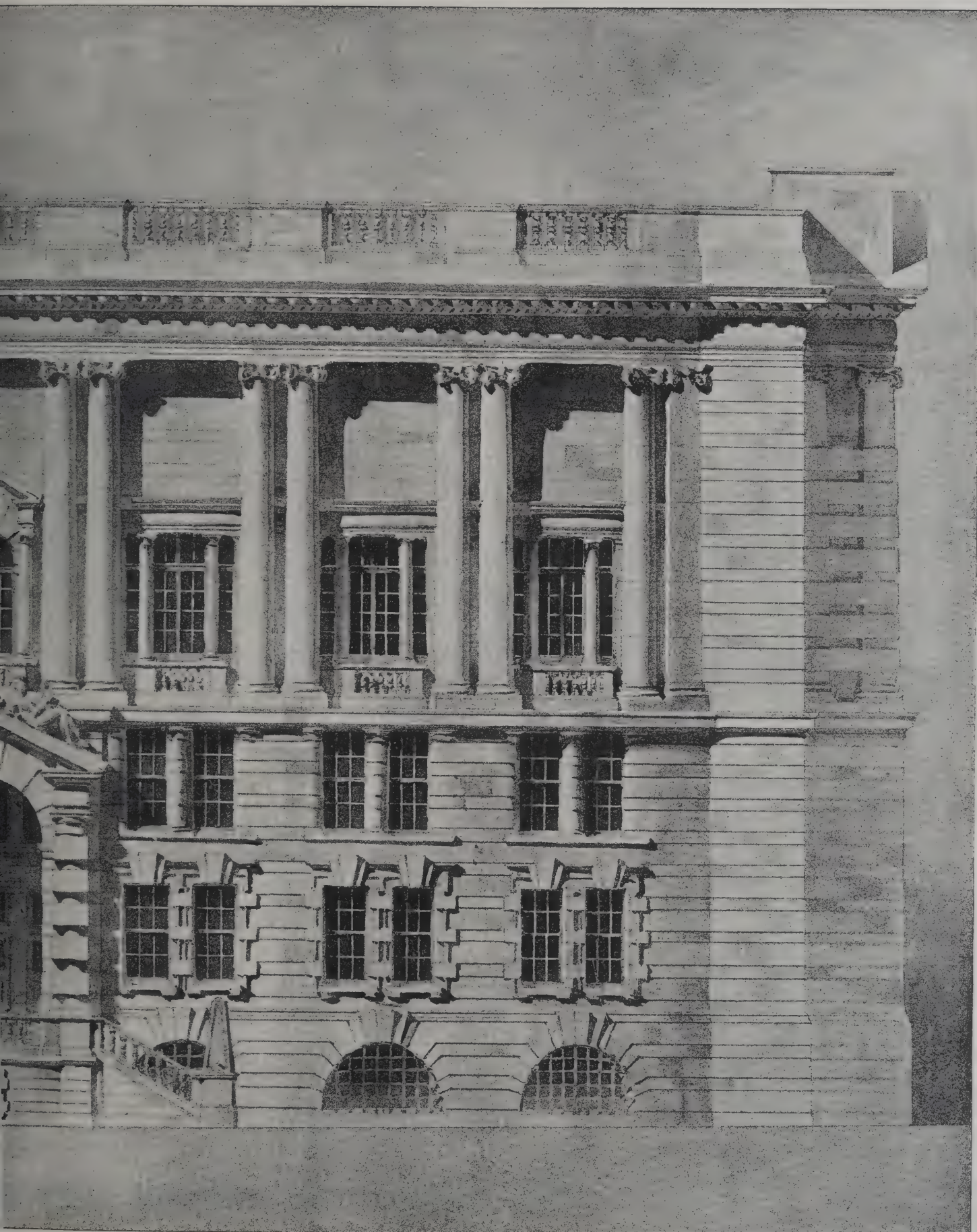
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NEW TECHNICAL SCHOOL AND
ART SCHOOL
E. W. MOUNTAIN

July 5th 1901.



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ENSION OF MUSEUM, LIVERPOOL.

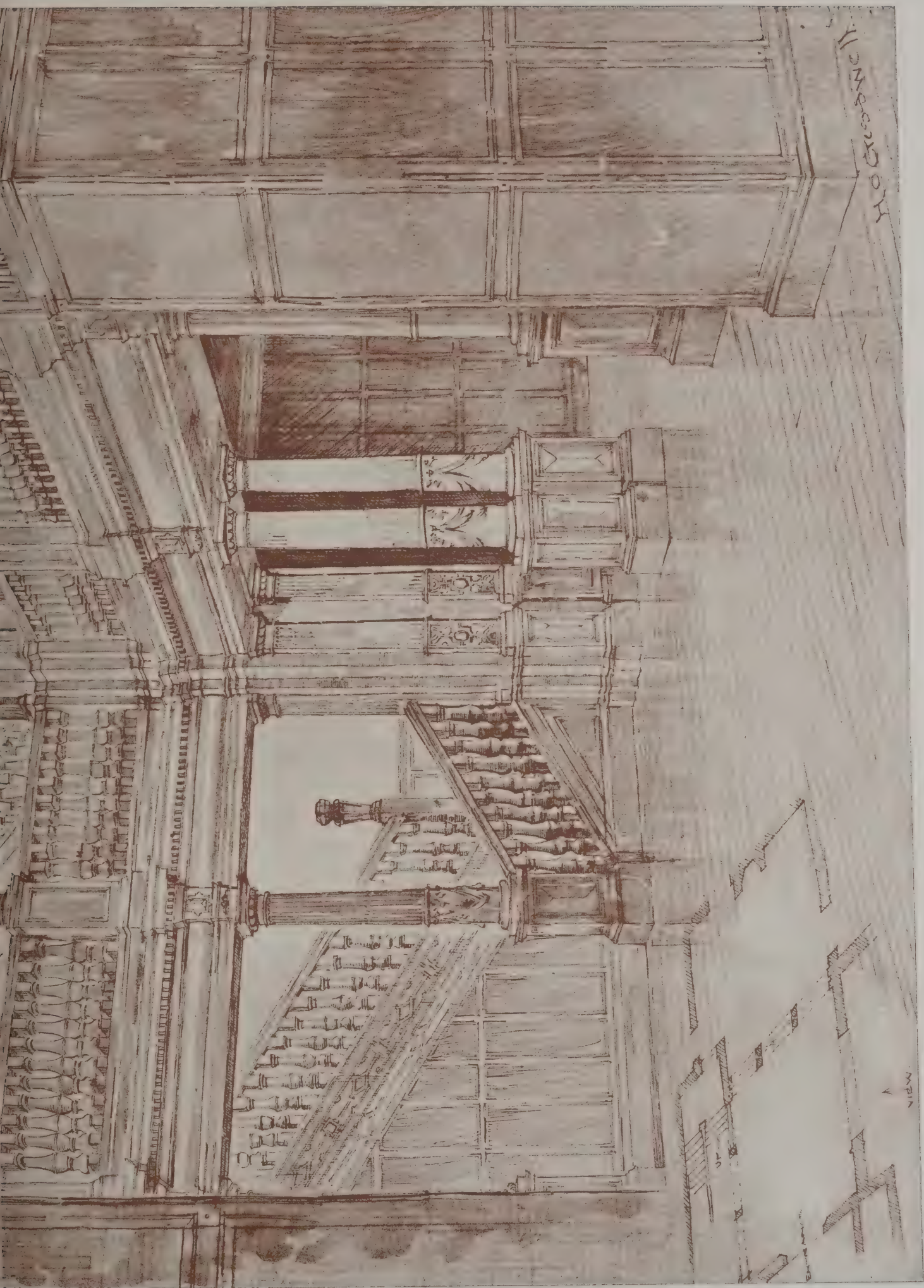
R.I.B.A., Architect.

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The Architect, July 5th 1901.

Embley Park
New Entrance Hall





THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

ANSWERS TO CORRESPONDENTS.

DISMISSAL OF ARCHITECT.—The answer to your query depends upon the terms of the engagement; but, in the absence of any agreement to the contrary, the architect cannot be summarily dismissed in the middle of a contract unless guilty of gross misconduct or incompetence. You have given us but few particulars.

COMPENSATION (Country Landlord).—The Act came into force on the 1st instant, and extends the Workmen's Compensation Act to agricultural labourers—an expression which is widely defined in the Act.

COMPETITIONS OPEN.

BEXHILL.—July 13.—Competitive designs are invited for erection of a chapel in the Bexhill cemetery. The total cost of such building is not to exceed 800*l.* A premium of 10*l.* is offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

MANCHESTER.—July 31.—Competitive drawings are invited for a fire station, a police station and other buildings, to be erected on land abutting upon London Road, Fairfield Street, Commerce Street and Whitworth Street, at a total cost not exceeding 85,000*l.* Premiums of 300*l.*, 200*l.* and 100*l.* Lithographed plan of site and copy of conditions may be obtained on application to the City Treasurer, Town Hall, Manchester.

PENZANCE.—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

CONTRACTS OPEN.

ARGENTINE REPUBLIC.—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ATHERTON.—July 18.—For erection of public swimming and slipper baths at Atherton, Lancs. Mr. F. H. Grimshaw, surveyor, Atherton, Manchester.

BEDFORD.—July 6.—For erection of a shelter at the Bedford cemetery. Mr. Henry Young, architect, Bedford.

BIGGLESWADE.—July 6.—For erection of new showrooms at Biggleswade, Bedfordshire, for Messrs. Maythorn & Son, coach-builders. Mr. Twelvetrees, architect, Sandy.

BIRKDALE.—July 10.—For erection of walls at the cemetery at Birkdale, Lancs. Mr. J. Smallshaw, clerk, Town Hall, Birkdale.

BIRMINGHAM.—July 8.—For construction of the approaches and bridge over canal. Mr. John Price, city surveyor, Council House, Birmingham.

BLACKBURN.—July 22.—For extension of the electricity works, Jubilee Street. Mr. A. S. Giles, borough electrical engineer, Jubilee Street, Blackburn.

BRIDGWATER.—July 8.—For alterations and additions to the school premises at Mount, Bridgwater. Messrs. Samson & Cottam, architects, Bridgwater.

BRIGHTON.—July 9.—For internal and external repairs, painting, &c., at the Board schools. Messrs. T. Simpson & Son, surveyors, 16 Ship Street, Brighton.

BRISTOL.—July 8.—For completion of the church of St. Thomas, Eastville. Mr. H. C. M. Hirst, architect, 30 Broad Street, Bristol.

BURNLEY.—For erection of a club and reading-room at Holme, Cliviger, near Burnley. Mr. J. C. Wilson, 168 Todmorden Road, Burnley.

BURNLEY.—For erection of a dwelling-house and shop at Walk Mill, Cliviger, near Burnley. Mr. James C. Wilson, 168 Todmorden Road, Burnley.

CARLISLE.—For additions to a house near How Mill. Mr. T. Taylor Scott, architect, 43 Lowther Street, Carlisle.

CATERHAM.—July 22.—For alterations and additions to the laundry at Caterham Asylum. Mr. T. Duncombe Mann, clerk, Asylums Board, Embankment.

CHESTER.—July 13.—For erection of shedding, tents, canvas and other works in connection with the annual exhibition of the Cheshire Agricultural Society, to be held on August 28 at Chester. Mr. Thomas A. Beckett, secretary, St. Werburgh's Chambers, Chester.

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CHIPPENHAM.—July 10.—For erection of a steam laundry at Chippenham, Wilts. Mr. Francis Stacey, clerk to the Chippenham Sanitary Laundry Company, Ltd., St. Mary's Street, Chippenham, Wilts.

CHURCH COPPENHALL.—July 13.—For erection of cloak-room accommodation at the girls' and infants' schools, Church Coppenhall, Cheshire. Mr. C. E. Speakman, clerk to the School Board, 1 Coppenhall Terrace, Crewe.

CLECKHEATON.—July 6.—For erection of Lancashire boilers, economiser, jet condenser, feed-pumps, suction-pumps, Meldrum's destructor furnaces, balancers and boosters, accumulators, cables, switchboards, travelling crane, &c. Messrs. Gibbings & Baker, Piccadilly Mansions, 17 Shaftesbury Avenue, W.

CLEETHORPES.—July 8.—For erection of an eight-stall stable, granary, stores, offices, cartshed, steam-roller house, &c. Mr. Egbert Rushton, surveyor, Poplar Road, Cleethorpes.

CLEVEDON.—July 11.—For erection of a steam laundry. Mr. T. J. Moss-Flower, 28 Baldwin Street, Bristol.

CLITHEROE.—July 8.—For arching the brook adjoining the Board school premises at Sabden, Clitheroe, Lancs. Mr. Thomas Rawcliffe, surveyor, Bradhurst, Aighton, near Whalley.

COLCHESTER.—For pulling-down and rebuilding premises at the corner of St. Botolph's and Osborne Streets. Messrs. Goodey & Cressall, architects, Victoria Chambers, Colchester.

CORNWALL.—July 16.—For alterations at Gulval Cross Board school. Mr. T. H. Cornish, clerk, 8 Parade Street, Penzance.

DISTINGTON.—July 9.—For erection of a house at Distington, Cumberland. Mr. Jefferson Brough, Black Lion, Distington.

DONCASTER.—July 8.—For erection of four cottages at West Street, Hexthorpe. The Secretary, Workmen's Club and Institute, 2 Langer Street, Hexthorpe.

ERITH.—July 15.—For construction of engine and boiler-house, chimney-shaft, sanitary work, water and fire services, rain and surface-water drains, approach roads for the new electric-light station. Mr. Charles H. Fry, clerk, District Council Offices, High Street, Erith.

EXETER.—For erection of a new roof over a portion of the Old Quay Foundry and Engine Works, Commercial Road.

Mr. J. Archibald Lucas, architect, Guildhall Chambers, High Street, Exeter.

FINCHAM.—For erection of a Primitive Methodist school-room at Fincham, near Downham, Norfolk. Mr. T. H. Barker, Fincham.

FINSTHWAITE.—July 13.—For erection of a dwelling-house. Mr. John Coward, Stott Park Mill, Lake Side.

GLOUCESTER.—July 8.—For erection of four cottages and messroom at the docks. Mr. Walter B. Wood, architect, 12 Queen Street, Gloucester.

HALIFAX.—July 6.—For erection of a pair of semi-detached villas on the Greenroyd Estate, Skircoat. Messrs. Richard Horsfall & Son, architects, 22 Commercial Street, Halifax.

HALIFAX.—July 13.—For erection of a house at Ellistones, Greetland. Messrs. Joseph F. Walsh & Graham Nicholas, architects, Lancashire and Yorkshire Bank Chambers, Halifax.

HALIFAX.—July 13.—For erection of a villa residence on the Greenroyd Estate, Halifax. Messrs. G. Buckley & Son, architects, Town Chambers, Halifax.

HAMBLEDON.—July 11.—For alterations and additions to, and the installation of a new cooking plant in the kitchen department at the workhouse, Hambledon, Surrey. Mr. Edward L. Lunn, surveyor, 36 High Street, Guildford.

HASLEMERE.—July 11.—For alterations to the town hall, Haslemere, Surrey. Mr. J. Howard, surveyor, Lower Street, Haslemere.

HEXHAM.—July 13.—For erection of public slaughter-houses. Mr. R. T. Surtees, surveyor, Hexham.

HUNTINGDON.—July 5.—For alterations, additions and fittings to the union workhouse. Mr. Ernest Borissov, architect, 151 High Street, Huntingdon.

IRELAND.—July 9.—For alterations and additions to the Youghal Industrial School, Cork, for the accommodation of lunatics, the erection of chapel residence, lodge, mortuary and other works in connection therewith. Mr. Henry A. Cutler, city engineer, Municipal Buildings, Cork.

IRELAND.—July 10.—For erection of a teacher's residence, Lisnaskea. Rev. John Coulter, Newtownbutler.

IVYBRIDGE.—July 10.—For additions and alterations to Thornham House, near Ivybridge. Mr. Barrows, Weir View, Totnes.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

KEIGHLEY.—July 8.—For erection of tannery buildings, chimney, &c. Messrs. J. B. Bailey & Son, architects, Keighley.

KENCHESTER.—July 21.—For widening of the culvert over the brook near the chemical works, Kenchester, Hereford. Mr. T. Llanwarne, clerk, 8 St. John Street, Hereford.

KING'S LYNN.—July 10.—For repairing, cleaning and painting the municipal buildings. Mr. H. J. Weaver, C.E., borough engineer, Town Hall.

KINGSTON-ON-THAMES.—July 16.—For a small addition to the C nurses' home at the workhouse. Mr. William H. Hope, architect, Hampton Wick.

LANCASHIRE.—July 16.—For construction of a retaining-wall in Frank Street, Bury. Mr. Arthur W. Bradley, borough surveyor, Bank Street.

LEEDS.—July 8.—For alterations and additions to buildings at Intake Farm, Rawdon, near Leeds. Messrs. Barber, Hopkinson & Co, architects, Craven Bank Chambers, Keighley.

LEEDS.—July 15.—For erection of premises for the West Riding Union Banking Company in Park Row. Messrs. Oliver & Dodgshun, architects, Park Square, Leeds.

LEEDS.—July 15.—For erection of underground conveniences at Kirkgate Market. Drawings, &c, at the City Engineer's Office, Municipal Buildings, Leeds.

LEEDS.—July 17.—For erection of the buildings of the Seacroft infectious diseases hospital extension. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LITTLE BOLAS.—July 13.—For construction of abutment and wing walls of concrete and brickwork, and other work in connection with a new bridge to be erected at Little Bolas, Salop. Mr. A. T. Davis, county surveyor, Shire Hall, Shrewsbury.

LONDON.—July 9.—For alterations to the infants' school-room at the Leytonstone schools. Messrs. Holman & Goodrham, architects, 6 King's Bench Walk, Temple, E.C.

LONDON.—July 10.—For pulling-down part of the workhouse, situate in Little Gray's Inn Lane, Gray's Inn Road, W.C., and for the removal of old materials. Messrs. Smith & Coggin, architects, 14 York Buildings, Adelphi, W.C.

LONDON.—July 11.—For alterations at 43 The Gardens, Peckham Rye, S.E. Messrs. Newman & Newman, 31 Tooley Street, S.E.

LONDON.—July 17.—For repairs, painting, cleaning, &c., at the infirmary in the Fulham Road, S.W. Mr. E. T. Hall, architect, 54 Bedford Square, W.C.

MACCLESFIELD.—Aug. 1.—For erection of a male epileptic ward for fifty patients, and nurses' home, at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—July 10.—For providing additional lavatory accommodation in the male epileptic department at the workhouse, Crumpsall. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MIDDLESBROUGH.—July 8.—For works in connection with the small-pox hospital, Hemlington. Mr. Frank Baker, borough engineer, Municipal Buildings, Middlesbrough.

NEWBURY.—July 9.—For new gates and general repairs at the cattle market. Mr. S. J. L. Vincent, borough surveyor, Town Hall, Newbury.

NEWPORT.—Aug. 5.—For erection of a library, technical institute, &c., at Newport, Isle of Wight. Mr. F. Newman, county surveyor, St. Thomas Street, Ryde, Isle of Wight.

NORWICH.—July 13.—For additions to Norwich City asylum, Hellesden, near Norwich. Mr. Arthur E. Collins, city engineer, Guildhall, Norwich.

NOTTINGHAM.—For alterations and additions to Albion schools, Nottingham, and six houses at Halam, near Southwell. Mr. Harry Allcock, architect, Bentinck Buildings, Nottingham.

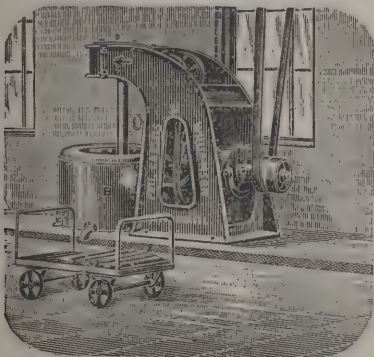
PADDINGTON.—July 15.—For erection of mortuary buildings and chapel at the north end of Manor Place. The Town Clerk, Town Hall, Paddington.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

POPLAR.—July 16.—For erection of two blocks of working-class dwellings, to be known as Melbourne Buildings and Sydney Buildings respectively, upon a plot of ground abutting on Brunswick Road and Ann Street, for the London County Council. Particulars at the architect's department, Housing of the Working Classes Branch, 18 Pall Mall East, S.W.

POPLAR.—July 24.—For erection of a medical officer's residence and officers' quarters at the workhouse, High Street. Messrs. J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

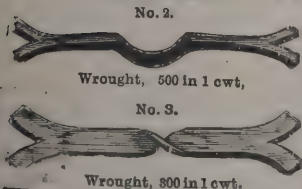
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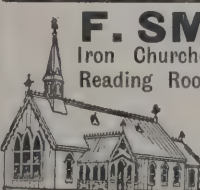
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ROCHDALE.—July 9.—For the extension of the free library and erection of a new art gallery. Mr. Jesse Horsfall, architect, Todmorden.

RUSHDEN.—July 10.—For erection of workshops, stores, sheds, &c., at the Council's yard, Newton Road, Rushden, Northants, for the Rushden Urban District Council. Mr. W. B. Madin, town surveyor, Vestry Hall, Rushden.

SALE.—July 13.—For additions to technical school. Mr. William Holt, surveyor, Council Offices, Sale.

SCOTLAND.—July 8.—For erection of two tenements of workmen's houses, Edinburgh. Mr. Thomas Hunter, W.S., town clerk, City Chambers, Edinburgh.

SCOTLAND.—July 8.—For erection of proposed tenement, Blackhall, Edinburgh. Mr. John Sturrock, solicitor, 54 Queen Street, Edinburgh.

SCOTLAND.—July 8.—For pointing the boundary walls at Craighleith Poor-house, and pointing the skewes and chimney-cans at Craiglockhart Poor-house, Edinburgh. Mr. And. Ferrier, clerk, Edinburgh.

SCOTLAND.—July 8.—For erection of covered ways at the new city hospital, Colinton Mains, Edinburgh. Mr. R. Morham, city architect.

SCOTLAND.—July 8.—For extension of Shuna Street, Ruchill, Glasgow. Mr. D. M'Coll, City Chambers, 64 Cochrane Street, Glasgow.

SCOTLAND.—July 9.—For supply of concentric and single main cables, insulated with paper or fibre impregnated with oil, bitumen or other substance impervious to moisture, or with vulcanised bitumen, for the Glasgow Electricity Department. Mr. W. A. Chamen, engineer, 75 Waterloo Street, Glasgow.

SCOTLAND.—July 12.—For erection of coastguard buildings at Pennan, Aberdeenshire, N.B., consisting of quarters for an officer and two men, &c. Drawings and specification may be seen at the Watchroom, Coastguard Station, Pennan; at the District Clerk of Works Office, Maybank, Hunter Place, Broughty Ferry, N.B.; or at the Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

SCOTLAND.—July 13.—For erection of seven cottages at Auldearn. Messrs. R. & R. Urquhart, solicitors, Forres.

SCOTLAND.—July 20.—For supply of feeders, mains and roadwork, arc lamps, &c., at Kirkcaldy. Mr. Wm. L. Macindoe, town clerk, Kirkcaldy.

SCOTLAND.—July 29.—For construction of part of the sub-structure of the extension of Glasgow Central Station. Mr. J. Blackbun, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

SHEFFIELD.—July 10.—For erection of new board-room, porters' rooms, &c., at the workhouse, Grenoside. Mr. G. A. Wilde, architect, Bank Street, Sheffield.

SHEFFIELD.—July 22.—For erection of sand-house, brass-foundry, stores, offices, oil store, &c., adjoining the car-sheds, Tinsley, Sheffield, for the tramways committee. Mr. C. F. Wike, city surveyor, Town Hall, Sheffield.

SHEFFIELD.—July 23.—For erection of a school and offices at Bradway. Mr. Joseph Norton, architect, Alliance Chambers, George Street, Sheffield.

SKERTON.—July 8.—For rebuilding shops and business premises, Skerton. Messrs. Austin & Paley, architects, Castle Hill, Lancaster.

SOUTH SHIELDS.—For alterations of property belonging to Mr. George Balls, fish merchant. Mr. George Balls, fish merchant, South Shields.

STEPNEY.—July 18.—For supply of plant and cables, for the electrical committee. Mr. Arthur Wright, consulting electrical engineer, 27 Osborn Street, E.

ST. MARY BOURNE.—For erection of a house and shop at St. Mary Bourne, Andover. Mr. Breadmore, St. Mary Bourne, Andover, Hants.

STOCKTON-BROOK.—For erection of a cottage on the Edgefields Estate. Mr. W. H. Walley, architect, Queen Street, Burslem.

SUNDERLAND.—July 8.—For erection of a church and schools on the Thornhill estate. Messrs. Wm. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland.

SWINDON.—July 18.—For erection of pupil teachers' centre and higher elementary school, Euclid Street. Messrs. Bishop & Pritchett, architects, Swindon.

ULVERSTON.—July 6.—For rebuilding about 220 yards of retaining wall at Legbarrow Point, Greenodd, near Ulverston. Mr. W. H. Schofield, county surveyor, County Offices, Preston.

WAKEFIELD.—For erection of two dwelling-houses, Arlington Street, St. John's Estate. Mr. Willie Wrigley, architect, 6 Westgate, Wakefield.

WALES.—July 8.—For erection of a villa at Pontlottyn. Mr. Price, Pontlottyn.

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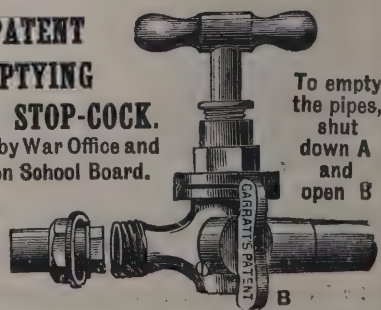
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WALES.—July 8.—For erection of sixty or more houses at Pontlottyn, for the Pontlottyn Workmen's Building Club. Mr. D. W. Jones, Board Schools, Pontlottyn.

WALES.—July 8.—For altering and building additions to 25 Merchant Street, Pontlottyn. Mr. Powell, 25 Merchant Street, Pontlottyn.

WALES.—July 8.—For erection of forty houses at Llanhilleth, Mon. Mr. C. Telford Evans, architect, 8 Queen Street, Cardiff.

WALES.—July 8.—For erection of eleven houses at Trelewis, near Treharris. Mr. T. Roderick, architect, Aberdare.

WALES.—July 8.—For erection of forty-four houses at Vochriw. Rev. L. P. Davies, Vochriw.

WALES.—July 8.—For erection of a school for 500 children, with out-offices, boundaries, playgrounds and caretaker's house, at Waunllwyd, near Ebbw Vale, Mon. Mr. R. L. Roberts, architect, Victoria Chambers, Abercarn.

WALES.—July 8.—For renovating the Board school, Blaina, Mon. Mr. I. Aled Jones, clerk, School Board, Blaina, Mon.

WALES.—July 8.—For converting the St. Padarn's (Old) Church, Llanberis, into a church house. Specifications, &c., can be seen at the Rectory.

WALES.—July 8.—For erection of a stone arched bridge and an iron girder bridge to carry the road over the brook, near Old Court Llangattock, Lingoed, Abergavenny. Mr. John Gill, surveyor, 4 Brecon Road, Abergavenny.

WALES.—July 8.—For erection of sixty-one houses at Merthyr Tydfil. Mr. Thomas David, 3 Hampton Place, Merthyr.

WALES.—July 9.—For erection of a church at Clydach, near Swansea. Mr. E. M. Bruce Vaughan, architect, Cardiff.

WANDSWORTH.—July 10.—For additions and alterations to the medical officer's house at the infirmary, St. John's Hill. Mr. C. A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

WALES.—July 10.—For additions to girls' intermediate school, Pontypool. Messrs. B. Lawrence & Son, architects, Newport.

WALES.—July 13.—For erection of two villas at Rhymney. Messrs. J. Llewellyn Smith & Davies, architects, 50 High Street, Merthyr Tydfil.

WALES.—July 13.—For erection of four villas at Rhymney. Messrs. J. Llewellyn Smith & Davies, architects, 50 High Street, Merthyr Tydfil.

WALES.—July 15.—For erection of 20 or more cottages at Trealaw. Mr. Lewis, 14 Sherwood Place, Llwynypia.

WALES.—July 20.—For erection of a house (29 feet frontage) at Crumlin, Mon. Mr. R. L. Roberts, architect, Abercarn.

WALWORTH.—July 10.—For erection of two additional panels to the main switchboard at the electric-light station, Penrose Street. Messrs. Kincaid, Waller & Manville, engineers, 29 Great George Street, Westminster, S.W.

WARMING.—July 13.—For erection of cottage in The Close. Mr. W. H. Hardick, architect, High Street.

WEST HAM.—July 9.—For erection of a fire-brigade station, firemen's quarters and underground sanitary conveniences, Barking Road, Canning Town, E. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

WHITENOSE.—July 5.—For erection of coastguard buildings at Whitnose, Dorset, consisting of quarters for an officer and six men, &c. A copy of the bill of quantities will be sent on application at the Director of Works Department, Admiralty.

WIMBLEDON.—July 18.—For construction of underground conveniences in High Street and St. Mark's Place. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway.

WOOLSTON.—July 20.—For erection of police station at Woolston, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

YORK.—July 15.—For erection of a brick wall, about 260 yards long and 3½ yards high, on the premises of the York Lunatic Asylum, Bootham. Messrs. Demaine & Brierley, architects, Lendal, York.

THE new educational buildings which have been erected by the County Councils of the East and West Ridings of Yorkshire, on the Manor Farm at Garforth, were opened on the 28th ult. by Earl Spencer, K.G., Chancellor of the Victoria University. The buildings are intended to serve a double purpose. In the first place they contain lecture-rooms and laboratories for students taking the course of instruction given in the Agricultural Department of the Yorkshire College; and, secondly, they provide a practical dairying school, equipped on the most modern principles.

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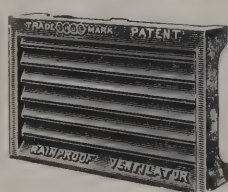
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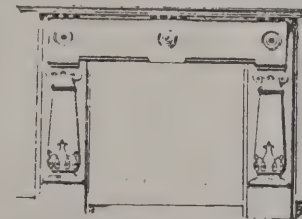


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For laying about 113 yards of 9-inch sanitary pipes in Garden Terrace Lane.

W. STRAUGHAN & SONS, Alnmouth (*accepted*) . £34 0 0

ANDOVER.

For construction of roads and sewers on the Junction Estate. Mr. ALLAN HERBERT, surveyor.

GROUNDS & NEWTON, Bournemouth (*accepted*) £457 0 0

ASHBY-DE-LA-ZOUCH.

For constructing about 260 yards of 9-inch pipe sewer, near the post-office at Cole-Orton. Mr. J. B. HOLROYD, surveyor, 2 Avenue Road, Ashby-de-la-Zouch.

A. HARVEY, Swadlincote (*accepted*) . £58 0 0

BANBURY.

For erection of school buildings for 518 children in Britannia Road. Mr. WILLIAM F. BIRD, architect, Midsomer Norton, Somerset. Quantities by the architect.

T. H. Kingerlee & Son . £5,150 0 0

W. J. Bloxham . 5,099 0 0

J. Grant & Son . 5,079 17 0

J. S. Kimberley . 5,022 0 0

J. F. Booth . 5,000 0 0

W. J. Harding . 4,786 12 6

G. ORCHARD & SON, Banbury (*accepted*) . 4,725 0 0

BARNSTAPLE

For painting and other works at the municipal offices, science and art schools. Mr. ARNOLD THORNE, architect, Barnstaple.

W. Galliford . £92 10 0

R. Haysom . 79 0 0

Bale & Heayel . 74 16 6

G. Searle . 73 0 0

J. Fry . 73 0 0

G. BALE, Nelson Terrace, Newport (*accepted*) . 68 8 0

BERMONDSEY.

For wiring, &c., in connection with the installation at the Corporation's electricity supply station and stables, Neckinger.

NATIONAL ELECTRIC WIRING CO., LTD., Newington Butts, London, S.E., wiring generating station, £406 15s.; wiring stables, £225 10s. (*accepted*).

BATLEY.

For erection of a wooden bridge. Mr. O. J. KIRBY, borough engineer.

T. E. Sugden . £250 0 0

H. Brook . 245 0 0

J. Akkeroy & Son . 199 0 0

E. CHADWICK & SONS, Batley (*accepted*) . 189 10 0

Engineer's estimate, £180.

BECCLES.

For erection of a Board school.

F. C. Thurman . £4,011 12 0

Youngs & Son . 3,730 0 0

Boddy & Pope . 3,645 0 0

G. A. Dunn & Son . 3,633 0 0

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G. E. Hawes . 3,552 0 0

HIPPERSON BROS. (*accepted*) . 3,216 0 0

BOURNEMOUTH.

For construction of a 27-inch storm-water drain in concrete tubes. Mr. F. W. LACEY, surveyor.

M. Loader . £3,620 0 0

GROUNDS & NEWTON, Bournemouth and London (*accepted*) . 3,435 0 0

BRADFORD.

For extension of washing shed at Leaventhorp Mills. Messrs. MILNES & FRANCE, architects, 99 Swan Arcade, Bradford.

Accepted tenders.

J. Hammond & Sons, Bradford, mason.

B. Thresh & Son, Bradford, joiner.

Walker & Pitchers, Bradford, plumber.

T. & A. Thornton, Eccleshill, slater.

J. W. Sugden, Manningham, plasterer.

Varley & Roebuck, Thornton, painter.

BRIDPORT

For construction of sewerage and sewage-disposal works for the parish of Bradpole.

W. J. COOPER, Fulbrooks, Bridport, Dorset (*accepted*) . £1,077 10 8

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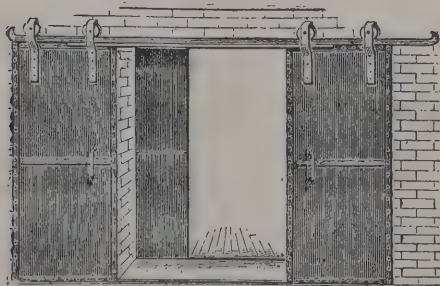
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CASTLEFORD.

For alteration in Beancroft Street, Castleford. Mr. W. GREEN, surveyor.
 J. L. Rodger £1,053 18 2
 Barnes & Co. 929 18 9
 W. Waddington, Castleford (*accepted*) 907 11 10

CHELMSFORD.

For repainting iron and woodwork at the Great Baddow water tower. Mr. J. DEWHIRST, surveyor.
 W. H. Roper & Son £125 0 0
 Cracknell & Baker 120 0 0
 Stead & Underwood 97 14 6
 Dennis & Sons 94 5 0
 Stapleton & Son 90 0 0
 CHOAT & SON (*accepted*) 89 0 0

CHURCH.

For paving and sewerage Bradley Street, Pickles Street, St. James Road, France Street and Canal Street. Mr. W. E. WOOD, surveyor.

Accepted tenders.

G. Adams, Oswaldtwistle, for Church Street, Bradley Street and Canal Street (per schedule).
 Exors. of A. Broadley, Clayton-le-Moors, for Pickles Street, St. James Road and France Street (Section 1 and 2).

EASTLEIGH.

For improvement works in Chamberlayne Road and Factory Road.
 F. OSMAN, Southampton (*accepted*) £521 0 0

EWELL.

For erection of a small summer residence for Mr. Ambrose Paterson. Mr. H. G. QUARTERMAIN, architect, Merton, Surrey.
 Jones & Son £1,467 0 0
 Price & Price 1,350 0 0
 C. King & Son 1,263 0 0
 Battley, Son & Holness 1,255 0 0
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For supply of 900 yards run of wrought-iron unclimbable fencing, 6 feet high in 6 feet panels, with one pair of wrought-iron gates and pillars, for the pleasure-ground, Brook Street, Northumberland Heath, Erith, Kent.
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 W. Hayward & Son, Ltd. 320 0 0
 J. Elwell 313 4 0
 Hill & Smith 313 0 0
 Rubery & Co. 310 2 6
 E. J. RAYBOULD & CO., LTD, Marsh Side, Workington (*accepted*) 293 12 0

ENFIELD.

For making-up private streets within the district. Mr. R. COLLINS, surveyor.

St. Stephen's Road.

Griffiths £1,268 0 0
 T. Adams 1,181 0 0
 G. Porter 1,098 11 4
 E. J. BETTS, Enfield Highway (*accepted*) 1,075 0 0

Park Road.

Griffiths 1,026 0 0
 T. Adams 1,016 0 0
 G. Porter 973 10 9
 E. J. BETTS (*accepted*) 835 0 0

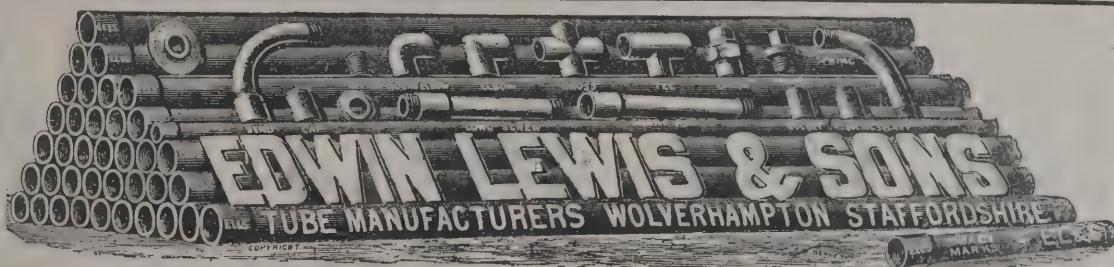
For construction of a sewer, with manholes. Mr. RICHARD COLLINS, surveyor.
 G. Bell & Sons £4,979 0 6
 C. FORD, Harlesden (*accepted*) 4,387 0 0

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J. E. Johnson & Son	3,600	0	0
T. Barker & Son	3,500	0	0
A. Jeffcote	3,495	5	8
G. H. Marshall	3,385	0	0
King & Ridley	3,258	0	0
W. Corah	3,230	0	0
W. Moss	3,207	5	0
T. & G. Harrold	3,120	0	0
SCARR, JOWETT & Co. (accepted)	3,069	10	0

HEBDEN BRIDGE.

For erection of sub-station on land adjoining the Council Offices, Hebden Bridge, Yorks, for the tramways and electricity committee. Mr. JAMES LORD, borough engineer.

Accepted tenders.

T. Pickles, mason	£451	14	5
J. Kershaw, joiner	130	11	0
F. Anderson, plumber	56	8	5
Lumb Bros., slater and plasterer	52	12	9
J. Berry, ironfounder	37	17	6

HOVE.

For sewer works in Clarendon Villas, Goldstone Villas, Blatchington Road, Ventnor Villas, Medina Villas and Sackville Road. Mr. H. A. SCOTT, borough surveyor.

J. PARSONS & SONS, 118 Church Road (accepted)	£6,035	0	0
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HYTON.

For joinery required in erection of a farm building at Hyton, in the parish of Bootle. Messrs PICKERING & CROMPTON, architects, 11 Lowther Street, Whitehaven.

A. G. White-Bradley	£198	17	0
R. Southward	192	17	6
W. Bradley	169	17	8
I. SOUTHWARD, Bootle Station (accepted)	169	10	8

IRELAND.

For erection of soldiers' home at Tipperary. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

T. HOLLOWAY, Cahir, co. Tipperary (accepted) £1,460	0	0
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IRELAND—continued.

For erection of five dwelling-houses at Victoria Park, Buncrana; two dwelling-houses at Dunfield Street, Waterside; one dwelling-house at Collon, Londonderry; one dwelling-house and offices at Lisahally, Londonderry. Mr. T. JOHNSTON, architect, 11 East Wall, Londonderry.

Five dwelling-houses at Buncrana.

R. Colhoun	£2,410	0	0
J. Shannon	2,095	0	0
J. A. Fulton	1,790	0	0
Shannon & Routledge	1,783	0	0
W. J. Maultsaid	1,685	0	0
STITT & Co., Strand Road (accepted)	1,647	10	0

Two dwelling-houses, Dunfield Street, Londonderry.

W. J. Maultsaid	1,600	0	0
D. Doherty	1,200	0	0
W. COOKE, 2 Miller Street (accepted)	1,034	0	0
Crooks & Ferguson	1,010	0	0
J. A. Fulton	989	0	0
Stitt & Co	900	0	0

One dwelling-house, Collon, Londonderry.

M. Jack	223	10	6
W. Cooke	185	0	0
Stitt & Co.	180	0	0
W. J. Maultsaid	175	0	0

W. J. MOONEY, Strand Road, Londonderry (accepted)

S. McLaughlin	162	0	0
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For erection of two dwelling-houses at Castle Avenue, Buncrana. Mr. T. JOHNSTON, architect, 11 East Wall, Londonderry.

J. A. Fulton	£525	0	0
W. J. Maultsaid	500	0	0
D. Doherty	435	0	0
R. Colhoun	400	0	0
Stitt & Co.	380	0	0
H. CAMPBELL, Buncrana (accepted)	386	0	0

For reslating the roofs of Ballynatray House, cementing parapets, chimneys, &c., forming new lead gutters, rain-water pipes, &c., and the reconstruction of the sanitary system and improvements to water-supply. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

J. Highet	£797	0	0
C. McCarthy	710	0	0
MURRAY & SON, Youghal, co. Cork (accepted)	675	0	0

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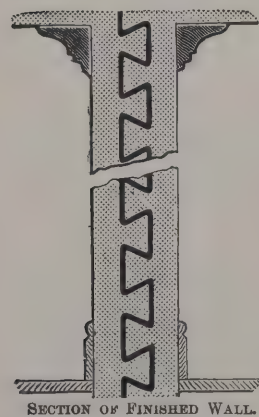
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For erection of classroom and cloakroom at Kilburne school.
Mr. PERCY H. CURREY, architect, Market Place, Derby.
A. & G. Bodell £270 0 0
Derby Builders, Limited 250 6 0
Harris & Hunt 245 0 0
W. Salt 238 17 6
CROOKES, Derby (*accepted*) 235 9 8

LANCASTER.

For conversion and extension of buildings for a tripery at the slaughter-houses.

J. LIVER, Quarry Road (*accepted*).

LEEDS.

For erection of the new market hall, with shops, restaurant and other buildings, with frontages to Vicar Lane, Kirkgate and Ludgate Hill.

Tenders recommended for acceptance.

J. T. Wright, mason* £49,778 11 8
W. Nicholson & Son, carpenter 20,799 0 0
H. E. Hodgson & Co. 18,250 0 0
J. Bagshaw & Sons 7,989 0 0
G. Thompson, plumber 7,000 0 0
W. Scott, Ltd., ironwork 3,321 10 0
Milthorp & Wilkinson, stone-carving 2,457 5 0
J. Dobson, plasterer 2,035 17 5
Jenkins, Tollerton & Co., painter 1,909 0 0
S. McFarlane, concreting 1,701 5 3
J. Season, slater 1,074 0 0
J. Stones, hand-power lifts 135 10 0

* Extra for granite piers, £1,303 6s. 7d.

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G. HALL (*accepted*) £830 0 0

For excavation work required for the Dewsbury Road police station and library.

J. PULLAN (*accepted*) £205 0 0

LIVERSEDGE.

For erection of a woollen mill at Victoria Mills, Liversedge, Yorks. Mr. ALFRED E. RHODES, architect, Cheapside, Heckmondwike.

G. HORSFALL & SONS, Liversedge (*accepted*).

LONDON.

For the construction of the foundations of Block III. of the new Admiralty buildings.

Foster Bros.	£30,885	A.
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Foster & Dicksee	25,812	279
B. E. Nightingale	25,175	—
Pethick Bros.	24,740	—
E. Nuttall	24,240	312
W. King & Son	22,900	—
Higgs & Hill, Ltd.	22,460	—
H. C. Lovatt	20,940	302
J. Mowlem & Co.	20,878	261
J. Allen & Sons, Ltd.	17,950	150
Holloway Bros.	17,880	432
Leslie & Co., Ltd.	17,383	—
Perry & Co.	17,289	428
J. CHESSUM & SONS (<i>accepted</i>)	15,926	330

A.—Allowance if Limmer asphalte be used.

LONDONDERRY.

For rebuilding and fitting-up stables at William Street. Mr. J. P. M'GRATH, architect, 28 Carlisle Road, Londonderry.

J. Rooney £396 11 2
W. J. Maultsaid 300 0 0
D. GILLESPIE (*accepted*) 280 0 0

OTLEY.

For erection of workmen's cottages at Middleton, in connection with the new water scheme for the supply of water to Otley from Bow Beck.

GILL & PEASE, Ilkley (*accepted*) £3,534 0 0

POKESDOWN.

For making new road and sewers on the Stourfield Estate.

Mr. CORBIN HARRIS, surveyor.

GROUND & NEWTON, Bournemouth (*accepted*). £196 0 0

POOLE.

For making roads and sewers on the Courthill Park Estate.

Mr. EDWARD VAN SCHEPDAEL, surveyor, Poole.

G. Maidment £530 0 0
G. T. Budden 527 0 0
Grounds & Newton 485 0 0
H. C. BRIXEY, Parkstone (*accepted*) 477 0 0

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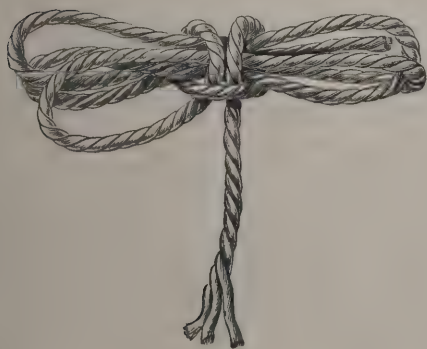
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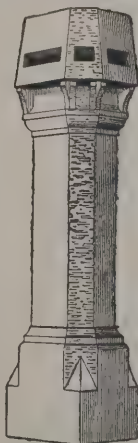
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(PATENT APPLIED FOR.)



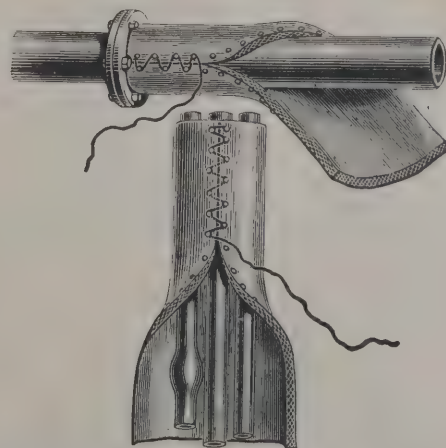
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PRESTON.

For painting the cattle market, Brook Street North.
H. TAYLOR, Preston (*accepted*) £163 12 6

SCOTLAND.

For erection of a two-rail (tubular) iron fence, 3 feet 6 inches in height, with rails about 1½ inches in diameter. Mr. JOHN KIRKALDY, burgh surveyor.

Montrose Foundry Co. £205 0 0
R. Currie 140 0 0
A. J. Main 136 5 0
R. Allan 96 17 6
D. HOUSTON, Hillside Foundry, Cupar Fife (*accepted*) 82 10 0

For erection of steel steam-piping, valves and accessories at electric-lighting station, Dudhope Crescent Road, Dundee. AITON & Co., Western Works, Hythe Road, Willesden Junction, London N.W. (*accepted*) £1,048 0 0

For supply and erection at the electrical power station, Dudhope Crescent Road, of one 700 horse-power triple-expansion steam-engine and dynamo.

INTERNATIONAL ELECTRIC CO OF LIEGE, London (*accepted*) £4,283 0 0

For alterations to Forester's Buildings, Dyce, Aberdeen. Mr. R. G. WILSON, architect, 181A Union Street, Aberdeen.

Accepted tenders.

G. Summers, Dyce, mason.
Stephen & Murray, Bucksburn, carpenter.
S. Christie, Dyce, slater and plumber.
R. Stewart, Old Aberdeen, plasterer.

SOUTH STONEHAM.

For redrainage of the workhouse, West End. Messrs. W. H. MITCHELL, SON & GUTTERIDGE, surveyors, Southampton.

S. Saunders £2,200 0 0
Witt Bros. 2,150 0 0
Grounds & Newton 2,130 0 0
W. Roles & Son 1,975 12 9
Jenkins & Son 1,945 0 0
Coston & Co. 1,895 0 0
J. NICHOL, Bitterne (*accepted*) 1,695 0 0

SUNBURY-ON-THAMES.

For laying about 640 yards of 8-inch glazed stoneware pipe sewer in the Watersplash and Halliford Roads, with man-holes, &c. Mr. HAROLD F. COALES, surveyor.

M. S. Kitteringham £640 18 6
A. C. Loan 603 3 7
R. W. Swaker 515 18 2
G. HEBBURN, Hersham, Surrey (*accepted*) 503 0 0

WALES.

For repairing, cleaning, painting and papering at Overton police station. Mr. D. WILLIAMS, county surveyor, Mold.

R. Holt £21 0 11
T. Foulkes 17 17 6
P. WILLIAMS, Overton, Ellesmere, Salop (*accepted*) 16 0 0
W. Edwards 9 0 0

For renovation of the Primitive Methodist church and school-room, Pontnewydd.

H. SAXON, High Street, Abersychan (*accepted*) . £166 3 0
Poulton & Whiting 158 0 0

For erection of two shops and offices at Hannah Street, Porth. Mr. EDWIN JONES, architect, Porth.

Enoch Bros. £1,655 0 0
D. Richards 1,500 0 0
R. Farr 1,476 8 0
C. JENKINS & SON, Porth (*accepted*) 1,475 0 0

For erection of three houses adjoining and skittle alley at the rear of the Duke of York hotel, Tylorstown. Messrs. GRIFFITHS & JONES, architects, Tonypandy and Cardiff.

*Accepted tenders.**Houses.*

M. Morris, Ferndale, Glam. £632 0 0

Skittle alley.

T. O. Brown, Ferndale, Glam. 125 10 0

For erection of a village hall at Llanrhaiadr-yn-Mochnant. Messrs. E. BREMNER-SMITH & BREMNER, architects, Oswestry.

R. A. JONES, Llanfyllin (*accepted*) 637 11 0

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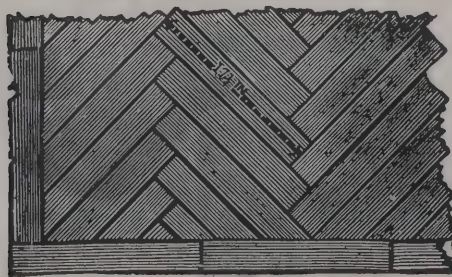
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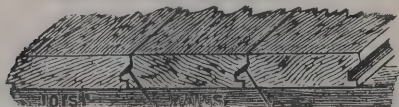
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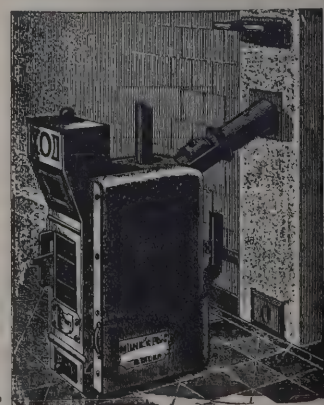
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For repairs at the Duke of York, Hoxton, N. Messrs. C. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, E.C., and Bromley-by-Bow, E. Courtney & Fairbairn £625 0 0
Sheffield Bros. 485 0 0
T. OSBORN & SONS (*accepted*) 437 0 0

For repairs at the Unicorn, Notting Hill, W. Messrs. C. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, E.C., and Bromley-by-Bow, E. J. T. Robey £213 0 0
T. Osborn & Sons 204 0 0
A. W. DERBY (*accepted*) 178 0 0

For erection of shops and flats at Lower Clapton, N.E. Mr. HERBERT RICHES, architect and surveyor, 3 Crooked Lane, King William Street, London, E.C. Quantities supplied.

W. Holt & Sons £15,098 0 0
A. Porter 14,845 0 0
S. J. Scott 14,073 0 0
J. Grover & Son 13,650 0 0
Courtney & Fairbairn 13,525 0 0
Todd & Newman 13,333 0 0
Green & Smith 13,280 0 0
Fred & T. Thorne 13,000 0 0
SHEFFIELD BROS. (*accepted*) 12,993 0 0

All estimates are exclusive of smith, plumber, hot-water and sanitary engineer and bell-hanger work, stoves, &c.

For repairs to shop premises, Walthamstow, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.

M. Calnan & Son £172 2 0
E. S. Hammerton 153 8 6
E. Jackson 125 0 0
W. Hennessey 121 13 0
S. WHITE (*accepted*) 98 10 0

For repairs to off-license premises, Old Ford, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.

SHEFFIELD BROS. (*accepted*) £185 0 0

LONDON SCHOOL BOARD

The work at the following schools will be executed during the summer holidays—July 25 to August 24, 1901. Where exterior as well as interior work has to be done, an additional week will be allowed for the former:—

For cleaning interior, Kenmont Gardens.

T. Cruwys £200 10 0
F. Chidley 162 0 0
W. Brown 156 0 0
W. R. & A. HIDE (*accepted*) 139 0 0
Bristow & Eatwell 125 0 0

For painting interior (infants' and P.T. schools), William Street.

W. R. & A. Hide £210 15 0
W. Chappell 205 0 0
W. Brown 178 0 0
W. Hammond 145 7 6
F. CHIDLEY (*accepted*) 135 0 0

For painting exterior, York Road.

Stevens Bros. £139 0 0
C. & W. Hunnings 125 12 6
Marchant & Hirst 117 0 0
W. Chappell 110 0 0
G. WALES (*accepted*) 101 0 0

For painting exterior and cleaning interior, Alverton Street.

T. D. Leng £479 0 0
W. Hayter & Son 395 0 0
H. Groves 355 0 0
S. Musgrove 340 2 0
W. J. Howie 330 5 0
W. BANKS (*accepted*) 286 0 0

For painting interior and exterior, Mina Road.

Johnson & Co. £920 0 0
W. Sayer & Son 697 0 0
E. Triggs 681 0 0
H. J. WILLIAMS (*accepted*) 611 0 0

For painting interior, Morden Terrace.

T. D. Leng £694 0 0
W. Banks 416 0 0
W. J. Howie 389 14 0
E. Proctor 366 0 0
H. Groves 341 0 0
W. HAYTER & SON (*accepted*) 300 0 0

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LONDON SCHOOL BOARD—continued.

For painting interior (old portion) and interior and exterior (J. M. school), Creek Road.

T. D. Leng	£679	0	0
Johnson & Co.	498	0	0
W. Hayter & Son	455	0	0
H. Groves	389	0	0
W. J. Howie	373	17	0
E. Proctor	320	0	0
S. MUSGROVE (accepted)	315	16	0

For painting interior and exterior, Queen's Road.

Corfield & Co.	£853	0	0
Barrett & Power	825	0	0
W. Shurmur	610	0	0
W. Silk & Son	597	0	0
G. Barker	575	0	0
T. Cruwys	549	0	0
C. WILLMOTT (accepted)	491	0	0

For painting exterior, Cator Street.

H. Line	£330	0	0
Baylis & Francis	313	0	0
Dearing & Son	275	0	0
J. F. Ford	263	0	0
Rice & Son	228	0	0
W. SAYER & SON (accepted)	227	0	0

For painting interior, Haselrigge Road.

H. & G. Mallett	£613	0	0
Holloway Bros.	600	0	0
Holliday & Greenwood, Ltd.	558	10	0
Rice & Son	520	0	0
Garrett & Son	489	0	0
W. Hornett	487	0	0
Maxwell Bros., Ltd.	469	0	0
E. TRIGGS (accepted)	449	0	0

For painting interior and exterior, New Park Road.

Holliday & Greenwood, Ltd.	£467	0	0
W. Sayer & Son	448	0	0
Lathey Bros.	407	0	0
Rice & Son	401	0	0
J. Garrett & Son	346	0	0
Star & Son	341	0	0
MAXWELL BROS., LTD. (accepted)	338	0	0

LONDON SCHOOL BOARD—continued.

For painting interior (school and P.T. school), Hackford Road.

W. Sayer & Son	£871	0	0
H. & G. Mallett	684	0	0
Holloway Bros.	673	0	0
Maxwell Bros., Ltd.	585	0	0
Holliday & Greenwood, Ltd.	563	0	0
Rice & Son	559	0	0
E. TRIGGS (accepted)	506	0	0

For cleaning interior, Honeywell Road.

W. H. Lorden & Son	£388	0	0
E. Flood	350	0	0
Rice & Son	301	0	0
J. & M. Patrick	277	0	0
W. JOHNSON & CO., LTD. (accepted)	230	0	0
W. Hornett	239	0	0

For painting interior and exterior, Kennington Road.

Martin, Wells & Co.	£490	0	0
J. F. Ford	465	0	0
G. Brittain	420	0	0
W. Hornett	403	0	0
H. J. Williams	383	0	0
E. TRIGGS (accepted)	360	0	0
J. & M. Patrick	316	0	0

For painting interior and exterior (special school), Priory Grove.

W. King & Son	£84	0	0
W. Downs	72	0	0
J. GARRETT & SON (accepted)	45	0	0

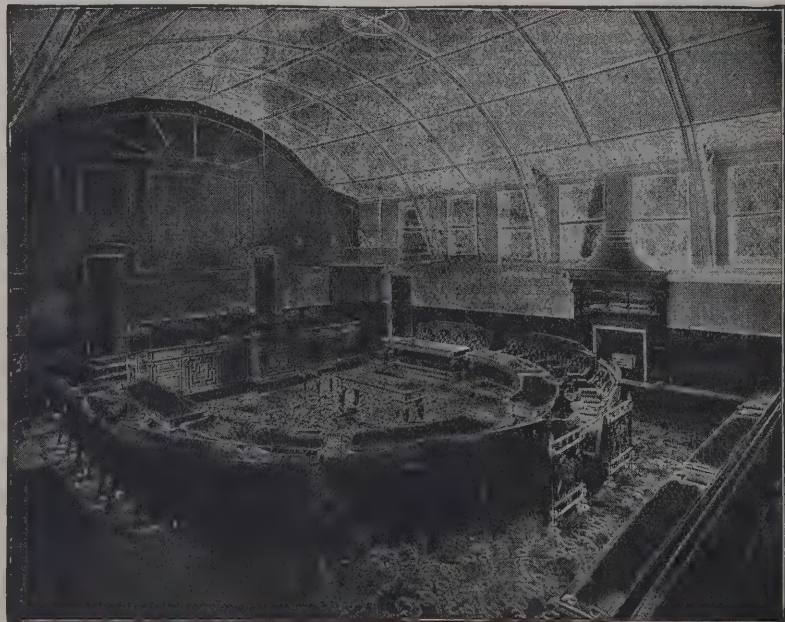
For painting interior and exterior (special school), Shillington Street.

W. Hornett	£199	0	0
Rice & Son	177	0	0
J. & M. PATRICK (accepted)	155	0	0

For painting interior, Woodland Road.

A. J. Acworth	£326	0	0
Johnson & Co.	314	10	0
W. Johnson & Co., Ltd.	304	0	0
G. Kemp	295	0	0
W. H. Lorden & Son	277	15	0
W. Hornett	259	0	0
J. & C. BOWYER (accepted)	247	0	0

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For painting interior and exterior (iron buildings), Edgcombe Road.

W. V. Goad	£145	0	0
W. Sayer & Son	120	0	0
H. LINE (accepted)	90	0	0

For painting interior (old portion) and cleaning interior (new portion), Bell Street.

Beeson & Sons	£421	18	0
Thompson & Beveridge	323	0	0
T. Cruwys	311	0	0
Marchant & Hirst	296	0	0
F. Chidley	246	0	0
BRISTOW & EATWELL (accepted)	231	10	0

For painting exterior and cleaning interior (junior and special school), Capland Street.

H. Wall & Co.	£295	0	0
Marchant & Hirst	287	0	0
W. Chappell	250	0	0
Bristow & Eatwell	221	11	0
F. CHIDLEY (accepted)	206	15	0

For cleaning interior and painting exterior, Baker Street.

Beeson & Sons	£612	11	0
G. Barker	398	0	0
J. Dolman & Co.	382	0	0
J. T. Robey	367	0	0
D. Gibb & Co.	365	0	0
Corfield & Co.	360	0	0
J. F. Holliday	358	0	0
VIGOR & Co. (accepted)	309	10	0

LONDON SCHOOL BOARD—continued.

For painting exterior and cleaning interior (junior girls' school), Medburn Street.

Stevens Bros.	£330	0	0
T. Cruwys	294	6	0
Dearing & Son	239	0	0
H. Wall & Co.	215	0	0
MARCHANT & HIRST (accepted)	199	0	0

For painting exterior, Farrance Street.

Beeson & Sons	£351	18	0
A. W. Derby	226	0	0
Corfield & Co.	215	0	0
J. T. Robey	209	0	0
D. Gibb & Co.	207	0	0
JOHNSON & Co. (accepted)	188	0	0

For painting exterior, St. John's, Halley Street.

J. Dolman & Co.	£203	0	0
J. T. Robey	200	0	0
A. Heard & Co.	190	10	0
Vigor & Co.	189	0	0
G. WALES (accepted)	119	0	0

For painting exterior, Kilburn Lane.

G. H. Sealey	£465	16	0
G. Neal	320	0	0
A. Balfour & Co.	256	14	6
F. Chidley	196	0	0
S. Polden	170	12	6
Bristow & Eatwell	157	12	0
W. Brown	147	10	0
F. T. CHINCHEN (accepted)	139	0	0

For painting interior, St. Dunstan's Road.

W. R. & A. Hide	£466	0	0
W. Chappell	420	0	0
W. Hammond	399	0	0
C. CURD (accepted)	360	0	0
W. Brown	297	0	0

For painting interior, Baltic Street.

T. Cruwys	£350	0	0
M. Pearson	333	0	0
Marchant & Hirst	306	0	0
W. Chappell	255	0	0
G. BARKER (accepted)	229	0	0

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For painting interior, Blackstock Road.

C. & W. Hunnings	561	0	0
McCormick & Sons	542	0	0
W. H. Stephens	525	0	0
J. Grover & Sons	496	0	0
STEVENS BROS. (accepted)	436	0	0

For painting interior, Old Woolwich Road.

W. Banks	269	19	6
E. Proctor	255	0	0
H. Groves	225	0	0
W. HAYTER & SON (accepted)	189	0	0

For painting interior (divisional offices and special school), Morning Lane.

Barrett & Power	£118	0	0
G. Barker	113	0	0
Corfield & Co.	101	0	0
McCormick & Sons	97	0	0
C. WILLMOTT (accepted)	72	10	0

For painting exterior, Globe Terrace.

F. Bull	£162	0	0
J. Haydon	145	0	0
Stevens Bros.	139	0	0
G. BARKER (accepted)	136	10	0

For painting exterior (special school and correspondent's office), Lamb Lane.

Stevens Bros.	£108	0	0
G. Wales	88	5	0
BARRETT & POWER (accepted)	76	0	0

For painting interior, West Lambeth divisional offices.

W. Hornett	£104	0	0
Rice & Son	85	0	0
H. & G. Mallett	75	0	0
W. Downs	69	0	0
MAXWELL BROS., LTD. (accepted)	66	10	0

For painting interior, Horseferry Road.

T. L. Green	529	0	0
J. & M. Patrick	528	0	0
Lathey Bros.	289	0	0
Vigor & Co.	244	0	0
C. GURLING (accepted)	203	10	0

LONDON SCHOOL BOARD—continued.

For painting interior (old portion), Campbell Street.

T. Cruwys	£400	0	0
Marchant & Hirst	245	0	0
Bristow & Eatwell	209	5	0
W. Chappell	195	0	0
F. Chidley	169	0	0
A. BALFOUR & CO. (accepted)	152	3	0

For painting exterior, Lavender Hill.

Martin, Wells & Co.	£420	0	0
Rice & Son	331	0	0
J. GARRETT & SON (accepted)	286	0	0

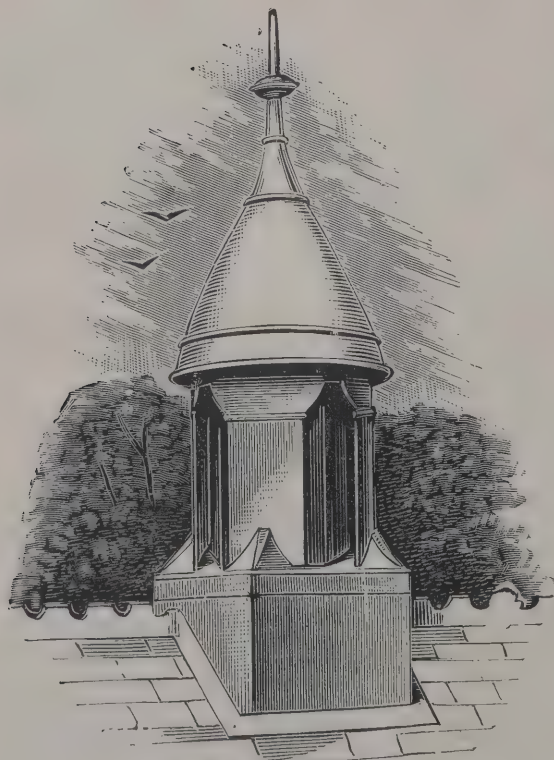
AN INTERESTING CELEBRATION.

SOUTH YARDLEY, Birmingham, was on the evening of Tuesday, the 25th ult., the scene of high revelry in celebration of the coming of age of Mr. S. Hanson Rowbotham, the only son of Mr. and Mrs. Thomas Rowbotham, of Gilbertstone Grange, who entertained a large number of friends at a ball which they gave in honour of the event. Mr. Rowbotham, jun., who received his education at King Edward's School, Birmingham, and the King's School, Warwick, is now engaged in superintending the large building contracts being carried out by his father for the Greenwich Union, at contract figures amounting to some 300,000l. His early training for entrance to the building trade took place under the direction of Mr. Henry Martin and Mr. W. H. Bidlake, M.A., two of the best-known members of the architectural profession in Birmingham.

A commodious and elegantly decorated ballroom and supper-room were erected in the beautiful grounds of the Grange, and the grounds themselves were profusely illuminated with Vauxhall lamps and Japanese lanterns, the whole producing a charming effect. The company included Alderman Ash, J.P., Mr. G. Beech, J.P., and Mrs. Beech, Mr. Beech, jun., and Miss Beech, Mr. William H. Bidlake, M.A., County Councillor T. R. Bayliss, J.P., and Mrs. Bayliss, Mr. and Mrs. T. A. Bayliss, Mr. Joseph Boston, J.P., and Mrs. Boston, Mr. and Miss Boston, Mr. and Mrs. Butler, Mr. Howard Bates, the Misses P. and N. Bosworth, Mr. and Mrs. F. Briely, Mr. and Mrs. B. Corser, Mr. and Mrs. C. Chambers, Mr. and Mrs. Caudelent, Mr. E. and Mrs. Docker (Droitwich), Mr. and Mrs. Dumolo, Captain Norman Dinwiddy (London), Mr. J. A. and

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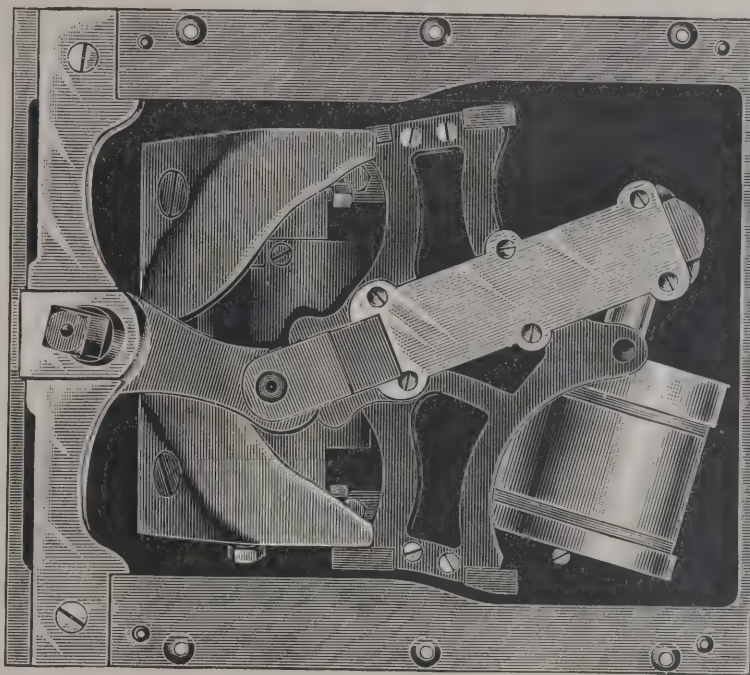
After supper Mr. Enoch Wood proposed, in felicitous terms, the toast of the evening, to which Mr. S. H. Rowbotham appropriately replied, his speech being enthusiastically received. Dancing was afterwards resumed, and continued till a late hour. Mr. Rowbotham, jun., was, it is hardly necessary to say, the recipient of a large number of costly presents and congratulations innumerable.

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THE high quality both as regards material and workmanship which Messrs. W. & R. Leggott put into the door and window furniture manufactured by them is too well known to need enlarging upon here, and in their new showrooms at 90 and 91 High Holborn may be seen a thoroughly artistic display of such goods, the design and finish of which reflect the greatest credit on, and amply justify the high reputation enjoyed by, the firm. Among the locks we were much struck by one specially designed for hospital or asylum purposes, its peculiarity being that it is operated by four different keys, one of which applies to only one lock, a second applies to all the doors of a corridor, the third to a whole building or block and the fourth controls all

the locks in a group of buildings, or, in other words, the entire institution.

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This spring is made on entirely different principles to other springs in the market, and Messrs. Leggott claim that it has a considerably longer life.

NEW CATALOGUE.

IT must have often puzzled visitors to understand how the extensive business of Messrs. C. C. Dunkerley & Co., Limited, Manchester, could be conducted in comparatively limited premises. System can do much, and besides, it is difficult to obtain an area of land sufficiently large for a warehouse of iron and steel, for business of the kind must be mainly conducted on the ground floor. At length, owing to the increased demands, it has been necessary for the firm to remove to specially designed warehouses in Store Street, Manchester. Accommodation can at last be found for the immense stock of iron and steel in all the forms required in construction. An equal number of pieces of wood would form a well-stocked timber yard. The impression made on entering the various divisions is that iron and steel are now the principal materials employed by builders. It is not merely steel joists of all sizes, bar iron, angles, channels, tees, sheets, but compound girders, stanchions, columns and rivetted girders. Fairbairn and other pioneers of metallic construction would be amazed at the variety of forms in which steel and iron are displayed at Store Street by Messrs. Dunkerley. The guide to the present stock is issued in a handy form, is illustrated by sections, and gives weights and safe loads. There must be few sections in use which are not found in stock, but the firm will supply any existing section "from works." The removal enables Messrs. Dunkerley to introduce a new department in which rivetted girders can be produced and prompt completion and delivery are assured.

No little excitement was caused at Liverpool on Tuesday owing to a leakage in the electric-lighting main placed underneath the footwalk. The apparatus for regulating the currents in Dale Street somehow became detached from the main and set up a current on the pavement, causing persons who passed the spot to cut queer capers when they received a shock, which was rendered more severe by the rain. Several were knocked down, but no serious injury is reported.

TRADE NOTES.

THE New British schools, Halesowen, are being ventilated by Mackay's patent direct-acting ventilators, supplied by the sole makers, Messrs. Cousland & Mackay, ventilating engineers, Glasgow and Manchester.

MESSRS. RIPOLIN, LTD., of 110 Fenchurch Street, ask us to mention that the enamel used for painting the walls of the new operating theatres at St. Thomas's Hospital, to the opening of which by Lord Lister we referred last week, is their white Ripolin paint.

PAPRISTEEL is the name given by the General Electric Company, Ltd., to a new electric conduit manufactured of paper tube drawn over with their "Union" steel conduit, the whole being enamelled inside and outside, and stoved together, thus forming a highly insulating, damp-proof and mechanical protecting conduit. It is claimed that the "Papristeel" conduit effects a large saving in cost over insulated steel or gas barrel conduits, and at the same time combines all their advantages with those of the company's "Union" system. When it is desired to have screwed joints, this conduit can be supplied at a slight additional cost with the lengths screwed at each end, in such case the screw being of brass pitch so as to fit the lampholder, couplings or other similar fitting.

VARIETIES.

THE Institution of Junior Engineers will on Saturday, July 13, at 3 P.M., visit the Millwall Lead Works, Millwall.

A NEW Wesleyan chapel, which cost 1,000*l.* exclusive of site, was opened for Hethersgill, in the Brampton circuit, on the 27th ult.

LORD DUNDONALD visited Winsford, Lancs, on the 26th ult., to open a new Drill Hall which has been erected at a cost of 3,000*l.*

A NEW United Methodist Free church, which has been erected in Tipton Street, Lower Openshaw, for the congregation which has met hitherto in the Cobden Memorial Hall, was opened on Saturday afternoon.

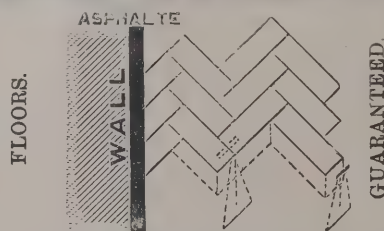
THE new police court and station at Howden, which have been built by the East Riding County Council at a cost of something like 4,000*l.*, were on Saturday formally opened for public business. The new structures are commodious and

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effective, and occupy a prominent position in the centre of the town. They are built of red bricks with stone facings, and are of a substantial character.

BUILDING AND BUILDERS.

FOUNDATION-STONES have been laid of a church at Sudbury to cost 2,500*l.* and seat 400.

It has been decided to reroof Holy Trinity Church, Coventry, at an estimated cost of 1,750*l.*

THE new chapel of the United Methodist Free churches, Lower Openshaw, Manchester, was opened on Saturday.

THE foundation-stone of a new chancel which is being added to St. John's Church, Sevenoaks, was laid on the 24th ult.

AT Cuddington, near Northwich, foundation-stones were laid on the 26th ult. of a new Sunday school and an extension of the present United Methodist Free church.

To perpetuate the memory of Queen Victoria, it has been decided to restore the parish church at Baston, South Lincolnshire, and the suggested improvements include a new clock in the tower.

ON Saturday a new Baptist chapel in Beaver Park, Didsbury, was opened by a dedicatory service. The present building consists of nave, transepts and chancel, with provision on the site for vestries and a school yet to be erected. The design also includes a tower, which can be added at the north-west corner, and which will provide access to the end gallery. The accommodation on the ground-floor is for 450 persons, but for the present the nave alone will be used for services, accommodating 200. The architect is Mr. A. W. Smith, and the contractors Messrs. J. Gerrard & Sons.

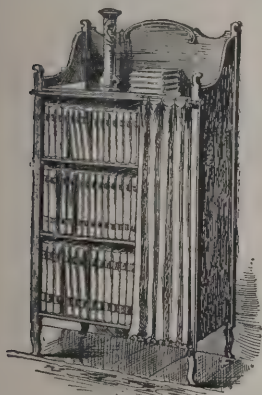
REVERSIBLE CASEMENT WINDOWS.

A JUDGMENT was delivered on Monday, June 24, by Judge Lawrance at the Essex Assize Court, Chelmsford.

The plaintiffs were George E. Clare, architect; E. Wareham, watchmaker; and S. Upshall, agent, all of Chelmsford; and the defendants The Crittall Manufacturing Company, Limited, of Braintree, Essex. The action was for the recovery of 50*l.* due and damages for breach of the contract under an agreement made with the defendant company in October 1898.

Mr. J. F. Rawlinson, K.C., and Mr. C. E. Jones, instructed by Mr. A. G. Maskell, solicitor, of Chelmsford, in opening the case for the plaintiffs, said they were the inventors of a patent reversible casement hinge, which device was developed in October 1896. It consists of a stiff vertical bar with horizontal arm at top and bottom, integrally joined together so as to become one strong rigid [-shaped appliance, which is hinged at the side to the frame and at the end of the arms to the centre of the top and bottom rail of the casement, in order that the casement can be opened in the usual way on the side hinges for ventilation, and by releasing a catch reversed on horizontal arm hinges. The object of the device was to enable outward opening casements and those on either side to be cleaned from the inside, and thus avoid the window-cleaning accidents that were so frequently occurring. A model of the invention (produced in Court) was taken to the Crittall Manufacturing Company on October 13, 1896, and the manager was much taken with the idea. After some negotiations a provisional agreement was drawn up by which the defendants obtained the sole right to manufacture under certain royalties, and the plaintiffs received 50*l.* down, the defendants agreeing to pay another 50*l.* when the final specification was produced with an expert's opinion as to validity. Upon searching the patent records the plaintiffs found that other devices had been previously patented, one by Rump, a German, and another by Osterberg, an Austrian. The latter failed to complete his English patent, and it therefore became public property in this country. Although these two inventions (which are virtually the same) are somewhat similar in appearance to the plaintiffs' device they both lack the important and vital element of the plaintiffs', viz the strong vertical bar connecting the two arms, making the three one homogeneous whole that renders it of practical utility and a success commercially; whereas the lack of this in the other two rendered them both quite useless for any practical purposes. In January 1899 defendants suggested that the matter should come to an end; in July 1899 plaintiffs obtained the final specification, and produced Mr. Bousfield's, K.C., report, stating that in his opinion Clare's patent was not an infringement of any other patent.

In June, 1899, the defendants advertised the casement widely, and called it the "Crittall safety casement," and up to the present time had been manufacturing to Clare's specification; some marked Rump's patent and some not marked at all. Counsel produced various models of the different inventions, and called Wareham, who explained the models and



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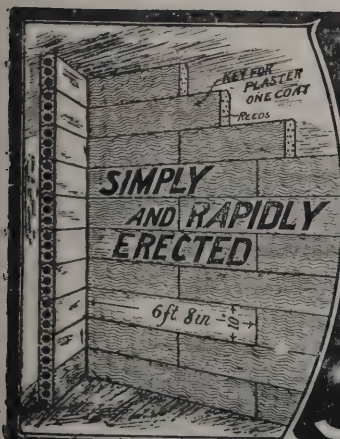
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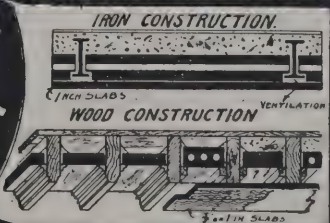
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demonstrated the difference between plaintiffs' device and those of Rump and Osterberg. Evidence was also given by Mr. George Barker, patent agent and consulting engineer, Birmingham, and Mr. Dunn, A.R.I.B.A., architect, of Birmingham, who both confirmed Wareham's evidence, and explained the reason why the plaintiffs' device was a success and the prior patents not, Mr. Dunn stating further that he was so pleased with the plaintiffs' patent that he would be pleased to specify it where he could. The jury at this juncture expressed the opinion that no further evidence was needed on that point, as they were convinced.

Mr. J. A. King, agent for the Mack slab, of Queen Victoria Street, London, was then called to prove that he, with Mr. C. A. Line, of Birmingham, had seen the Crittall Manufacturing Company's stand at the Building Trades Exhibition this year, and their representative had told them that they had tried to make the casements satisfactorily without the vertical connecting bar, but that they had found the vertical bar was absolutely indispensable; this fact was further borne witness to when Mr. Crittall stated that the only casement he had made without it was one in his own shop.

Mr. Johnson, builder, of Chelmsford, then gave evidence of having seen many of the casements made and fitted up by the defendant company in buildings in London, all in his opinion without a doubt according to plaintiffs' specification; he further alleged that he should be pleased to use the plaintiffs' patent casement wherever possible, but Rump's he would certainly not use unless he was compelled to.

Messrs. Clare and Upshall subsequently gave evidence in support of the previous witnesses.

Mr. Witte, K.C., for the defendants, submitted there was no case for plaintiffs, and that the validity of plaintiffs' patent was not proved.

Mr. F. H. Crittall, managing director for the defendants' company, said he went to Hamburg in May 1899 and entered into an agreement with Rump to acquire the sole right to manufacture his patent, and since then he had done so; but he admitted that casements had been fitted that were not marked Rump's patent, which he regretted.

Mr. Brunton, manager for Messrs. Crompton & Co., Chelmsford, witness for the defendant company, stated that superficially the casement from defendant company was like plaintiffs' patent, but in principle it was Rump's.

The jury at once decided that plaintiffs' patent was the best they had seen in Court, was practically useful, and that it was a

valid one; and that defendants had been working under plaintiffs' patent.

The judge gave judgment for the plaintiffs for 50%, with costs, and ordered an account to be furnished to plaintiffs. Stay of execution for ten days was granted.

THE VENTILATION OF HOUSES.

At a meeting of the sanitary inspectors of Scotland Mr. James M. Rose, Sutherland, read a paper on "Bionomical v. Artificial Ventilation." He said that it was admitted by all that the best, most useful and substantial inventions were the simplest ones. Science and art had done wonderful things, but in comparison with some of the other organic and inorganic elements they had done very little to make air more serviceable. Even in the twentieth century we were further back in our knowledge of the principles that governed the first necessity of life than in almost anything else. In the latter part of the past century we had acquired some knowledge in meteorology and allied studies, and it was to this science that we must look to to get some facts and data to go on in dealing with any application of these elements to such an important matter as ventilation. The number of systems and appliances at present in use for ventilating houses and buildings were legion. A few of them worked fairly well, especially those that had the aid of machinery and the elaborate system in use in the Houses of Parliament. These expensive and elaborate systems were but compromises on account of our lack of knowledge of the simple laws that guided natural ventilation in the outside world, and of having that principle adopted intelligently in the ventilation of houses and other buildings. There were, he said, a host of small contrivances which were more or less useless, and their only recommendation was the art displayed in their construction. Mr. Rose explained the action of the air blowing from the equator to north and south, and then went on to say that every person knew that the higher up they went the temperature got lower, and the nearer to the earth the higher the temperature. Hence the old saying, "Keep your feet warm and your head cool." That was the natural order of things; but in 99 per cent. of the dwellings they would find the temperature 40 degrees on the floor and 60 or 70 degrees from 6 feet up to the ceiling. For a considerable time a fierce controversy had been raging over this

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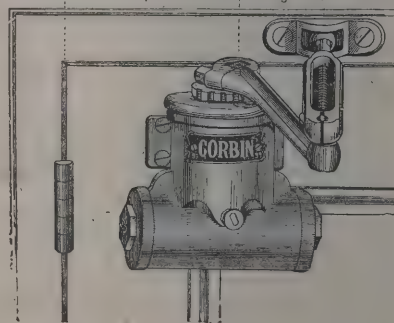
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It Prevents Banging, but Latches the Door.



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question of ventilation. A few of the more recent systems were certainly improvements, because of their ability to change the air in confined areas, but these were only within the reach of the very wealthy, and could only be introduced into large halls, hospitals, and similar places. What was really required was a greater approach to the principal law of the universe, which was both simple and procurable at a cost within the reach of every builder of a house or a tenement. First of all, they must be prepared to sacrifice their good old friend the common grate and open fire-place in living and sleeping rooms, and substitute a small stove that would not consume more than a few pounds of coal, or its equivalent, in, say, three or four hours. The stove would have a heat radiating copper drum to economise the full benefit of the heat, and for the purpose of warming the air and practically doing the work. The next thing was to make certain that the rooms were as nearly airtight as possible. The air could be introduced by two ways. The first was by side slits, screening and filtering the air according to locality and the nature of the atmosphere surrounding the building. These side slits or inlets would be about 5 or 6 feet above the level of the floor. Then there was to be fitted what he would call a main sewer or suction pipe below the floor, not too large, tapering off at one end next to and let in below at the edge of the stove fire. At the opposite end there should be an elongated grating tapering off into the suction pipe to carry off the carbonic acid gas. Then near the ceiling there must be several outlets distributed around the room, but not opposite to each other or directly opposite the inlets; these outlets to have branch pipes down behind the plaster under the floor to connect with the main suction pipe. By a natural law the expended air was forced upwards, and as the fire would draw from the easiest source of supply it would extract all its requirements from these outlets, and all the exhalations from the persons inhabiting the room were thus forced through the fire and so destroyed. The heavier or carbonic acid gases were likewise syphoned in and carried off by the same means into the outer air in a harmless condition, having passed through the fire. The other system was that instead of side inlets there should be one inlet, first of all screened and passed over quick-lime, which would absorb the moisture heated and further dried by the soil pipe in the copper drum of the stove, cooled down and passed over distilled water to again drink in moisture of undoubted quality, and so passed into the room. Mr. Rose further remarked that the same principle could be applied to a

sanatorium, and he contended that by its adoption it was quite possible to live, move and breathe as freely in a temperature of 120 degrees as in one of 60 degrees. He had tested this personally, and so could speak from personal experience. By adding extra moisture to the room they could have a Turkish bath of the purest kind. In such a room they could put a subject of gout, rheumatism, or even a tuberculous subject, and it was only a question of time, if they kept the subject supplied with distilled water, fruit and vegetable diet, how long he would be ere he wore off by perspiration the old body and got a new frame like unto that of a child, and so cure the former malady. Mr. Rose concluded by remarking that one great reform necessary to better the present condition of things was the thorough education of the architect.

Mr. Fyfe said the idea which Mr. Rose seemed to have running through his paper was that if they could cultivate in and around their dwellings the system which pervaded the universe from the equator to the other parts of the world, then they would have reached a perfect system of ventilation. It was quite true that in our present houses the feet were sometimes in an atmosphere of 40 degs., while the head was in 60 or 70 degs.; but the difficulty had always been to so ventilate the rooms as to provide for the absence of that state of affairs. He could not imagine how a stove could do the work, but if they could get some means by which the cold air could be cut off from coming from the outside underneath the door, then the problem might in some degree be solved. He must say the open grate was a very good means of ventilation, provided they could get better means whereby fresh air could be introduced into the room. As to Mr. Rose's system of curing disease, he was not sure that the par-boiled system would work. They had, however, got something to think about.

One or two other gentlemen spoke, and expressed doubts as to the stove doing all that was claimed for it.

Mr. Rose, in reply, said he had personally experienced all that he had said, and he was certain of its practicability.

BUILDER'S DISPUTE.

AT the Bodmin Assizes the case of Symons v. Angwin (S. J.) was heard.

Mr. Duke, K.C., said the action was to recover 140*l.* 10*s.* balance due under a building contract for the erection of a chapel, and 33*l.* 7*s.* 10*d.* extra to the contract. It was Silver-

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well Wesleyan chapel, St. Agnes. The real question was whether the defendant and his co-trustees ought to pay that balance. The contract was made on June 18 last year to build the chapel for 310*l.* 10*s.* Some small additions were ordered during the progress of the work, in respect of which the plaintiff claimed 33*l.* 10*s.* The defendants had paid 170*l.* Some curious transactions occurred in the course of the matter. In March of last year the defendant and his co-trustees went to Mr. John Symons and told him they wanted to build a new chapel. They told him what they proposed to spend, and he drew a sketch. They were pleased with it, and asked him to prepare plans. He also drew out a rough draft of specifications, and some amendments were afterwards made. This action was tried there, and not before an expert, because the trustees alleged, and persisted in alleging, that Mr. Frank Symons made away with the true specification in this case, and had sought to put off upon the trustees a false specification. The plaintiff therefore sought not only to recover the money which was due to him, but he also wanted to clear his character of a serious imputation.

Mr. John Symons was unable to attend, owing to age and infirmity, and his depositions were read.

Mr. Frank Symons, the plaintiff, stated that in 1896 the business of John Symons & Sons, belonging to his father, was assigned to him. His father assisted him for his amusement and for exercise, but had no share in the business. His father prepared plans, but he could not write with a pen, owing to an infirmity of his right hand, and used a pencil. Witness used to ink some of the drawings prepared by his father. Witness took large contracts, and had put up the buildings in Cornwall given by Mr. Passmore Edwards. In the present case his father wrote the specifications in pencil in March of 1900 at his own house. His father told him (witness) what to put in the ink-written document produced. In May tenders were issued for the erection of the building. Plaintiff sent in a tender of 310*l.* 10*s.*, and on June 18 last year he signed the contract for the building. Stone was used in place of brick in the orchestra arch, because it was found to be better and stronger. Langdon, the clerk of the works, accused witness in the course of the works of having tampered with the specification. Witness called upon him to withdraw the insinuation, or he would not recognise him on the works. Langdon replied, "I didn't quite mean that, and if you take exception to it I will withdraw it." At a subsequent interview the witness complained to Langdon of the reports that were being circulated about his contract to

the effect that he was saving much on the slates used, and that the chapel would come down at one end in consequence of there being a stone arch instead of brick. Langdon said he should not take any notice of reports. Witness replied that the reports were damaging to his character and reputation. In some further conversation Langdon said witness could bring an action against him if he chose, and that he was quite prepared to defend himself. Witness made application for a further payment on account of the work, but he did not get it. Subsequently, when he handed over the complete building, the defendant said they had now a very good chapel. He was sorry there had been any dispute, and he wanted it settled up. Other trustees complimented him upon the way he had completed the building.

Mr. Foote did not contest the point that the work was good.

Mr. Duke said the issue had been narrowed down as to this charge, as the parties had agreed as to the amount owing on account of the contract.

Mr. Frank Symons, the plaintiff, in cross-examination by Mr. Foote, said there had been a good deal of country gossip as to his tampering with the specifications. He tendered for 40*l.* or 50*l.* less than the other contractors, and got the tender. Every alteration he made was before the contract was signed.

Mr. Foote said he agreed. But he suggested that the alterations were made after the tendering and before the specifications were signed.

Plaintiff said he charged 1*l.* 12*s.* 6*d.*, as an extra for French slate, although it was provided for in the specifications, and he did so because of the reports which had been circulated that he was taking advantage of the use of the slate in his building contract.

His lordship said that was one way of calling attention to the matter.

Plaintiff, in re-examination, swore he never wrote anything into the specifications except in the presence of his father and at his father's suggestion. He made no alterations after his contract was accepted.

Charles Carveth, a foreman of works at the chapel, in the employ of the plaintiff, stated that Mr. Langdon said the specifications had been tampered with. Witness said he had not altered them. The plaintiff called upon the clerk of the works to withdraw the charge, which he did.

Samuel R. Tonkin, carpenter, in the employ of the plaintiff, gave evidence of the interview between plaintiff and the clerk of the works.

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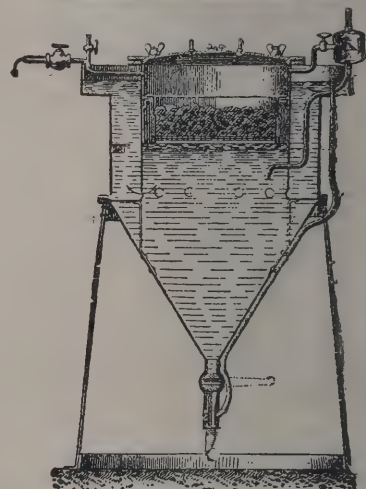
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J. H. Harris, another workman, swore that the plaintiff wrote in the words spoken to in the presence of the clerk of works and in consequence of what the clerk said.

Thomas Truran, senior, jobbing mason, said he was at the chapel when it was handed over. The defendant and two other trustees were present, and they expressed themselves very pleased.

Walter Durant, plumber, Redruth, deposed that on April 20 he inspected the specifications at the workshop of the plaintiff to take size of leads, &c. He produced a note-book of entries which he made at the time. They were made at the workshop of the plaintiff out of a printed specification.

Arthur Goynes, farmer and hon. secretary of chapel trustees, said he had nothing to say against Mr. John Symons, plaintiff's father. He believed him to be a man of high character. The trustees were always willing to settle the dispute, not wishing to drag it into publicity.

William Henry Moyle, builder and contractor, Chacewater, said in May last year, whilst he was at Mr. Goynes's house, his son copied the specification, which was subsequently compared with the original and found to be a correct copy. He had never seen the original draft pencil specification. — Cross-examined, witness denied that he had ever said he was not going to tender, or that he objected to Mr. John Symons as the architect.

Arthur Moyle, son of the last witness, proved making the copy of the specification.

Thomas Sampson, builder and contractor, Blackwater, deposed to examining this copy at Mr. Goynes's house and making notes and calculations from it.

Wm. George Samson, son of the last witness, gave similar evidence.

Charles Williams, Perranzabuloe, produced notes which he made from this copy of the specification, and to tendering for the work.

Matthew Henry Hodge, builder, St. Agnes, said after examining the specification he declined to tender when he found plaintiff's father was the architect, and that plaintiff was going to tender.

Oliver Caldwell, architect, Penzance, said he inspected the chapel on the 12th inst., and estimated the difference between the cost of the actual work carried out and that provided for in the specifications at 32%. That was omitting the slates. The cost of substituting Delabole for French slate would be 39%.

The difference in value between the two kinds of slate at present was 6*l.* 16*s.* — In cross-examination, witness said the erection of the chapel was a very good job, except in regard to a few details.

Mr. Foote, in summing up for defendants, submitted that plaintiff did not intend that anybody's tender should be accepted but his own. The alterations made all rendered the work cheaper to plaintiff to carry out than if the specification had been adhered to which the other contractors saw and some of them copied. This was substantially a charge of fraud, as they could not shut their eyes to the fact that the course which the case had taken had suggested that the specification was intentionally changed.

Mr. Duke, in reply to the defendant's case, said the question at issue involved the plaintiff's existence as a business man. He asked the jury to say that the plaintiff had not forfeited a lifelong character for integrity by descending to an unworthy and dishonest trick.

His lordship left it to the jury to say whether the ink specification was the one upon which the tenders were invited and framed, and which gravitated into the acceptance of plaintiff's tender. Undoubtedly, beyond all question the case involved the question of fraud. There was no blinking the matter that if defendant's case was right, plaintiff had been guilty of a gross fraud. It was a formidable case against him, and one which, if tried in another court, would certainly have been a very serious charge for him to answer. It was for the jury to say how far his counsel had suggested an answer. It had, he thought, been made out that the figures which appeared in the ink specification imposed, on the whole, less burden on the contractor than the figures and words found in Moyle's copy; so that if plaintiff were disposed and able to substitute and to get the people who had contracted with him to accept as genuine a specification altered in that respect, he would have less to do, and his contract would be performed more readily, and at less expense to himself, than if he had stuck by the document copied by Moyle. The differences between this document and the ink specification were very numerous. No one would think of entertaining a serious accusation if there were only one, two or three instances of this sort, but when they were multiplied until they ran into dozens, was it possible there was any explanation except that something else had been substituted for the specification since Moyle saw it? He had listened in vain in Mr. Duke's speech for any suggestion as to how the differences in

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the two copies of the specifications could be accounted for. Mr. Duke said it was a conundrum he was not called upon to answer, but it was a conundrum the jury were called upon to answer, and they must say if there was any possibility of a mistake, or whether there had really been a substitution of some leaves and pieces of paper for others in the ink specification.

The jury came to the conclusion that great carelessness was exhibited in the transaction, and a verdict in keeping with the judge's charge was returned.

THE LONDON WORKS DEPARTMENT.

At the meeting of the London County Council on Tuesday, the finance committee submitted their half-yearly return of works completed by the Works Department. During the half-year ended March 31 last twenty-five estimated works have been completed and are now reported upon. These are the whole of the works completed during the half-year, but the total gives no indication of the turnover of the department during that period, because some of the expenditure on these works occurred previous to the half-year in question, while, on the other hand, a large part of the expenditure during the six months was upon works which are still unfinished. The approximate expenditure on estimated works for the half-year was 155,000*l.* On the total amount of the work comprised in the statement—namely, 83,924*l.*—there is a balance of cost under the final estimate of 391*l.*, or 0.5 per cent. Most of the works have been carried out at a cost somewhat less than the final estimates as certified by the chief engineer or architect. There are six cases in which the cost has exceeded the final estimate, but in only two of these is the excess considerable. These are both architectural works, and in the first case the excess of estimate is 9 per cent. and in the other 10 per cent. The jobbing works for the half-year show that on 1,214 works there is a balance of cost below schedule value of 857*l.*, or 6.9 per cent. At the present time the department has twenty-nine works in progress (exclusive of jobbing works), representing a total estimated cost of 733,350*l.*, in respect of which work to the cost of 546,507*l.* had up to May 31 been executed. There are also thirteen other works not begun, the estimates for which amount to 124,985*l.*

Mr. Bruce, chairman of the sub-committee of the finance committee, who have to deal under the revised scheme with the works department, said the report was a favourable one,

but there were some works in hand which might not show quite such favourable results. The exact results could not, however, yet be estimated. Much was said last week as to the reorganisation of the department. He did not think that the scheme of putting the work either directly under the architect or the engineer was feasible, as both those officers had their hands very full. The sub-committee consisted of men of great experience, some of them might be called experts, and watching the department week by week, they were probably able to form a better idea of the strong and weak points of the department than could any commission of outside experts such as had been proposed. There was little doubt, however, that what he might call the municipal idea, that the workmen would work better for the municipality than for a private contractor, had not altogether been a success. It was to him an important matter that they should see whether some form of co-operation could not be instituted which would give some direct interest to the men, and induce them to put their backs into their work.

Mr. Campbell thought it was not worth while for the Council to encumber itself with a system which led to scandals. Perhaps it would be better for them to go back to the works committee. The members of the sub-committee who dealt with works really knew nothing about them.

Mr. Howell Williams said they wanted the master's eye on the work done. If the department had gone about the work in the right way, it would have been a magnificent success. Instead of the finance committee dealing with such a gigantic institution as the Works Department, he thought it better that the works committee should be reinstituted.

The report was then received and adopted, and votes were agreed to to cover the cases in which there has been an excess over the estimates.

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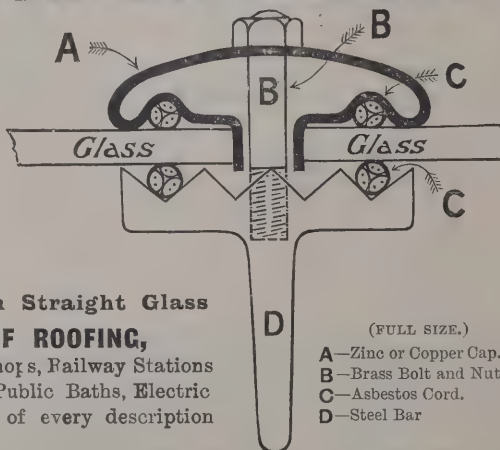
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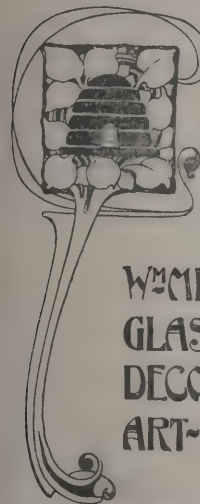
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ladies entering by the right and gentlemen by the left. Beyond these doorways there is a capacious vestibule, which is divided into two parts by massive columns and entablature of Doric order. To the left and right of the entrances are the passages to the plunge baths. In the portion allotted to gentlemen there are six first-class baths, with twelve dressing-boxes, while in the parts used by ladies there are four baths, with eight dressing-boxes. A prominent feature of the baths is the arrangement whereby a ready supply of salt water can be had. This, it is believed, will prove one of the strongest attractions of the baths, offering, as it does, all the benefits which physicians say are derived by immersion in salt water, while the risks of ordinary sea-bathing are entirely absent. The first-class bather in the new building will have full control of the feed-pipes, as well as being in electrical communication with the attendants. The hall in which the large pond is laid out measures 95 feet by 55 feet. The swimming-pond is 75 feet by 35 feet, the depth of the water being 7 feet at one end and 3 feet 6 inches at the other. Along the sides of the hall are fixed 56 dressing-boxes. Cast-iron columns, with moulded capitals, divide the hall longitudinally. By these columns are supported the gallery and the roof. The three sides of the pond are surrounded by the gallery, which is staged and seated for onlookers. The gallery is a very noticeable feature of the hall, and is fronted by a massive ornamental balustrade of polished teak wood, with embellished sunk panels at intervals. The south end of the hall is portioned out as a gymnasium, which in turn provides all the athletic requisites commonly used at galas and different aquatic exhibitions. The gymnasium covers in space 32 feet by 30 feet. At the north end of the baths is an alcove 33 feet by 14 feet in depth. At the private entrance to the baths from Melville Street and adjoining the gymnasium, is a resuscitation room, in which will always be ready the necessary medical appliances, and which is also fitted up with heated baths. There is a similarity between the baths for women and those for men. Situated between the respective ponds are the second-class baths. They differ from the first-class baths in being under the control of the attendant and not of the bather. Adjacent to these baths is a sitz bath, and near it are the offices for the superintendent and female attendants. The Turkish bath occupies the centre of the southern portion of the building. It consists of two hot rooms, the laconicum and calidarium, where the temperature will range from 200 to 210 degs.; a sudatorium at a temperature

of about 190 degs., and the tepidarium or cooling-room. The shampooing-room, which is fitted up with the usual spray, douche and other apparatus adjoins the sudatorium, but is entered by a disconnecting porch. There is a Russian vapour bath in the same vicinity, while here there is also a cold plunge bath 16 feet long by 5 feet wide. The fittings of the tepidarium are of a most complete kind. There is a series of lounges which, for privacy, are suitably curtained off. On the first floor of the building there is a series of rooms for the use of visitors. The centre room has been fitted up as a refreshment buffet, and is connected with the kitchen in the flat above by means of lifts. Adjoining the refreshment-room there is also a smoking-room. Over the ladies' entrance there is the coat-of-arms of Portobello, and above the gentlemen's entrance the coat-of-arms of Edinburgh is shown.

The Corporation had the benefit of expert advice in connection with the purity of the sea water, and as a result have adopted a system whereby the water is pumped from a point 400 yards distant from the promenade. Dr. Stevenson Macadam, who prepared an extensive report on the purity and saline qualities of the water for the Corporation, selected this point. In his report Dr. Macadam said the water was practically free from contamination or from organic or other impurities. The boiler, which is one of the principal portions of the plant at the baths, is a 22 feet by 7 feet Sinclair's Patent No. 1, and generates steam for the whole building. This steam is used for heating the water of both ponds, driving the pump, heating the building, heating the salt and fresh water and the Russian and Turkish baths. The salt water is pumped up from beyond low-water mark by means of a Worthington steam piston pump, capable of delivering 15,000 gallons per hour, and the water is drawn from the sea by means of a 10-inch pipe. The water is then put through a Reeves filter, and from thence sent to the ponds and a tank for sea water, which holds 3,600 gallons, and supplies the plunge and other baths. The plunge baths, which are sixteen in number, have both a salt and a fresh water supply. A patent fitting is here introduced necessitating the bather turning on the cold water first, thereby doing away with a possibility of scalding. All the water-supply piping is so arranged that any portion of it may, in the event of a breakdown, be shut off, and the rest still be kept in use. The heating of the water is performed by means of steam calorifiers. The drainage of the building was throughout executed under the supervision of the burgh engineer, and is of iron piping.



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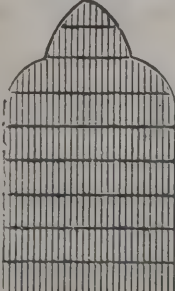
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GLASGOW WATER SUPPLY.

THE Corporation of Glasgow, during their annual inspection of Loch Katrine Waterworks, opened a new supply tunnel which practically doubles the flow of water to the city. In 1855 the Lord Provost, magistrates and Council of Glasgow obtained power as Water Commissioners to acquire the works of the Glasgow Water Company and the Gorbals Gravitation Water Company, and to construct new works for bringing a plentiful supply of pure water to the city and surrounding districts from Loch Katrine, in the Perthshire Highlands, a distance of 34½ miles. There were now two lines of aqueduct for conveying the water from Loch Katrine to Glasgow. One was constructed under the Act of 1855, and was designed and carried out by the late Mr. J. F. La Trobe Bateman, M.Inst.C.E.; the other was constructed under an Act of 1885, and was designed and carried out by Mr. James M. Gale, M.Inst.C.E., the engineer to the Corporation Water Department. By the Act of 1855 power was taken (1) to raise Loch Katrine 4 feet above its previous summer level, and to draw it down 3 feet below its previous summer level, making 7 feet in depth to which the loch could be drawn upon; (2) to take 50,000,000 gallons of water per day for the supply of the city and suburbs; (3) to construct a line of aqueduct and a service reservoir; and (4) to utilise the waters of Lochs Vennachar and Drunkie as compensation water to the river Teith. By the

Act of 1885 power was taken (1) to raise Loch Katrine other 5 feet, making 12 feet in all that might be drawn upon for the supply to the city; (2) to take a further 60,000,000 gallons per day for the supply of the city and suburbs; (3) to construct a duplicate line of aqueduct and service reservoir, with lines of pipes to the city; and (4) to raise Loch Arklet 25 feet above its present level, and lead the water from this loch into Loch Katrine by a tunnel. The first aqueduct from Loch Katrine to the service reservoir at Milngavie was 25¾ miles in length. It was 8 feet wide by 8 feet high, with arched roof, and was capable of discharging 40,000,000 gallons per day. The second aqueduct, which ran almost parallel with the first all the way from the loch to the service reservoirs, was 23½ miles in length. It was 12 feet wide by 9 feet high, with arched roof, where not lined with concrete, and 10 feet wide by 9 feet high, with arched roof where lined with concrete, and was capable of discharging 70,000,000 gallons per day. The two aqueducts, taken together, were capable of discharging 110,000,000 gallons per day into the two service reservoirs, which were distant about 7 miles from the city. This quantity of water would fill a canal 30 feet wide and 6 feet deep for 19 miles. The construction of the new aqueduct had taken from March 1886 to June 1901 to complete, or 15 years. The Mugdock reservoir had a water surface of 62 acres, and a capacity of 500,000,000 gallons. The Craigmaddie reservoir had a water surface of 88 acres, and a capacity of 700,000,000 gallons. Combined, these reservoirs contained 24 days' supply at the rate of 50,000,000 gallons per day. There were four lines of 36-inch pipes from Mugdock Reservoir and two lines of 36-inch pipes from Craigmaddie Reservoir. The water from Loch Katrine underwent no filtration, being merely strained through fine wire gauze netting to prevent sticks, leaves, &c., from passing into the pipes. In order that the water might be kept free from pollution, the feuing rights over the whole drainage area of Loch Katrine and Loch Arklet, extending to 26,295 acres, were, in 1892, purchased by the Corporation at a cost of 17,000*l*, and the owners of the lands within that area were prohibited from erecting any houses or buildings on any part of those lands. The cost of the new aqueduct was as follows:—Reservoir, 316,600*l*; aqueduct, 730,640*l*; outlet works and raising loch, 40,731*l*; lands and compensation, 93,721*l*; engineering, 31,588*l*.—in all, 1,213,280*l*. The new mains from Craigmaddie cost 116,126*l*. The old aqueduct and mains cost 1,515,570*l*; less extensions in the city, 246,907*l*. Subject to this deduction, the cost was 1,268,663*l*.

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# The Architect.

## THE WEEK.

ALTHOUGH the plans for the memorial of the late QUEEN submitted by the five selected architects have been under consideration for a week, there is as yet no intimation that any one of them has secured favour with the committee. Apparently other suggestions have also received attention. The success of the Federation triumphal arches in Australia has not been overlooked by the representatives of various colonies. If a handsome arch can be made of materials which are not intended to endure, it is believed to be no less easy to realise one in marble or granite or in some of the varieties of colonial stone. A series of arches representing various colonies must be a subject for debate. Any project of that kind is likely to affect the proposals of the five designers. From the present aspect of the case it looks as if the recent competition was only provisional, and that a larger, and it may be a more earnest one, will have to be attempted.

ACADEMICISM in architecture is still dominant as a principle at the French Académie des Beaux-Arts. The production of anything which would suggest that the five orders and the rules for mechanical proportion are in the least degree obsolete is supposed to be an unpardonable offence. That, at least, has been the fate of M. TONY GARNIER. He competed for the Prix de Rome, and sent in drawings of a *tabularium*, according to the rules and regulations in that case made and provided, as the lawyers say. At the same time he believed that the twentieth century was not the time to play with antiquarianism, and accordingly he submitted a scheme for a *cité industrielle* which would be modern in every inch. Like the majority of his countrymen M. TONY GARNIER is a logician, and he wrote upon his designs, "All architectures are founded on a false principle. The architecture of antiquity is an error. Truth alone is beautiful." Young men in revolt in Paris require formulæ of that kind in order to convince themselves they are acting like heroes. The Institut is always gratified by insurrectionary principles, for they afford an opportunity to the ancient judges to uphold the cause of law and order. M. TONY GARNIER'S meritorious designs for the *tabularium* were accordingly disregarded as if their existence were unknown. With one class of clients the action of the Academicians might do the young architect a serious injury; but the ordinary Frenchman is, we imagine, too shrewd to allow anything said or done by the Institut to cause him inconvenience. M. TONY GARNIER'S effort to express his own ideas might easily be disregarded, but his design for a *tabularium* should not be rejected, because his *cité industrielle* would meet modern requirements.

THE report on bookbinding by the Society of Arts deserves careful attention from those who own books, as well as from librarians. For such an inquiry as one into the causes of the deterioration of leather when used in binding the Society of Arts has peculiar facilities. It is the one Society which can claim to have the diffusion of knowledge among the people as its *raison d'être*, and on that account any request for assistance is cheerfully responded to by experts. For the inquiry which has been lately concluded, bookbinders, tanners, technical professors, librarians, chemists, bibliophiles co-operated. The humblest possessor of books must have an interest in the conclusions, for there is no resisting the fact that in the majority of houses costly bindings quickly decay. There is now nothing like leather for destroying books, and this becomes the more remarkable when we find that the old cloth bindings which were introduced by CHARLES KNIGHT sixty years ago still resist gas and damp, and allow of constant reference without any injury to the books they cover. The committee found that since 1860 nearly all leathers seemed to get worse, and they ascribe the condition of calf-binding as much to excessive thinness as to the poor quality of the material. Binders and leather manufacturers maintain that the decay is in a large measure caused by the condition of the rooms in which the books are placed. The committee satisfied themselves "that in

libraries in which there was no artificial light used, and where the ventilation was good; the bindings were generally in a better state than elsewhere." If the books are placed in rooms which are much used they are generally in a bad state, but whether it is due to gas or other fumes is not decided. Daylight, and especially direct sunlight, disintegrates leather. Bookcases with closely fitting doors are preservative for books if no moisture finds its way in. It is recommended that library windows ought to be glazed with a slight yellow or olive tint, so as to exclude as much as possible the more chemically active rays. Dust is also injurious, but the usual method for removing it, adopted by servants in spring cleanings, is not judged satisfactory. Extremes of heat or cold, moisture or dryness should be avoided. It is also recommended that books should not be either too tightly or too loosely kept on the shelves. When the latter are only partially filled the books can be kept upright by the use of a flat angle piece of galvanised iron. When backs and joints open, repairing should not be neglected.

At the meeting of the Association of Waterworks Engineers the need was suggested by Mr. WILLIAM WATTS of a metallic service pipe which, while equal to lead in ductility and strength, would have in addition the power of resisting the solvent action of water charged with peaty and other acids. New piping is more readily acted upon than old, and probably a baser metal than lead—if one can be discovered—is all that is required. In recent years iron piping has come into more general use, and there is no reason why it should not be even more extensively used, as there is no doubt but lead pipes and cisterns are dangerous to health when used in the storage or conveyance of soft water. The time has also arrived when spun yarn should cease to be used in making the joints of socket pipes, and cold lead rings substituted. The fibre of the yarn is vegetable material, and in the course of time decays and pollutes the water. Some engineers have dispensed with it; there is no reason why others should not do likewise. The cost of solid lead joints is a little more than a yarn and lead joint, and the surface of lead brought in contact with the water can be reduced to a minimum. Mr. WATTS considers that these cold lead rings could be forced in by hydraulic power, and thus save the expense of firing, making joint holes, and setting-up, as in the case of molten lead joints; the sockets could be shortened, and the amount of lead required reduced. The standardising of pipe sockets is also greatly needed, for it would simplify and probably cheapen the manufacture of pipes generally.

THE subject of registration was dealt with at the annual convention of the Institute of American Engineers which was recently held at Niagara. The following questions were arranged for discussion:—"Do the interests of the profession and the duty of its members to the public require that only those who are competent be allowed to practise as civil engineers? Under what authority, through what agency, and upon what evidence of competency should applicants be admitted to the practice of civil engineering?" The majority of the speakers appeared to be adverse to the propositions, and finally it was decided to obtain a report from a special committee, which it was expected would be ready for the next convention in 1902.

IT is remarkable how persistent are the endeavours to keep the Berlin Museum on an equality with the foremost of its rivals. When the antique villa at Bosco Reale was discovered, Baron ROTHSCHILD was able to obtain the magnificent silver vessels which were found in the rooms, and he presented them to the Louvre. Although there was no second service of plate of the same importance, many other objects were met with which are no less interesting to architects and archaeologists. These have been secured for the Berlin Museum. They consist of a variety of vessels remarkable for their design and the extraordinary beauty of their forms. There are also candelabra, lamps and other objects in which silver was largely used. Bronzes have been also acquired which have assumed a patina which is comparable with what is seen in Pompeian works. The objects obtained from Priene several years ago have been placed in the same room: it is therefore possible to compare early Greek with Græco-Roman treatment.



## CHRIST CHURCH, DUBLIN, IN 1564-65.

REGRET has often been expressed about the scarcity of references to builders' work in old records. In some cases we can understand how laymen who found a difficulty in writing would not care to undergo the expense of having a narrative prepared of the operations in mansions or in business premises. But it seems incredible that clerics of all degrees should appear indifferent to the varied and often costly works which were executed in the buildings under their charge. As a result, we are in the dark about the history of Mediæval architecture as well as of later transactions connected with building. Controversies have arisen which could have been obviated by a few entries in one of the archives which were kept in ecclesiastical establishments, but which mainly relate to the daily life of the clergy and their immediate dependents. An example of what could be done without involving extraordinary trouble is furnished by the diary of PETER LEWYS, who was precentor of Christ Church Cathedral, Dublin, and acted as proctor in 1564-65. An account of this precious document, which rivals in interest the memorial of one of the COSMATI discovered by Sir THOMAS DREW in the crypt of the building, is given by Mr. JAMES MILLS in the last number of the "Journal of the Royal Society of Antiquaries of Ireland."

In 1535 the Reformed Church had been established by law in Ireland, but then, as now, only a small minority of the inhabitants accepted its doctrines. In 1562 ELIZABETH, who then reigned, had given aid to the French Huguenots, many of whom found their way to Dublin; but in 1564 a treaty was concluded by which there was at least an appearance of peace secured for some time in the relations of France and England. The troubles which arose in Ireland in the early years of Queen ELIZABETH's reign and the uncertainty about the ritual which Her Majesty intended to approve were not favourable to the preservation of the old churches. Christ Church had been allowed to fall into a state of ruin, which from time to time seems to be inevitable. As the building was attended by the Court officials there was a tacit responsibility for its preservation by the English Government. The Earl of SUSSEX, the Lord Lieutenant about 1562, made arrangements for undertaking works, but they were left incomplete. In 1564 the restoration was placed in charge of PETER LEWYS.

As the nave was roofless it was necessary to begin with covering that part of the building. In those days it was not so difficult to obtain timber as was the case afterwards, when woods were destroyed in order that they might not afford shelter for Irish outlaws. Two great cranes were set up and a "winglas," a word still heard among workmen in Ireland, was provided for raising the materials. The stones were carried up in a "gime" or basket. The knowledge of the mechanical assistance which can be obtained by the use of a pulley does not appear to have been known in Ireland in the sixteenth century. In its absence melted tallow was used in large quantities to grease the ropes and increase their pliability. The scaffolding was made up of spars 14 feet long on which hurdles were placed. The framing of the new roof was formed of timbers 22 feet in length by 10 inches square; they were joined together with spike-nails. When the carpenters had completed the framing the heliers or slaters laid down the laths which they had already prepared. The slates used were brought from Wales. As might have been anticipated more was required than covering the nave. The roof of the choir was found to be defective and the principal couple was ready to fall. A new couple was set up by the carpenters, who measured the space with a line of pack-thread. A ladder of nine rungs was made for the use of the slaters, and they were provided with 1,000 slate pins. As the work progressed further defects were revealed. The wooden gutters of the choir were rotten, and the water percolated into the wall. Part of the battlement of the lady chapel had given way and fallen into the gutter. It had to be broken up. In those days there was a rood-loft in the cathedral, but its exact position can no longer be ascertained; but there was a large arch above it, on which the stability of the steeple depended, and it became necessary to strengthen the masonry. Centering was prepared by the carpenters, while the masons dressed "white stone." The arching, although important, does not appear to have required more

than a fortnight to complete. Then we are told the timber, the hurdles and the empty cask used to hold mortar were placed for safety in the Mary chapel under lock. There is a reference to a screen "where the story of the Passion was painted" in connection with the rood-loft, but the paintings were destroyed during the operations.

There was an abundance of stone in the neighbourhood of Dublin, but neither the limestone nor the granite could be accurately described as "white stone." In another document of the sixteenth century it is mentioned that one of the Dublin aldermen presented "white Flanders stone to repair the pillars or jambs of the church." It may, therefore, be assumed that the stone was of foreign origin. LEWYS also mentions its use in his next work, which was the rebuilding of the arch in the north aisle. He says:—"I made a bargain with HARRIS, the mason, and his company to make and close the door, and make it with a good arch on the north side of the rood-loft in the aisle for the safeguard of the steeple, that the wall was cracked, 30s." "I began to cause the masons to lay the foundation of the new arch of the north aisle to stay the steeple. The wall was rent very sore, and I was in great doubt of it." He was also compelled to take down the upper part of the Trinity chapel through fear it would fall and break the roof of the cloister.

The most important work which devolved on LEWYS at the time was the construction of a new arch beneath one under the north side of the tower. It was to be supported by masonry built up in the old piers and which had to be carried down to the crypt. The work of the foundations was commenced on May 14, and on May 17 he gives the following record of the process employed:—

Six masons this day about the foundation of the steeple in the cellar under the church. I did build and pile with oak timber. I filled in the foundation with the rock lime, and then piled upon the same stakes of spires 10 feet long, set down in the ground with great violence and strength of foundation by great sledges, beaten by men. And upon that pieces of oak 10 inches square, laid upon that again, and set with rock lime upon the same, that the mortar to fill all the work, and to fill betwixt all the timber. And set across upon the same timber other great oak timber upon the same, and rock mortar upon the same again, and the great broad, black stones of Clontarf and of Dodder water, and so filled up my pillar. And betwixt two pillars I found two dead skulls of men's heads, cryched in a gutter with fair red clay, and a monument made of white stone about the bodies. I brought all the choristers to see the making of the foundation, and every of them brought a stone to the foundation, and I beat them all that they might bear in remembrance of the making of the work, and I bestowed upon the children at the same time 1 terstyn.

The unhappy choristers were to be pitied who were inveigled into the crypt, about which so many legends were current, each carrying a stone, and then had to endure a flogging. It is strange how ancient is the belief that the rod is an infallible cure for weak memories. Not many years have elapsed since the practice was abandoned in London of trouncing schoolboys over the parish boundaries. Mr. MILLS tells us that the underpinning through which the choristers so unjustly suffered is still to be seen in the crypt:—

In the exact position, which the notes in the journal indicate, are two rectangular piers supporting the crypt vaulting under the arch, which Lewys at this time was endeavouring to strengthen—that under the tower at the opening of the north transept.

Another interesting circumstance is recorded in the diary. The masons were obliged to quarry the stone they used. Instead of going to an ordinary quarry they removed the stones from the bed of the Dodder. This is a river which descends from the Dublin mountains, and sometimes in winter there are torrents which are as remarkable as the often painted "spates" of the Scottish Highlands. The removal of stones in the sixteenth century deepened the river, and was consequently a work of public benefit. The places selected were Milltown, Clonskeagh and Rathmines. According to Mr. MILLS, "In no case was the ground opened to find the stone. The rock was worked only at points where it was naturally exposed, no matter what difficulties its position entailed. A gang of about ten men were employed to struggle against the river, making and maintaining dams to keep it from the place where work was



being carried on, or 'laving' the water out with wooden bowls nailed to long wooden hafts, or carrying the stones secured to the carts." The operations appear to have been more than once suspended through inundations. As a result the Proctor sought a new supply of stone at Clontarf. There, however, he had the sea to contend with instead of a mountain torrent. The stone, he said, was also "so hard that it eats the steel very sore," or, in other words, a French smith was constantly engaged in keeping the tools in condition.

LEWYS may have been indifferent about surnames, but it is certain that the men employed by him are called by the name of their trades, such as Smith, Joiner, or Helier, instead of by a family name. The rate of wages was regulated by the civic authorities. In some cases LEWYS paid more than the standard rate, but the helier or slater and the glazier received less. Yet the reduced prices given to the two trades was still much higher than was paid to the masons and carpenters. Masons received 7d. to 8½d. a day, and the master-masons sometimes were paid 10½d. This suggests that in Christ Church, Dublin, the master-masons were not the architects, and elsewhere they may not have held that office, although the contrary is so often asserted. The masons obtained their meals from their employer. The men were not always satisfied, for it is put down that the masons "were wearied of salt beef, barrelled in winter for the summer." Beef was taken at all meals, and the customary beverage was home-brewed ale. The carpenters were paid 12 pence to 16 pence a day, but generally supplied their own food. The slater with his boy or attendant received together 21 pence a day, exclusive of food, and the glazier and boy earned 20 pence a day, "finding himself." The price for iron was 2s. 2½d. a stone; 5,000 slates cost 50s. 2½d.; lime was 12d. a load.

It would be well if other functionaries were as precise as Precentor LEWYS in his diary. To the higher clergy we suppose the entries were regarded as forming no more than a small-beer chronicle, but they have now become more interesting than many of the State Papers which expressed the ideas of the statesmen in the neighbouring Castle of Dublin. Mr. MILLS has rendered useful service by bringing the diary into light, and we trust much more will be found in it that will be interesting to architects.

### MURAL PAINTING.\*

ANY history of ancient art can now at the best be only provisional. We have more materials than were possessed by WINCKELMANN when he attempted to deal with the subject, or by LESSING when he endeavoured to lay down the boundaries between poetry, painting and sculpture. But from the abundance of our riches we have learned how much is unknown. There are objects lying concealed which will hereafter be brought to light by explorers and which will enable those who come after us to see new relations in ancient art. SCHLIEMANN'S researches have confuted many theoreticians who were dogmatic about early Greek art; and even of greater importance, in an historic sense, are the discoveries of Mr. ARTHUR EVANS in Knossos. Less than a century ago so great a thinker as COLERIDGE, who possessed the most exquisite taste in art, declared that everything remarkable in the arts of Egypt was derived from Greece. Many of his contemporaries agreed with him. What would be the value of a work on art which was inspired by such an idea? In fact, the speculations in a crowd of books about Egypt have been set aside by the efforts of a single explorer, Dr. FLINDERS PETRIE. The figures of animals which he found, and which probably belonged to a period 4,800 years before the Christian era, are proofs not only of independence of that stereotyped conventionality which was believed to have been decreed by the injunctions of priests, but reveal also a love of the grotesque which seemed to be hardly possible with men who were so subjected to rule. So much, in fact, is uncertain about the characteristics of the styles of different periods that Mr. WESTLAKE, the author of the latest

book on the subject, and who judges phenomena as a practical artist, does not hesitate to say that what has long been regarded as the most archaic work may be a product of a later time of execution:—

Some antiquaries observe that the rigid style is not so much the resort of art as the want of art. I differ. Art progressing amongst peoples would be somewhat like its growth in the individual in commencing to learn: very loose at first. Rigidity I take to be more the evidence of a decline than of a rising in art, and its being the usual concomitant of archaism often arises from the revived form of a decayed state—(1) Experimental art, loose; (2) a free practice arising from experience; (3) the age of the professor—rules, canons and rigidity. Hence in the decline of art in a certain epoch and its commencement in another, where it has discontinued—the rigid. For these reasons it has sometimes struck me that the hieratic, measured work of Egypt was an art declining from some previous greatness and civilisation.

Mr. WESTLAKE aims at no more than "a consequential essay on the elementary developments of mural painting; the first to the last from a painter's point of view." But he cannot take it for granted that the reader is acquainted with the traditional history of art in Greece, Egypt or in Etruria, and therefore he is compelled to go through that dismal historical region where there is so little light to guide the footsteps of a stranger. The works of art are alone worth utilising, although from their absence it is possible to draw conclusions which may appear convincing. Take, for example, the venerable and charming legend that painting began with an attempt to follow the outline of the face of a potter's daughter in Corinth from the shadow cast by a lamp upon the wall. SCHLIEMANN says that in all his excavations he never came across the fragment of a lamp, and that previous to the fifth century B.C. lamps were unknown. The old legend may have been illusory, but few would dare to have it set aside. If it must go, what chance is there of preserving other traditions? Mr. WESTLAKE is of opinion that from 508 B.C. we get historic names and authentic accounts of painting. It is true we have a long array of names, and there is no lack of descriptions; but how we are to be sure of their authenticity is another matter. The authors on whose authority the historians of art rely were seldom contemporaries of the painters or sculptors, and as the majority of the incidents which they record appear to have been all intended to excite wonder, we cannot believe they were in keeping with ordinary life in Greece. It is only by a study of Greek vases we can realise the love of form and the principles of composition which prevailed in Greece. But as the figures are shown in outline, we can only conclude that a great many of the wall-paintings were executed in a similar style and with equal if not greater success.

We cannot, however, imagine how men with the keen eyes of the Greeks appear to be so indifferent to colour. Living in a land which, although of little value in the eyes of a modern agriculturist, was made beautiful by colour, the exercises in monochrome could only be looked upon as representations which, through incapacity in the artists or a desire for economy, could not be completed. The Greeks were able to support their treatment by the aid of tradition which always counted for much. Moderns know more than the Greeks. There is enough to show that primitive man was as enamoured of colour as of form. He tattooed his own body, and through some instinct, which is now incomprehensible to us, came to the conclusion that red made the impression on other men of denoting earnestness and worth. The Greeks were no exceptions; at least they painted their sculpture red, and they used the colour to a very large extent in their paintings. The primary reason for the selection is unknown to us, and wanting it we cannot easily arrive at an understanding of their æsthetics.

There is not, says Mr. WESTLAKE, an authentic example of fine Greek painting remaining, unless it be allied to pottery. With the aid of imagination we may possibly obtain an idea of the treatment, with the help of the works which have survived from the journeymen painters of Pompeii. We may also learn something from the grotto paintings of Etruria. But the latter are inspired by doctrines which were outside the belief of the Greeks. Greek influence is, however, to be traced in many of the Etruscan works. But it is evident that the love of painting among

\* *An Elementary History of Design in Mural Painting, Principally during the Christian Era.* With an introduction on the art of the pre-Christian period. By N. H. J. Westlake, F.S.A. (London: John Parker & Co.)





LOVING CUP. PRESENTED TO SIR THOMAS DREW, P.R.I.A., &amp;c.



the Etrurians made it necessary to have recourse to a division of labour, which, although favourable for economy, is not always advantageous to art. Mr. WESTLAKE, as a producer of mural paintings, is able to realise the system employed in executing them by the ancient artists with more accuracy than an ordinary archæologist. What he says, therefore, of the famous work, *Achilles Sacrificing the Trojan Captives*, which was found in a tomb at Volsci in 1857, is of importance:—

This picture may be called Græco-Italic, and its method and style prepare us for the earlier Roman and South Italian works, to the majority of which I think it superior. These paintings have brought to my mind the idea that some well-known master, probably with assistants and pupils, had a reputation for these sepulchral pictures. There is a great diversity of merit both in the drawing and proportion of the different figures, and some indifferently proportioned figures, as the general captive, for example, have parts, such as the extended foot, so fairly well drawn as to suggest another hand. Again, in the various hands of the figures there is a suggestion of different draughtsmen. The nude figure of the bound captive in profile, I should suggest, was done by the master himself from a life study. This figure might be a portrait, both in face and figure, of an Italian model who was well known in London studios; the resemblance is so striking that I cannot refrain from this comment. The work somewhat resembles that in the Tomba Golini at Orvieto, which is possibly later work done under the same direction, perhaps as late as 300 B.C.

It might have been added also that the designer of the sacrifice to the shade of PATROCLUS, although most competent in representing action, was, like all the tomb-painters, unable to produce such excellent lines as we see in the "specchi mistici," or magic mirrors, which suggest a variety of art from which Etruscan sternness, gloom and terror were eliminated. It is only by them we learn how lovable Etruscan art became, and they hold the same relation to the mass of Etruscan paintings that the "putti" in the Sistine Chapel of the later Etrurian, MICHEL ANGELO, bear to the awful *Last Judgment*. It is unsafe to judge of a work from a portion of the introduction, but we trust that in the coming parts of his work Mr. WESTLAKE will give us observations which are inspired by his acquaintance with art. Anyone without practical knowledge can write a history of ancient art, but what is most desirable is criticism that is based on the characteristics of the works, and is not drawn from hearsay, no matter how old.

It is, however, different when an attempt is made to explain the symbolism of many ornamental forms. If a rigid test were employed it would be found that many elements of decoration now in use express condemnation of the purposes for which they are used. But as they are introduced only for ornament few care about their latent meaning. So long as the lines are beautiful and adapted for certain spaces the users are satisfied. A fortnight ago, for instance, a Parsi temple was dedicated at Brookwood. It seemed to many people an innovation in this country, but all ornamentists know that from the earliest ages the sun was a productive force, and symbols of admiration for solar power can be traced to a dateless time. It might be said that wherever there was a circular form there was a likelihood of its having some connection with the source of light and heat. Egypt, Assyria, Greece and Rome, as well as most regions of India, all have employed the orb as a motif. It has been so largely sought as a basis, or as a suggestion for ornament, Mr. WESTLAKE thinks the palmette is nothing but one of the numerous variations. "I consider," he says, "that there are mainly two palmettes, one of the rays of the sun turned upwards or downwards with a central orb or part of an orb indicated, to represent some sun deity, probably HORUS; the other, with the rays downward, probably OSIRIS, besides certain floral sun emblems, perhaps originally the papyrus or the lotus; but, as I have observed previously, the Egyptians rendered many flowers in the same conventional way."

That is a symbolist's interpretation, and there are very few things which cannot be made to express a secondary meaning in the same way. It is impossible to say whether the palmette ever had a mystical meaning. Its formation as a natural object would not recommend itself to an artist, and the leaves have interest enough as a combination of lines to gratify all who love vegetation. That the anthemion is

derived from palm leaves is possible; but we cannot imagine the Greeks as being particularly disposed to make architectural sculpture become a sermon in stone. It seems to us of late days there is too much striving after esoteric meanings for very simple forms, and the artist is thereby transformed into a preacher. Beauty has been the first consideration with designers in all ages, and the expression of it will always be a sufficient privilege without seeking for more abstruse qualities. Mr. WESTLAKE speaks of the universal use of the palmette in Italy and Greece, and he believes that some master-mind, some great designer, must have been its creator; but with such extensive imitation there cannot have been an equally extensive effort to make it declare a dogma. He admits that the volute cannot as yet be ascribed to any natural form for its origin. But in this case also we believe appearance was the primary thought of the designers, and so long as the eye was satisfied no more was required.

Another form that is supposed to recall the sun is the figure of the sphinx. "The early Egyptian sphinx," says Mr. WESTLAKE, "has no wings; after receiving wings there is no curl in them of a decided character until about the eighth century B.C. None of the wings of the winged creatures in Assyria are so treated." But is it not more likely that the curling of the wings is to be attributed to a more subtle notion of the requirements of art which arose out of the revolution of years? The wings are but an ornamental appendage of the sphinx. We cannot imagine any use being found for them. HEINRICH HEINE, in whom the old Eastern spirit was strong, was unable to introduce them in his poem. The face and body of the sphinx are described in imaginative style, but although the lips as well as the claws have their office, he could not find one word to say about the wings. In truth the sphinx is a mystery, and we may say with HEINE's nightingale, or if we will, the Spirit of Speculation:—

O schöne Sphinx! O löse mir  
Das Rätsel, das wunderbare!  
Ich hab' darüber nachgedacht  
Schon manche tausend Jahre.

Mr. WESTLAKE says that he has continually felt the necessity of a handy book of reference on mural painting, and he would have been saved much time spent in research if one had existed. The works and details which he found of use to himself have been the basis of his book, of which the first part has appeared. The illustrations have, therefore, a practical purpose, and however slight the sketch it will be found to be suggestive. The "History of Design in Mural Painting" promises to be a valuable aid to designers, and the combination of ancient and modern work will show how far they are in consonance, and the knowledge of this mutual relationship must exercise a beneficial influence.

#### THE DREW LOVING CUP.

THE loving cup, illustrated on page 20, has been presented by the architects of Ireland to Sir THOMAS DREW on the occasion of his knighthood, after service as their president for twelve years, and as an active spirit in maintaining the Irish Institute of Architects for more than thirty-five years. Associated with it, at his desire, are two previous presentations of plate. One is a fine master apostle spoon, with the hall mark of 1533, a very early presentation to the future architect in 1838, and which is attached to the cup by a chain. The second is a fine "Fitzgerald silver medal," presented by the Royal Institute of the Architects of Ireland in 1865, and which is embodied in the cup. The cup stands 23 inches high, and is a reproduction of the fine Saunders Cup possessed by the Grocers' Company. It was executed by Mr. WEST, the Master of the Goldsmiths' Company in Ireland, and in Dublin by Irish hands. It is a fine specimen of repoussé work in no way behind the original, which is of the date of circa 1675.

Mr. Arthur T. Bolton, A.R.I.B.A., has been appointed master of the Architectural Association Day School, which will be opened at 56 Great Marlborough Street, W., in October next.



## WICKHAM CHURCH AND THE UVEDALE MONUMENTS.\*

THE village of Wickham (from "wic," a creek, and "ham," a home) is associated with the names of many historic personages, foremost among whom is the great bishop who took his name from this place. Some writers have claimed for William of Wykeham nobility of birth, but the facts appear to be that he was born here in the year 1324, since he died in 1404 at the age of eighty; that he was the son of John and Sibill Aas, or Ace, a name probably of Frisian origin, as there were many settlers in the southern counties of that nationality. The father of Wykeham, according to some, bore the name of Long. If so, it is probably a nickname on account of his stature, Wykeham himself being described as a tall man ("excelsi corporis statura"). His mother appears to have been of gentle blood, her husband a yeoman of the middle class. The arms adopted by the bishop were intended probably to indicate the profession of an architect, by means of which he had risen, a chevron suggesting a carpenter's square, and the motto "Manners maketh Man," implying that he was not ashamed of his lowly birth.

Some half-timbered houses in "The Square," as the open space in the village is called, and some dwellings in Bridge Street bear marks of antiquity, but the parish church in which we are assembled is the chief point of interest connected with the early history of the village. The building has suffered much at the hands of the restorers, but still retains points of interest associated with the names of Wickham and others of importance who have worshipped or found a resting-place within its walls. The Norman arch, under which the future bishop and statesman must have passed, still remains the principal entrance to the church, and formerly occupied a similar position at the end of the original nave, which was shorter by the length of the tower, a modern addition. The old nave was terminated by the western buttresses, as may be seen outside. The north capital of the entrance arch is sculptured with a "sagittarius" pursuing a monster, a subject common in the early bestiaries. The south door of the chancel and the arch opening to the Uvedale chapel are of the fourteenth century. The original plan was probably cruciform, but the modern transepts are out of all proportion to the nave; that on the south side is of brick and the work of the seventeenth century. In 1862 the north transept was built, a tower added and the chancel and nave reroofed. In 1874 an organ chamber opening to the transept was constructed to the west of the Uvedale chapel, when one of the monuments was removed, and the memorials of the dead suffered serious mutilation.

The history of the Uvedales, and their connection with the county of Surrey, where they were settled at Titsey, near Redhill, for several generations, has been given by the late Mr. G. Leveson-Gower, who owned the property, in a lengthy paper to be found in the Surrey Archaeological Collections (vol. iii. 1885), and the present remarks will refer especially to those members of the family who for upwards of three centuries were connected with Wickham and the county of Hampshire. The name of Uvedale, in the earliest documents written d'Ovedale, subsequently underwent many and curious changes—Ouve-dale, Uvedale, Woodhall, and from the well-known Hants corruption "ood," we get Udall and Udle, forms still found in Southampton and elsewhere. This family was originally settled in the county of Norfolk, where John d'Ovedale, by marriage with the daughter and heiress of Roger Malherbe, acquired property at Tacolnstone. In the church of Great Snoring in that county is the effigy of Alicia Uvedale, her habit charged with ar. a cross moline gules, the coat of the Uvedales, who bore, according to an old roll of arms, "a cross like a mill pike redde, in a fiede of silver, for a crest ii oisteriche fethers in a cap of maintenance," with the motto "Tant que je puis," which we may translate "The best I can." For more than 200 years (1304-1540) the Uvedales' principal estate was at Titsey, and on the sale of that property to Sir John Gresham in 1540 they settled at Wickham, which they had acquired by the marriage of John de Uvedale, sheriff of Hants, 1388 and 1399, with Sibilla, the daughter and heiress of John de Scures, Lord of the Manor of Wickham, who held the office of sheriff of Hants temp. Ed. II. and Ed. III.

It has been stated by Milner and other writers that William of Wykeham's early patron was Nicholas Uvedale, Lord of the Manor of Wickham and Constable of Winchester Castle, but that this is an error is proved, since the Uvedales were not connected with Wickham until the marriage of John de Uvedale in 1381 with the heiress of the Scures, the ancient lords of the manor. Wykeham's earliest benefactor is supposed to have been Sir Ralph Sutton, probably of the family of Sutton Scotney, who endowed the neighbouring priory of Southwick. His next benefactor was Sir John de Scures, above referred to, and for these two Wykeham specially

ordered by his statutes seven daily masses to be said at Winchester and New College. Of the marriage of John de Uvedale and Sibilla de Scures there were born a son, John, sheriff of Hants, 1419, and a daughter, Alice, married (1396) to William Wykeham, great nephew of the Bishop.

The Uvedale pedigree extends to so many generations and branches that I must further confine myself to descendants in the direct line, especially those who have brought augmentations to the family arms, as we have them displayed on the monuments at Wickham. Sir John de Uvedale by his marriage with Isabel Etton, daughter and heiress of Gilbert de Etton, brought the arms of Etton and Titsey into the family escutcheon, and the grandson, John de Uvedale, having married the heiress of the Lord of Wickham, acquired the arms of Scures. Third in descent from him, Sir William Uvedale, by his marriage with Anne, daughter and co-heiress of William Sidney, brought the quartering of Sidney, and his son, marrying the daughter and co-heiress of Thomas Troyes, added that of Troyes. Sir William Uvedale, grandson of the preceding, by his marriage with Ellyn, daughter of Sir John Gresham, Lord Mayor of London, impaled the arms of Gresham. It is but the fragments of a grand monument of the last-named Sir William that we now see affixed to the south wall of the Uvedale chancel. At the top is a shield surmounted by a helmet and the Uvedale crest, a cap of maintenance with two ostrich feathers, and a coat of six quarters, viz.:—1. Uvedale, a cross moline. 2. Etton, barry of 8, or and az, on a canton, sab. a cross patente sal. 3. Titsey, gu., a fret sab. 4. Scures, az. fret or. 5. Sidney, ar., a pheon az. 6. Troyes, barry of 8, ar. and az.; three trefoils slipped counterchanged, on a chief or, 3 lions' heads erased or. Sir William Uvedale succeeded his father Arthur (1537-38), and was then under age. He died 1569, and by will directed his executors to provide "a seemlie and decent tombe and monument, the same to be built and set on the south side in the chapell nigh the chauncell of the parish church of Wickham, they to bestow for the charges and decent making thereof thirtie pounds."

The monument as we now see it consists only of a slate slab, covering the original panel, surrounded by an arabesque border. On the slab is painted the following inscription:—

Hic jacet Gul. Uvedale, armiger, qui obiit  
regni Reginæ Eliz. undecimo et anno Dom. 1569.

This is followed by two elegiac couplets:—

Vivit qui vivit jam corpore libera cælo,  
Mens fruitur, felix gaudet adesce Deo.  
Quis vetat emensum sinceræ tempora vitæ  
Ut capiat recti præmia posse mori?

## TRANSLATION.

He lives, who lives, his mind now freed from the body is now in the enjoyment of heaven, happy he rejoices in the presence of God. Who forbids him who has spent a good life to receive the reward of good conduct to be able to die.

Under the slab embedded in the wall are three shields, bearing (1) Uvedale quarterly of six as above described impaling Gresham arg. a chevron ermine, between three mullets, pierced, sable; (2) Uvedale, a cross moline; (3) Uvedale, quarterly of six again repeated.

This monument, as described in 1864 by Mr. Leveson-Gower, was in good repair, and might with a small outlay be properly restored. Instead whereof it no longer occupies its original position. The architect (Mr. Butterfield, I regret to say) in the enlargement of the chapel in 1872 removed the portion of the monument we now see to the west in order to insert in the south wall a window which is not wanted for purposes of light. The slab and its surroundings, as shown in a drawing by Mr. F. J. Baigent, originally surmounted a panelled altar tomb which supported an entablature, having on either side a female figure. These features of ancient art not squaring with the architect's ideas were ruthlessly removed. In refixing the inscription the lower part of the monument was destroyed, the figures were relegated to a garden in the parish, where, I am told, they still exist, but my informant would not tell their whereabouts. When men of professional reputation can perpetrate and local authorities allow such acts of vandalism, we may well exclaim "Quis custodiet ipsos custodes?" or who shall watch the watchmen?

The second monument in the Uvedale chapel is that of another Sir William, son of the preceding, and is in situ against the west walls. He was born in 1560, and baptized at Wickham, his godmother being Jane Countess of Southampton (an indication of the friendly relations between the Wriothesleys at Place House, Titchfield, and the family at Wickham). Sir William died at Wickham, and was buried January 9, 1615. This grand tomb in alabaster and coloured marbles, with an arched canopy, was erected to his memory and that of his wife. At the top is the crest and shield of arms of Uvedale, augmented to quarterly of eight by the addition of Gresham supporters also appear and the motto; on either side are obelisks and volutes terminating in lions' heads. Immediately

\* A paper read by the Rev. G. W. Minns at the visit of the Hampshire Archaeological Society to Wickham Church.



under the arch is an inscribed slab surmounted by a shield bearing the cross moline of Uvedale impaling Norton vert, a lion rampant or. On one side in a niche is a human figure representing Life, and on the other a skeleton, now in fragments, representing Death. The inscription is as follows:—

Memoriæ clarissimi equitis Gulielmi Uvedale, qui obiit octavo die Januarii 1615, ætatis suæ 56.

This is followed by six Latin lines:—

Vis, Lector, quis sit tumulo qui conditur isto?  
Flos Uvedallorum est gentis honosque suæ.  
Vis spacium vitæ? Sex quinquaginta Decembres.  
Pignora quæ fuerint. Ter tria. Quæve tori  
Consors? Nortoniæ stirpis Maria inclita, cujus  
Post cineres pietas vivet in hoc tumulo.

The inscription and the verses tell that the knight died on January 8, 1615, aged 56; that he was the "flower of the Uvedales"; that he had three times three children, and his consort named Mary, of the family of Norton, hopes to share his tomb. Next come some lines in English:—

Thy virtues (worthy knight) need not this tombe—  
Men's hearts and heaven afford them fairer room;  
Yet sith thy earthy part jointly deserved  
Thy spouse would it therein should be preserved,  
And wills that as one bed still held you twaine  
So might one grave at last your bones containe.

From which we may conclude that the monument was erected by the wife of Sir William, who was Mary, daughter of Sir Richard Norton, of East Tistead and Rotherfield. She died before 1634, but whether she be buried here we know not. Below the inscription is the effigy of the knight in armour, and at a lower level that of his lady; both hold a book of prayer. The lady is habited in the dress of the period of James I. At her head and feet are shields of the arms of the Nortons, to which due prominence is given by the builder of the tomb. The Norton shields are as follows:—Quarterly of 6 (1) Norton vert, a lion rampant, or. (2) Norton on a fesse between 6 cross-crosslets or 3 escallop shells gu. (3) Rotherfield az. a fesse nebulee between 3 crescents or. (4) Wayte arg. a chevron between 3 bugle horns sab. (5) Monpesson arg. a lion rampant sab. crowned or. (6) Norton as the first. On the plinth at the base are eight kneeling figures, habited in cloaks and ruffs; the hands in prayer are mostly broken off. On the right hand, holding a skull, is the first-born, a little son who died in infancy, and his death is thus recorded in the register, 1586:—"Mayster John Uvedale, then esquier, was baptized the xvth day of April at night, beinge sicke, and was buried the xviith day of April."

Of the sons who survived, William was the second son and heir. Richard was knighted in 1618, and settled at Droxford, where he died, and was buried in 1664. Francis made his home at Bishop's Waltham, where the registers contain numerous entries relating to his family. His will was proved in 1661. Of the five daughters Catharine, Honor and Mary married gentlemen of the county, and settled in Hants. Jane, the fourth daughter, died unmarried, and Lucy, the youngest, was married 1612 to Sir Thomas Bilson, doubtless of the family of Thomas Bilson, headmaster of Winchester College, consecrated Bishop of Worcester, 1596, and translated to Winchester in the following year. The tomb was in 1864 protected by a wrought-iron railing, on which hung a helmet, a pair of spurs, gauntlets and a pair of greaves of iron. Of these the helmet and spurs remain, also a portion of a wrought-iron stanchion, which was rescued from the shop of the village blacksmith, where the remainder was disposed of as scrap iron. Sir William Uvedale, born 1586, the second son and heir of the knight whose effigy, with that of his wife, recline on the tomb above described, was treasurer of the Privy Chamber temp. James I. and Charles I. He died in 1652, and desired to be buried in the chapel at Wickham. His attachment to the royal cause impaired his fortune, and compelled the sale of a portion of his estates. He married (first) Anne, daughter of Sir Edmund Carey, by whom he had issue one son, who died young, and three daughters. To one of the daughters, Elizabeth Vernon, wife of Henry, third Earl of Southampton, of Place House, Titchfield, was a god-mother in 1642. By his second wife, Victoria, daughter of Henry Carey, first Viscount Falkland, he had two daughters, Victoria and Elizabeth, who conjointly succeeded to the Wickham manor and estate. The former married Sir Richard Corbet, Bart., co. Salop, and the latter, first Sir Wm. Berkeley, Governor of Portsmouth, killed in action with the Dutch in 1666; and, second, Edward Lord Morpeth, afterwards second Earl of Carlisle. The Earl of Carlisle died in 1692, and lies buried on the north side of the chancel within the altar rails, where there is a slab to his memory. Elizabeth, his Countess, rests on the south side beneath a slab bearing the arms of Howard with those of Uvedale on an escutcheon of pretence impaling the cross moline of the Uvedales of Wickham, which

branch of the family, on Lady Carlisle's death in 1696, became extinct. No name is recorded, her monogram only and the date of death. Her arms, as in the case of a widow, are in a lozenge. Among the débris of the Uvedale chapel are the fragments of two coronets of tin, which probably hung over the Carlisle hatchments which, with many other heraldic insignia, were formerly affixed to the walls of the church, but

The boast of heraldry, the pomp of power,  
And all that beauty, all that wealth ere gave

have passed away, and all that survives of the Uvedales in the popular mind is a bequest to the poor of Wickham, which is known by the name of Lady Carlisle's Charity. On her death the family estates were divided between Sir Uvedale Corbet and Charles, third Earl of Carlisle, the grandfather of Lady Betty Delme.

The manor and advowson of Wickham became the property of the Rashleigh family; from them the manor was purchased by the Garniers in 1764. The old home of the Uvedales was pulled down in 1780 (like that at Titchfield called "Place House"). It stood in the field adjoining the school-house nearly opposite the church. Traces of the foundations may be observed, and by the boundary wall the jurors of the Court Leet and Court Baron are still accustomed to assemble to be sworn. A single stone bearing the arms of Uvedale is all that can be identified of the mansion. When the house was demolished in 1780 this stone was presented by Jonathan Rashleigh, to Winchester College, and was fixed in the north wall of the chapel as a memorial of the traditional, but unfounded early relation between William of Wykeham and the Uvedales. Underneath was written, "Uvedallus Patronus Wiccami." Mr. T. F. Kirby, the bursar of the College, informs me that this stone is now preserved at Titsey, as we have seen, a former seat of the Uvedales, and a facsimile provided by the late Mr. G. Leveson-Gower has been substituted for the original in the chapel wall.

Some other objects in the church at Wickham are worthy of notice. On the south side of the sanctuary are two sepulchral cross slabs of the thirteenth century—one of unusually small size, probably that of a child, measures 2 feet 8 inches only. There is also a pretty eighteenth-century monument built into the angle of the south transept to commemorate some of the name of Swann, who bore az. a chevron between three swans ar. The family, I am told, followed the medical profession, and occupied the house by the railway opposite the church. Other memorials within the church record the names of Dumaresq, 1796, of the Island of Jersey (Insula Cæsarea), with arms on a shield ar., three trefoils vert; Wynne, 1732; Ball, 1739; Callaway, 1789; and on the north wall of the tower is a good seventeenth-century monument to the memory of William Faulkner, mariner, 1689. An old banded chest of iron, of the type commonly said to have been recovered from the Armada, is preserved in the Uvedale chapel, now used as a vestry. Two brackets on either side the chancel carved from oak of the old roof by workmen during the restoration bear the names of William of Wykeham, John de Uvedale, John de Scures, 1381, and Sibie (*sic*). A moulded top of a tomb forms the dais of the altar. In these notes I have confined myself to the parish church and its associations. I have derived much information from Berry's "Hants Pedigrees," the paper by Mr. G. Leveson-Gower, the Rev. G. H. Moberly's "Life of Wykeham," and some notes of my late friend and a former president, Mr. B. W. Greenfield, who visited the church in 1893.

#### THE KING ALFRED MEMORIAL.

THE Lord Mayor and the Mayor of Winchester have addressed the following letter to the City Guilds:—"You are doubtless aware that the national commemoration of King Alfred the Great will take place in the third week of September next. In accordance with the resolution of the Mansion House committee, of which we are chairman and hon. secretary respectively, a colossal statue of the great king has been executed by Mr. Hamo Thornycroft, R.A., and promises to be the finest piece of sculpture that has come from his hands. Publications on the king have been issued with a view to diffusing knowledge of his life and work. An ironclad has also been named after this ideal national hero, who is rightly regarded as the originator of the English Navy. You will recollect that it was King Alfred who refounded London after its destruction and spoliation by the Danes, repaired the walls and revived its commerce and became the founder of that prosperity which has ever since his day been a prominent feature of this the greatest city in the world. Subscriptions have already been given by the Clothworkers' Company of 100*l.* and by the Grocers' Company of 50*l.*, and we therefore venture on the part of the National Committee to invite your company's generous support to the commemoration. As funds are now needed we ask the favour of an early reply."



## NOTES AND COMMENTS.

For the first time Apsley House has been utilised for a garden party. The great Duke of WELLINGTON was generally a recluse, and the interior of the mansion and grounds were consequently among the least known in the Metropolis. His son imitated his illustrious father, and it was often difficult to say whether the Piccadilly mansion was occupied. Several changes in the arrangements were lately made. But the historic rooms, especially the Waterloo Chamber, are little altered. Apsley House contains valuable paintings. One fine example by VELASQUEZ was lent to the Guildhall Exhibition. Although of less financial, and it may be artistic, value, the paintings by SALTER and J. P. KNIGHT of the Waterloo heroes have most historic interest. The latter was reproduced on a large scale in *The Architect*. The present war has, of course, renewed the interest in the work.

It is difficult to decide what artist can be looked upon as the NESTOR of the French school. Whenever a venerable gentleman is designated as holding that position, no time is lost before a rival claimant appears for the unenviable privilege of age. This time there are two, an architect and a painter who were both born in the year 1800. The architect is M. ADOLPHE JOSEPH THIAB, a native of Bordeaux, and who since 1846 has belonged to the Legion of Honour. The painter is M. LE SOURD-BEAUREGARD, who was a pupil of DAVID and of INGRES. When in 1815 NAPOLEON gave a grand fête which was destined to mark his overthrow, a drawing of it was made by the young artist. He is a Parisian, but his career does not appear to have been as distinguished as many other artists. The only distinction he has received from the Salon is a third-class medal which was awarded to him in 1842.

THE Directory of the Board of Education relating to science and art schools has been issued. To students an interesting item will be the announcement that twenty Royal Exhibitions in Art are to be competed for, ten open each year, besides twelve National Scholarships, six open each year, and forty-five free studentships, fifteen open each year, all tenable at the Royal College of Art. There are also sixty local scholarships, twenty open each year, tenable at schools of art under the Board. A Royal Exhibition entitles the holder to an allowance of 25s. a week for the session of about forty weeks each year for two years, and free admission to lectures and instruction during the course for the associateship in the Royal College of Art. A National Scholarship entitles the holder to a similar allowance, and instruction in (1) design and ornament, (2) architecture, (3) modelling, (4) drawing and painting. The competitor for the National Scholarship must be a registered art student engaged in a trade which depends upon decorative art. A local scholarship is tenable for three years, with an allowance of 20s. a year at any school of art under the Board which is open at least three days and five nights a week, and which will remit the fees for instruction of the holder.

A VERY short time has elapsed since we noticed the second edition of Mr. W. F. STANLEY's treatise on "Surveying and Levelling Instruments." (London: E. & F. N. SPON.) A third edition has now been issued, which has the advantage of the co-operation of Mr. H. T. TALLACK. The house of STANLEY in Great Turnstile has its own *clientèle*, who loyally believe in the superiority of the firm's instruments. The collection described in the volume is remarkable for variety and ingenuity, and it must now seem amazing how so many great undertakings could be laid out from the days of TELFORD to those of ROBERT STEPHENSON with the primitive instruments which alone were available. Mr. STANLEY's book, as a record of improvements, would alone merit perusal. The demand for it suggests the necessity for an engineer being equipped with instruments which will save time in the field and in the office, besides limiting the possibilities of inaccuracy.

It would be remarkable if Messrs. MATHER & PLATT, LTD., whose names are connected with so many improvements in machinery, were to allow electric motors to pass

without the aid of their inventive power. They have for the past few years given very great attention to the manufacture of a series of steel-clad motors ranging from 2 horse-power up to 50 horse-power. The motors are so designed that they can be run either as open-type machines or fitted with wire guards to eliminate the risk of anything falling into them. They have also designed special fine gauze covers which insure absolute safety in cases where inflammable gases are present. Should it, however, be necessary that the machines be air-tight, special sheet-iron covers are used. If the motors are required to be hermetically sealed the output will have to be reduced owing to the want of ventilation. The amount of this reduction varies from 10 per cent. to 30 per cent., according to the output of the motor and the speed at which it is running. The motors are wound for any desired voltage and speed, and the very large number already sold have given the customers of the firm the greatest satisfaction.

## ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: THE SCREEN AND CHOIR

THE NEW CHILDREN'S HOMES AT SIDCUP, KENT, FOR THE GREENWICH GUARDIANS.

WE publish a view of the new homes at Sidcup Kent, that are being erected from the designs of Mr. T. DINWIDDY, F.R.I.B.A., F.S.I., and his son, Mr. T. NORMAN DINWIDDY, for the Greenwich Guardians, in substitution of the accommodation now provided at the District Schools at Sutton, on the Local Government Board's order for their dissolution. The whole site embraces about 60 acres of well-timbered park land. Accommodation will be provided in homes for 50 each, with a pair of cottages, for 224 boys, and in cottages for 15 each for 300 girls and infants. Isolation wards, gymnasium, swimming-bath, laundry, probationary cottages, and detached houses for master and mistress, with an administration block—for which a large residence existing on the site is to be adapted—complete the scheme. The buildings will be lighted by electricity, and a well is to be sunk to the chalk for water-supply.

The architect estimated the probable cost at 108,500/., and the contract was obtained in competition by Mr. ROWBOTHAM, of Birmingham, at the sum of 107,777/.. The buildings are being faced with Tunbridge Wells red pressed bricks, the fronts of the cottages being partly treated with rough-cast. The roofs will be covered with tiles from the Ruabon district.

FERRING GRANGE, WORTHING.

THE arrangement of this large mansion will be apparent from the subjoined plan.



GROUND PLAN.

PORCH AT HALIFAX.

TOURELLE, HALIFAX.



## HEVER CASTLE.\*

IN searching the ancient records for any interesting facts concerning this historical residence, we find that the name is spelled in three different ways—Evere, Heure and Hever. To explain why this should be so is not easy. The School Board of the then days only taught hard hitting. The science of the pen, which was affirmed to be greater than that of the sword, was an "extra," only learned by the very few; and so when the great ancestor was jeeringly asked why he spelled his name in so many different ways, not knowing what reason to give, he replied, "My name is my own, and I can spell it however I please."

The De Hever family were of Norman extraction and got possession of the estates in the reign of Edward I. Until the reign of Edward III. there were many disputes as to the right of tenancy, more particularly between Ralph de Hever, grandson of the first holder, and Nicholas Abbot. These disputes were ultimately settled in favour of his son William, who, by permission of the king, embattled the manor house. William had two daughters, Ioane and Margaret. Ioane married Reginald Cobham, and had a son, who became Lord Cobham—(on our visit to Cobham Hall last year I gave a short history of this family)—and Margaret married Sir Oliver Brocas. Lord Cobham ultimately obtained the whole property, and his grandson, Sir Thomas Cobham, sold the estate to Sir Geoffrey Bulleyn, a descendant of the Knight of Blickling and Saul in Norfolk.

Sir Geoffrey was a wealthy mercer in London, and also Lord Mayor of that city. He married Anne, eldest daughter of Baron Hoo and Hastings by his second wife, a daughter of Sir Nicholas Wichingham. Sir Geoffrey's son William, who was Knight of the Bath at the coronation of Richard III, married Margaret, daughter and co-heiress of Thomas Boteler, Earl of Ormond, and by her, with other issue, had a son Thomas Bullen, afterwards created Earl of Wiltshire and Ormond. It was he who enlarged and completed the Hever mansion. He married Elizabeth, daughter of the Duke of Norfolk, and had three children, a son George, who was executed in his father's lifetime, and two daughters, Mary and the celebrated Anne, wife of Henry VIII.

Sir Thomas Bullen was successful in suppressing the revolution in Cornwall created by Perkin Warbeck, who assumed the title of Richard Plantagenet, and laid claim to the crown of England. Sir Thomas was one of the knights of the king's

sent to Maximilian—the famous Emperor of Germany—who had served as a general under Henry VIII. and defeated the French at the "Battle of the Spurs." Later on Sir Thomas became sole Governor of Norwich Castle, and was employed



body, and jointly with Sir Henry Wyat was constituted Governor of Norwich Castle. He was one of the ambassadors

by the king as ambassador on all important foreign matters, and he it was who arranged the famous interview of Henry VIII. and Francis I. In order to carry out his design of marrying Anne, the king loaded Sir Thomas Boleyn with honours. He created him Baron and Viscount Rochford, and afterwards successively Earl of Wiltshire, Earl of Ormond, Knight of the Garter, and Lord Privy Seal, and one of the means taken by Sir Thomas to express his sense of the royal favour was his decided hostility to Cardinal Wolsey. He was one of the peers who signed the articles of impeachment against the Cardinal.

Anne Boleyn was born at Hever in the year 1507, and when only seven years old was appointed maid of honour to Henry's sister, who was married to Louis XII. of France, and was allowed to remain with her when the other English attendants were unceremoniously sent out of the country. When Francis I. came to the throne Anne remained under the powerful protection of his wife Claude, and was thus brought up at the French court. When war was declared against France in 1522, it is affirmed that she was brought back to England by her father, who was then ambassador to that country, and shortly after she was appointed one of the maids of honour to Queen Catharine, and was thus brought under the notice of that most profligate monarch Henry VIII.

Cavendish informs us that Anne had not been long at court when a strong and mutual attachment sprang up between her and Lord Percy, son and heir of the Earl of Northumberland, who made her an offer of marriage and was accepted—at this time she was only sixteen years of age. The marriage, however, was not destined to take place, for the king had already turned his admiring eyes in the same direction, and jealous of the rivalry of a subject, he caused the lovers to be parted through the agency of Cardinal Wolsey, in whose household Percy had been educated, and that young nobleman, probably under compulsion, married in 1523 a daughter of the Earl of Shrewsbury. On being thus separated from her lover, Anne was removed to Hever, and hearing in a few weeks of the marriage of Percy—with feelings that can well be imagined—kept herself secluded. To Hever the king repaired on a visit, but Anne, suspecting the cause of his arrival, under the pretext of sickness kept to her chamber till after his departure. But this reserve did more to animate than daunt the royal lover; so for the purpose of restoring the reluctant lady to court and bringing her within the sphere of his solicitations, Henry created her father Baron and Viscount Rochford, and gave him the important post of treasurer of the Royal Household, and surrounded himself with her relatives and friends, among whom were her brother George and her uncle the Duke of Norfolk. Still, however, Henry's suit—which was dishonourable, even to one so depraved and lost to

\* A paper read by Mr. Henry Virgoe before the members of the Upper Norwood Athenæum, on June 29, at Chiddingstone.



honour as he was—did not succeed, and it is said that she answered the king's advances in these words:—"Your wife I cannot be, both in respect of my own unworthiness and also because you have a queen already, and your mistress I will not be."

Foiled in his attempt to gain her by dishonourable means the unscrupulous monarch began seriously to try and obtain a divorce from Queen Catharine, who had been his wife for seventeen years, in order to marry Anne Boleyn. The history of these proceedings is a part of the history of the kingdom and need not be here detailed. It is, however, a tradition of Hever that when the king came "a-wooing" he sounded his bugle in the distance that his lady-love might know of his approach.

The divorce was obtained, and Anne became "indeed a queen," having previously been married to the king. She gave birth to two children—a stillborn son and Elizabeth—who was afterwards queen. The king, it is affirmed, being greatly disappointed in not having a male heir to the throne, had Anne arrested on a false and disgraceful charge of immorality, and she was beheaded to make room for Jane Seymour, one of her own maids of honour.

After the death of the Earl of Wiltshire in 1538 (there being no male issue) Henry VIII. seized the castle of Hever in right of his murdered wife, and in 1541 handed over the whole estate to Anne of Cleves. She lived there till her death in 1557, when the Crown authorised the sale of the property to Sir Edward Waldegrave, Lord Chamberlain to the household of Queen Mary. On the accession of Elizabeth he was committed to the Tower, where he died in 1561, and the estates afterwards passed through the family of Humphreys to that of Medley, or Manners, and in 1745 Hever Castle was purchased by Timothy Waldo, of London, and of Clapham, in Surrey.

The family of Waldo is said to derive itself from Thomas Waldo, of Lyons, who was one of the first to renounce, publicly, the doctrines of the Church of Rome. In the reign of Elizabeth he came over and settled in England to escape the persecutions of the Duke of Alva.

In 1575 Peter Waldo resided at Mitcham. His eldest son, Lawrence, had fifteen children; of these, the twelfth child, Daniel, is the one pertaining to our present inquiry. He was a citizen and clothworker of London, and was fined as alderman and sheriff in 1661. He married Anne Claxton, by whom he had nine children. Of these, the eldest son, Daniel, whose property was burnt down in the Great Fire of London, in 1666, married twice; and from him are descended the Waldos of Harrow. After the Great Fire, Edward, the second son, purchased the sites of the Black Bull, the Cardinal's Hat and the Black Boy, in Cheapside, on which he erected a "great messuage" in which he dwelt. When this mansion was taken down in 1861 some very fine oak carving was found, which is now at Gungrog. This Edward Waldo was knighted by King Charles II. at the house in Cheapside in 1677. On this occasion the king, the Princesses Mary and Anne, and the Duchess of York were his guests, and from a canopy of State in front of the house they viewed the civic procession as it passed along Cheapside on its way to Guildhall. Sir Edward was married three times. He died at Pinner in 1705, aged 75, and was buried at Harrow. The last descendant of the family died in 1840, when the race became extinct. The name of Waldo had, however, been taken in 1850, by royal sign manual, by Mr. Edmund Wakefield Meade, of Dawlish, son of Francis Meade, of Lambeth.

Edmund Meade Waldo became resident at Stonewall Park, near Hever Castle, which memorable edifice is still in possession of the family. He married Harriett, second daughter of Colonel Rochford, M.P., by whom he had two sons and one daughter. The eldest son and heir is Mr. Edmund Waldo Meade Waldo.

The daughter, Harriet Dorothea, was married in 1850 to the Rev. W. W. Battye, rector of Hever, to which living he was presented by his father-in-law. Captain Sebright informs me that the castle has never been uninhabited since the thirteenth century.

There are few ancient houses in the kingdom more deeply interesting to the visitor than Hever. It does not, however, convey ideas of grandeur or magnificence. It was a stronghold, and a place well calculated for safety in the troublous times in which it was built and embattled. Hepworth Dixon says:—"Hever was poetic and retired. Not many paces off the river Eden brawled and chafed among the stones. Grassland and woodland stretched on every side, here swelling into mound and ridge, there dropping into flat and marsh. Woods of oak encompassed the castle, with only here and there a break in sunny patch and leafless hill. Some rare and famous nooks lay screened amidst these depths of wood. In and out among these woodlands, becks and rivulets sang their pilgrimage towards the sea; sweetbriars grew in every hedge, and linnets built in every copse. The pools were rich with lilies, and the air, though laden with the scent of many herbs, was freshened by the salt of neighbouring seas." It is sur-

rounded by a moat, across which a bridge leads to the entrance gateway. The entrance is defended by a strong portcullis, composed of several large pieces of wood laid across each other like a harrow and rivetted throughout with iron. It was designed to be let down in case of surprise and when there was not time to shut the gate. To this succeeds an iron portcullis; it is followed by an inner solid oaken door, rivetted with iron, firmly bound with iron pieces going the whole length across and studded with iron knobs; a wooden portcullis then follows.

Immediately adjoining these are two guard-rooms, in which a dozen men at arms might long dispute the passage of an enemy. Over the external gate, and directly under the battlements, a series of machicolations project boldly forward; from these molten lead and other deadly appliances and missiles could be poured and discharged, with terrible effect, on the heads of assailants. Passing through these gates, and beneath the portcullises, we enter a spacious courtyard, surrounded on all sides by the building. From this courtyard or quadrangle we enter the old dining-hall, where the racks for hunting spears are still visible, and where we notice the very grotesque decorations.

In the stained-glass windows are the arms of the Boleyns and the Howards. Near this is the chapel, and continuing along the passages are two rooms bearing the names of Anne Boleyn's bedroom and Anne of Cleves's room. Anne Boleyn's room is really an interesting apartment, beautifully panelled, and contains the original family chairs, tables and muniment box, and what is called Anne's bed. It was in the bay window of this room where Anne used to sit to watch for the coming of the king. The church was the only building which could be seen from Anne's room. To this apartment several ante-rooms succeed, and the suite terminates in a grand gallery, occupying the whole length of the building, in which the judicial meetings and the social gatherings of the ancient



family were held. It is about 150 feet in length by 20 feet in width, with a vaulted roof and panelled throughout with carved oak. On one side, placed at equal distances apart, are three recesses. The first, having a flight of three steps, is fitted up with elbowed benches, where the lord of the castle in old times held his courts, and where Henry VIII. is said to have received the congratulations of the gentry when he visited the castle. The second recess was occupied by the fire, and the third was used as a quiet corner for the old folks, while the younger ones frolicked throughout the mazes of the dance. At one end of the gallery a trap-door leads to a dark chamber called the dungeon, in which the family are believed to have taken shelter in time of trouble. It is said Henry VIII. cast Anne into this dungeon to be starved to death. Another authority says she was put into a chamber in one of the towers, now entered by a secret sliding panel, still called Anne Boleyn's panel.



The Gothic tracery over the fireplace is extremely beautiful both in design and execution. It consists of two angels, each bearing two shields, showing the arms and alliances of the Cary and Boleyn families, of Cary and Waldo, Boleyn and Howard, Henry VIII. and Boleyn.

In conclusion, I wish to express my best thanks to Captain Sebright for his courtesy and great kindness in giving us permission to visit the castle, and also for the trouble he has taken in personally showing us over this historical site.

Hever Church contains the marble tomb of Sir Thomas Boleyn, Anne's father, and also brasses of Margaret Chene and John de Cobham.

Chiddingstone, called Ciding Stane in the *Textus Roffensis*, is supposed to take its name from a huge boulder at the back of the village upon which the priest used to stand whilst chiding wrongdoers, or some say the delinquent was placed upon it that all might see the offender.

The illustrations are from photographs by Mr. Arthur Quartermain.

### DR. JOHNSON'S BIRTHPLACE.

THOUGH Lichfield has always been proud in the possession of the birthplace of the famous Dr. Johnson, it is only recently that the quaint old house standing in the Market Place has become the property of the Corporation to be preserved as a memorial of the cathedral city's most distinguished son. Since it was occupied by the old books of Michael Johnson, amongst which the doctor spent many happy hours in the days of his childhood, the place has, says the *Birmingham Daily Post*, passed through many vicissitudes. It was, perhaps, scarcely fitting that a tinman's wares should have occupied the ledges and shelves where the dusty books of Michael had formerly reposed; but a worse change was yet to come, for when the vendor of the tin goods gave up his business a draper recognised the importance of such a well-situated establishment, and the old shop was converted into a drapery warehouse. Not content with the unobtrusive window behind the pillared portico which had amply served the bookman's purposes, the draper availed himself of the space afforded by the projection of the upper storeys over the lower one to increase the size of his shop by erecting a large bay window between two of the pillars. This modern addition to an old and famous building must have shocked the susceptibilities of many a visitor to the ancient city of Lichfield, whether he were an admirer of Dr. Johnson or not. It is therefore gratifying to record that about twelve or fifteen years ago the hideous shop-front was removed and the house restored somewhat to its original condition. This happy circumstance was due to the late Mr. J. H. Johnson, of Hallgarth, Lancashire. Apparently he was not connected with the great family, but he was a relative of the late town clerk of Lichfield (Mr. Hodson), and it was through the latter gentleman that Mr. Johnson was made acquainted with the condition of the house. He purchased it with the intention ultimately of giving it to the authorities in Lichfield; meanwhile it was occupied by private families—latterly by a dentist—but after Mr. Johnson's death his executors offered it to the Lichfield Corporation for a nominal sum only, to cover the expenses of the restoration. It was then—about a year ago—that Lieutenant-Colonel Gilbert came forward and found the necessary money, and the house became the property of the Corporation. Some 200*l.* has been spent in repairing the roof and in other structural alterations. In course of time the house will be made—as far as it possibly can be done—similar to its appearance at the time when occupied by the Johnson family. There is, for instance, an unsightly modern side window overlooking Market Street which will have to be brought more in accordance with its surroundings. Of the interior of the house Michael Johnson's shop has suffered more than any of the other rooms. The wall-paper here will, no doubt, receive the attention of the authorities, for the present covering of the walls is hardly in keeping with the character of the house. Other minor details will also be put right in due course.

Though the house was only opened to the public at Whitsuntide, the Johnson house committee have in response to their appeal received numerous gifts and loans of Johnsonian relics, while souvenirs of Johnson which were formerly kept in the Lichfield Museum have been removed to the new home. Thus a Johnson museum and library has been formed with a collection of objects which cannot fail to interest and attract all visitors of literary taste. The public have access to two rooms on the ground floor—the library and Michael's shop. In the latter are two very interesting curios—the doctor's great armchair and his portable desk. The original covering of the chair, which was used by him in his last illness, is retained. An added interest is attached to the desk because on it the celebrated man wrote some of the "Rambler" when on a visit to his friend, the Rev. John Hoole. These gifts are sent by the Hoole family, who have largely contributed to the museum. Visitors are also allowed in the two rooms on

the first floor—one a small bedroom and the other the birth-room of the great man. The latter is a large apartment kept in its original condition, and it contains manuscripts and relics too numerous to mention, carefully preserved in glass cases. Johnson's signature is seen on a mortgage for securing 80*l.* given by Dr. Johnson and his mother to T. Levett. It is dated January 31, 1739. Then there are articles of agreement made on the marriage of Michael Johnson with Sarah Ford, June 11, 1706. The lexicographer's big cane with ivory top rests alongside Garrick's silver-mounted malacca. Whether these are the walking-sticks used by the two friends when they set out for London is not stated. The silver pen given by Burke when the dictionary was finished also finds a place, while among many interesting relics lent by Mr. A. C. Lomax are the author's notebook and ivory tablet. Two silver spoons belonging to him, his dinner napkin ring, his Prayer-book containing pencil notes, and an autograph letter to Mrs. Lucy Porter, dated March 23, 1759, are also shown. The table upon which he used to breakfast, one of his chairs, and the cups from which he drank his favourite beverage, are contained among the articles in the birth-room. His signature is seen again in a Latin and English dictionary which he used when at school at the age of seventeen. He has calculated his age on a leaf inside the book by subtracting 1709, the year of his birth, from 1726, the date upon which he was using the dictionary. Many other things relating to the great man and his family are here collected, and near by at the Three Crowns inn, mentioned by Boswell, are two chairs which were used by the doctor at different times when he was a visitor there. Already there have been about 380 visitors to the house from all parts, and many travellers from America have recorded their names in the book. Opposite the house stands the statue of the doctor, and a few yards away is St. Mary's Church with its tall spire, where he was baptized.

### SUSSEX ARCHÆOLOGICAL SOCIETY.

THE fifty-fifth summer meeting of the Sussex Archæological Society was held on the 4th inst. at Midhurst.

At Singleton Church, says the *Sussex Daily News*, one of the oldest and most interesting churches of Sussex, the rector (the Rev. Hugh Hordern, M.A.) conducted the party over the building, and two short papers were read by Mr. Philip M. Johnston and Mr. R. Garraway Rice, F.S.A., the latter dealing with the altars, images, lights, &c., existing in the church in pre-Reformation times. Mr. Johnston confined himself to an account of the fabric. Singleton Church, which is believed to be dedicated to St. John the Evangelist, was built about the year 1000. It is thought it consisted at first of tower, nave and chancel, the aisles being added about 1150. The original Saxon tower is still standing, and Mr. Johnston described the material of which it is composed. In those days there was no "jerry-building" in church work. There is reason to believe that a still older church stood on the same site, so that Singleton Church has seen many generations of worshippers. It is of interest, in these controversial times, to note that 900 years ago devoted Christians gave for the maintenance of the clergy of the parish for ever a house, glebe land and tithes to the value of 50*l.* 6*s.*; but Mr. Hordern has shown that, so far from receiving any stipend, last year he was 11*l.* 5*s.* out of pocket—so that it actually cost him this amount to be rector. In the days of William the Conqueror Singleton was known as Sillestone, and, as indicating the transformation which has passed even over conservative Sussex, the following quaint entry in Domesday Book (A.D. 1085) may be quoted:—"Earl Roger holds Sillestone in demesne. Earl Godwine held it. It then vouched for [i.e. was taxed at] 100 hides, less 2 and a half. Now for 47 hides [i.e. as much as 47 ploughs could cultivate]. There is land for 40 ploughs. In demesne [i.e. belonging to Earl Roger absolutely] are 7 ploughs, and 80 and 6 villeins [i.e. slaves holding cottages] and 52 bordars [i.e. cottagers] with 33 ploughs. There are 17 serfs [i.e. personal slaves] and two mills of 12 shillings and 7 pence, and 60 acres of meadow and wood for 150 hogs. There is a church in which lie 3 hides and one rod of this land. The clerks [clergy] have 2 ploughs and 5 bordars." The name of a rector in the twelfth century has been discovered, and the list of rectors from 1410 is fairly complete. The list of churchwardens goes back to 1630; the registers of baptisms, marriages and burials to 1558; the present churchwarden is Sir Charles Grant, K.C.S.I., and the Duke of Richmond is patron of the living. Singleton Church contains some very curious monuments, and the rector has recently discovered the old staircase to the rood-screen. The screen itself has vanished.

The party drove from Singleton to Midhurst, where luncheon was served in the public hall, and a visit was then paid to the beautiful views of Cowdray House, built in the sixteenth century by Sir William Fitz-William, Earl of Southampton. It was one of the finest country houses of the period, and



was destroyed by fire in 1793. Mr. Michell Whitley acted as conductor of the party over the ruins.

After inspecting Cowdray the party walked through the park to Easebourne, where some time was spent in the church and about the views of the old Priory, which were described by Mr. Johnston. The most notable features of the church are the monuments to Sir Anthony Browne, first Viscount Montague, and his two wives (this having been removed from Midhurst Church in 1851), and Flaxman's lovely marble memorials to two members of the Poyntz family. There is also, now much worn, a canopied monument of Sir David Owen, knight-baronet, a natural son of Owen ap Tudor, who married Catherine, widow of King Henry V. The Priory was founded in the thirteenth century by John de Bohun, and its inmates were well-born or selected from gentle families. It continued to prosper and increase in lands and goods throughout the fourteenth century, and in 1332 a descendant of the founder endowed it with more land. In 1441 Bishop Richard Praty ordered a visitation of the Priory, and the record of this in the episcopal registers states that the nunnery was in debt, and that this was principally from "the costly expenses of the prioress, because she frequently rides abroad, and pretends that she does so on the common business of the house, but it is not so, with a train of attendants much too large, and tarries long abroad, and she feasts sumptuously and is very choice in her dress, so much so that the fur trimmings of her mantle are worth 100 shillings." The result of this visitation was the supervision of the prioress, but the state of the nunnery went from bad to worse, and Bishop Story's visitation in 1478 reveals grave scandals; a certain Sir John Smyth, chaplain, and one Style, a bond-servant to the Lord Arundel, had abducted two of the nuns, and the prioress had given divers jewels to Sir John Smyth. In 1536 the Act for the suppression of the smaller religious houses was passed, and Margaret Lackfield, the prioress, surrendered her office and the property of the nunnery to the King, she and her fellow nuns returning to the outside world. Lord Montague afterwards occupied the Priory as a private residence, and he was visited there by Queen Elizabeth, who was "most bountifully feasted," as she liked to be, and since that day the history of Easebourne Priory has been a blank. What remains of it is now the charming residence of Mrs. Yorke, through whose kindness the party were enabled to inspect the ruins and the lovely old garden.

The next visit was to Cocking, where the church was described by the rector, the Rev. H. L. Randall. This is another of the historic parish churches of Sussex. The village—or the manor—belonged in Saxon times to Edward the Confessor, and it was granted by William I. to the famous Earl Roger. In the time of Queen Elizabeth it came into the possession of Viscount Montague, and it has since been part of the Cowdray estate, now belonging to the Earl of Egmont. The Manor Farm, immediately to the west of the churchyard, was originally, Mr. Randall said, a small monastic building in connection with the church. The church was built in early Norman times—before 1100—and it had originally only a nave and chancel. The south aisle was added about 1300, in the Decorated style, and at this period the windows of the chancel were enlarged and the tower built. The north aisle is entirely modern, having been added about thirty-five years ago by the late rector, the Rev. R. D. Ash, who also built the schools and erected a new parsonage. The chancel was partly rebuilt and restored with reverent care by the present rector in 1896. One of the original Norman windows of the nave was discovered by Mr. Randall, and on one splay of this window is a very interesting painting of the Wise Men seeing the Star, the date of which is as early as 1220. It was probably the work of a monk. A piscina and aumbry in the south aisle and an Easter sepulchre in the chancel were also discovered. A gravestone in memory of James Barker, who was for twenty-eight years rector of the parish and also Archdeacon of Chichester, was discovered when the old pews were removed from the chancel; he died in 1736, aged seventy-one, and the inscription records that "he was content with his lot, yet not unworthy of a better one." From Cocking Church the party walked to the rectory. The party then drove back to Chichester railway station, and there dispersed, after one of the most successful summer meetings on record.

### THE ALLAN-FRASER ART COLLEGE.

ANOTHER important educational gift has been made to Scotland, writes a correspondent of the *Times*—an art college, offering gratuitous board, lodging and instruction to a limited number of students, under such conditions as to render the gift of peculiar grace and value.

The late Mr. Patrick Allan-Fraser, a wealthy Scottish gentleman, and an honorary member of the Royal Scottish Academy, died about ten years ago, leaving several estates the profits of which were to be applied to the maintenance as an

art college of one of them—Hospitalfield, a fine old country mansion-house. Hospitalfield, a very large house of great beauty, is built on the site of the old Hospice of Arbroath Abbey, and is charmingly situated near Arbroath. Mr. Fraser's scheme was this—that a limited number of young men of marked ability, who have insufficient means of their own, should reside in the house, and receive free hospitality and instruction for four years; that they should enjoy home life in beautiful surroundings, about ten minutes' walk from the sea, recreation being duly provided for—cricket and lawn-tennis in the private grounds of the house, and golf on the links by the shore, approached by an avenue of trees. New studios are now being built for the students near the house, and it is arranged that every possible opportunity for study will be afforded. The study will be of the usual kind—the figure, draped and undraped, the antique and landscape in the grounds and the country surrounding. There is also a good picture-gallery in the house.

The trustees have appointed Mr. George Harcourt, of Bushey, as governor, to conduct the schools in accordance with Mr. Allan-Fraser's elaborate deed of bequest. Students of "marked ability" must be within the ages of sixteen and eighteen when they apply for admission, and must be "of sound physical condition;" accepted students (those whose submitted works have been approved) are to be admitted as probationers for the space of three months, at the end of which time, if they be not approved, no charge will be made upon them for any cost of maintenance, &c. The understanding is that only students who intend making art their profession are eligible as candidates. The college session is thirty-six weeks, divided by a long and a short vacation. The will—or deed of settlement and mortification (dated 1873, with codicils 1874 and 1876)—contains many curious and interesting points, some of which may be cited, for the whole scheme has been very deliberately and wisely matured. Of the nine original trustees, only three, we believe, now survive, but the testator has nominated as continuation trustees the sheriffs and conveners of the counties of Forfarshire and Perthshire, the presidents for the time being of the Royal Academies of London and Scotland, the secretary of the latter, the provost of Arbroath, or failing them such trustees as may be appointed by the Lord Advocate of Scotland.

The arts to be cultivated are painting, sculpture, carving in wood, architecture and engraving. This is the "first main purpose of the trust." The second main purpose was to provide for aged or infirm professional men; but the realisation of this object has been prevented by Mr. Fraser's outlays subsequent to his execution of the will. Thirty pupils were to be taken, but the number must be reduced for a similar reason. The trustees have the power to bind the students apprentice for the period of four years, but it is doubtful whether they will exercise the right. The salary of the governor is to be 400*l.*, with further allowances; he is to reside in a wing of the house, and has full power and control, under the trustees, over the whole management. There are specific and often curious provisions as to cultivation of the home farm, the dress and comportment of the students, medical supervision, religious worship (of the most liberal character), the possible extension of art instruction to "young people resident in Arbroath," the requisition of diploma works from students, annual prizes for proficiency, art lectures upon art and science by outside lecturers, travelling scholarships to successful students, and various charitable and public-spirited benevolences, as from the Art College, should the funds of the trust permit. These are but a few clauses in what is practically a deed of administration—a document conceived in the most liberal spirit, and one from which (in spite of the numerous details which the foresight of the testator has dealt with) the "grip of the dead hand" is conspicuously absent.

It should be added that, although this is a Scottish gift to Scotland, English and Irish students are equally eligible to benefit under the trust. It is intended that the first session shall begin in October next.

### ARCHITECTS' FEES.

AT the Sussex assizes on the 4th inst. Messrs. Pigott & Oxley, architects of St. Leonards, sued Mr. Meads and others to recover fees for services rendered in preparing plans and quantities, getting out tenders and work generally, the amount claimed being 85*l.* 15*s.* 3*d.*

Mr. Charles Archer Pigott said he sold six plots of land on behalf of Mr. Brooks to Mr. Whiteman. In the year 1898 witness met defendant Meads, who asked witness if he could have one of the plots. Witness said he would try to arrange with Mr. Whiteman, and Mr. Meads entered into a building agreement with the owner on January 17, 1898. In the latter part of the year witness met Mr. Meads, and a conversation took place with regard to the plans and drawings of a villa. It was arranged that witness should prepare plans, specifications



and quantities at 5 per cent. on the whole outlay inclusive, the only extras being his expenses. On October 31, 1898, Mr. Meads came to his office and brought with him a rough sketch. The cost was to be 1,200*l*. Witness looked at the sketch and said it would be impossible. Mr. Meads asked witness to get out a proper sketch. Witness did so. Mr. Meads wrote to witness on November 6, 1898, saying, "I think the plan will do very well." On November 7, 1898, Mr. Meads came to witness's office with the plan. Witness showed him a proper drawing, saying defendant could not possibly expect the villa to be erected for the sum named, 1,200*l*. Witness then got out quantities and prepared specifications, sent them to London, and issued them to various builders and obtained various tenders. On December 13, 1898, witness received some tenders and opened them in the presence of Mr. Meads. The lowest was for over 2,000*l*. Defendant said he was not prepared to pay so much money, and asked witness to reduce the plans and alter the style of the work and material, so as to get it down as low as possible. Witness told him he thought they might reduce it to 1,600*l*. Witness received a letter from Mr. Meads on December 14 in which he stated he had talked the matter over with Mrs. Meads, and she was willing for certain alterations to be made. On January 17 witness saw Mr. Hatton, who had submitted the lowest tender, and Mr. Hatton arranged to carry out the work. Defendant would not allow witness to reduce the size of the rooms. On April 14, 1899, witness sent in his account to the defendant with particulars. On December 19 Mr. Meads asked for a month to pay. At the end of the month witness sent in his account, and subsequently put the matter in the hands of his solicitors. His charges were fair and reasonable.—Cross-examined: Originally the price was not to be more than 1,200*l*. But it was not correct that this price was adhered to all along. Mr. Meads said he wanted expenses kept as low as possible.

Mr. Oxley, one of the plaintiffs, bore out the evidence given by his partner, Mr. Pigott, as to interviews when Mr. Meads brought the sketch and returned the plans. The plaintiffs had definite instructions to go on with the plans.

This closed the case for the plaintiffs.

Mr. William Meads, a dentist, of Bexhill-by-Sea, said he had to pay just over 700*l*. for the freehold. Witness asked Mr. Pigott what he could have a house built for, and Mr. Pigott said for any sum. Witness said he did not want to spend more than 1,000*l*. Witness got out a rough sketch, and Mr. Pigott thought it would do very well with a slight alteration. Neither Mr. Pigott nor his partner suggested that the building would cost more. Witness afterwards said, "Keep as near as you can to 1,000*l*., only don't go over 1,200*l*." Mr. Pigott said, "Very well." Witness said as a kind of joke, "None of your hankey-pankey tricks; don't run me up a big bill, for I won't pay it." On the night before the tenders were sent out, witness had a special interview with Mr. Oxley, and asked him if they had everything down. Mr. Oxley said he thought so. Afterwards witness said he could not be quite certain whether they could get it for their 1,000*l*., but he thought they were well within the mark. Defendant said that that being so he was willing to go forward, but he would not undertake it if there was any doubt. Mr. Oxley again said he thought they were well within the mark. Witness was dumfounded on the receipt of the tenders. Mr. Pigott admitted that he had been a little extravagant about the stone, and said they must try to bring it down. Witness said he could not entertain a house of that description, as he would never get rent to cover it. Witness said on several occasions that if Mr. Pigott could not reduce the amount of 1,200*l*. he would not go on. The sum of 1,500*l*., which was not to be exceeded, mentioned in the letter of his in which witness said he had consulted with his wife, was the sum mentioned by his wife, who objected to witness building on the front. The sum was quite against witness's inclination, and he afterwards said he could not exceed 1,200*l*.

At this stage the case was stopped by his lordship, and judgment given for the plaintiffs for the amount claimed.

secretary. The party left Shrewsbury by the 11:25 A.M. train for Bridgnorth, and on their arrival there entered three brakes and proceeded to visit the following places:—Billingsley Church, where the rector (Rev. J. L. Williams) showed the early Norman doorway, fourteenth-century porch, Easter sepulchre and early font; Sidbury Church, where was seen some splendid herring-bone work, Norman west doorway, traces of wall-painting, Norman font, eighteenth-century Creswell chapel and monuments, and collecting box dated 1637, and the old manor house of the Purslowe and Creswell families adjoining the churchyard; Stottesden Church, where the vicar (the Rev. W. Murcott) showed Saxon work in the west wall, Norman base of tower and arcade of north aisle, Norman font and Jacobean pulpit; Aston Boterell Church, where the rector (Rev. E. F. Lipscomb) pointed out the Transitional Norman work in the chancel, the Early Decorated arcade, the Transitional font, a fifteenth-century incised slab, a table tomb (probably that of John Boterell and his wife, Elizabeth Trowe, c. 1600), and the adjoining manor house of the Boterells, which still possesses a fine plaster ceiling of 1576, and the site of the earlier castle of the Boterells in a neighbouring field. Then the party walked to Burwarton, and had tea at the Boyne Arms, driving afterwards to Bridgnorth and there catching the train for Shrewsbury, which was reached at nine o'clock. The arrangements for the day were made and most successfully carried out by a sub-committee and Mr. Goyne, the secretary.

### LINCOLN AND NOTTINGHAM ARCHÆOLOGISTS.

THE members of the Architectural and Archæological Society of the counties of Lincoln and Nottingham made an excursion in the neighbourhood of Boston on the 2nd inst., and spent a pleasant and profitable day in several of the villages near to the town of the "stump." The party included the Rev. A. F. Sutton, Brant Broughton; Canon Hemmans, Holbeach; the Rev. J. P. Cheales, Miss G. Cheales and Miss K. G. Cheales, Friskney; Mr. C. Hodgson Fowler and Mrs. Fowler, Durham; Mr. W. H. Ellis, London; the Rev. W. O. and Mrs. Massingberd, Ormsby; Mr. and Mrs. Hunt and Mrs. Brough, Salop; Mr. S. Simpson, Boston; the Rev. A. S. Penny, Wispington; the Rev. C. Y. and Mrs. Mitchinson, Skirbeck Quarter; Canon Stephenson, Boston; the Rev. W. T. Fielding, Boston; the Rev. R. E. Cole, Donington; the Rev. A. Hunt, Lincoln; Mr. E. Burchall, Leeds; Dr. and Mrs. Perry, Spalding; the Rev. R. W. Cracroft, Harrington; Mr. G. S. W. Jebb, Boston; the Rev. W. Y. and Mrs. Smythies, Algarkirk; the Rev. A. Lambert, London. Mr. G. S. W. Jebb had charge of the local arrangements. The excursionists assembled in Boston in the morning, and, under the escort of Mr. Jebb, visited the parish church, the old town hall, the Grammar School and other places of interest. At noon waggons started from the town bridge, and the party proceeded to Swineshead, and thence to Bicker, Donington, Quadding and Wigtoft, and at each place the churches and several objects of archæological interest were inspected. Boston was reached on the return journey at about half-past seven o'clock, and after dinner at the Red Lion a public meeting was held in the Guildhall, at which Mr. Jebb read a paper.

### PUBLIC HOUSES AND THE BUILDING ACT.

IN the Court of Appeal the case *Dicksee v. Hoskins* was considered. It was an appeal from the judgment of a Divisional Court, the Lord Chief Justice and Mr. Justice Lawrance, on a special case stated by a metropolitan police magistrate on allowing an appeal under the London Building Act, 1894, from a notice of objection to a proposed building served by the appellant, who was a district surveyor under the Act, upon the respondent, who was a builder. The case is reported in 17 the *Times* Law Reports, 446. The question was whether the proposed building was one to which section 74, subsection 2, of the London Building Act applied. That subsection provides as follows:—"In every building exceeding ten squares in area used in part for purposes of trade or manufacture and in part as a dwelling-house, the part used for purposes of trade or manufacture shall be separated from the part used as a dwelling-house by walls and floors constructed of fire-resisting materials." The proposed building was the re-erection of an old beerhouse. It would, when built, exceed ten squares in area, and was intended to contain—in the basement, beer and wine cellars; on the ground floor, a bar, public lobby, saloon bar, private bar, parlour and a public room; on the first floor, a sitting-room, three bedrooms and a kitchen; and on the top floor, attics. It was intended to be licensed and used for the sale of wine and beer to be consumed on or off the premises under the Beerhouse Act, 1830, and the Refreshment House

### SHROPSHIRE ARCHÆOLOGICAL SOCIETY.

THE annual excursion of the Shropshire Archæological and Natural History Society was held on the 4th inst. in delightful weather. The programme included a visit to a very interesting part of Shropshire, and the outing was thoroughly enjoyed by those who were present. The attendance included the Rev. T. Auden, Mrs. and Miss Auden, Mr. W. Beacall, Mr. Cooper, Miss Downward, Miss Mary Lloyd, the Rev. O. M. Feilden, Mr. S. Jackson, Miss Jeffreys, Mr. J. Nurse, Mr. T. Roberts, Captain Stretche, Mr. Herbert Southam, the Rev. J. G. Swainson, Mr. R. and Mrs. Taylor, Captain G. Williams-Freeman, Miss Williams-Freeman, Mr. William Phillips, the Rev. C. H. Drinkwater and Mr. F. Goyne,



Act, 1860. The trade of the beerhouse was to be carried on on the basement and ground floor, and the licensee and his family were to reside in the upper floors of the building. The whole of the building was to be covered by the justices' certificate and Excise license. The floors separating the ground floor from the first floor and the staircase leading to the first floor were not intended to be constructed of fire-resisting materials, and the learned magistrate found that, if subsection 2 of section 74 of the London Building Act applied to the building, the provisions of that section would be contravened. The learned magistrate also found as a fact that the basement and ground floor of the building were intended to be used for the purposes of the trade of a beerhouse, and that the part above the ground floor was intended to be used as a dwelling-house for the licensed occupier, but held that the case was governed by the decision in *Carritt v. Godson* (1899, 2 Q.B. 193), and allowed the appeal and overruled the objection of the district surveyor. The district surveyor appealed to the Divisional Court, and they dismissed the appeal. He now appealed to the Court of Appeal.

Mr. Avory, K.C., and Mr. Rowsell appeared for the appellant; Mr. Danckwerts, K.C., and Mr. Craies for the respondent.

The Court allowed the appeal.

The Master of the Rolls said that personally he did not agree with the findings of fact found by the learned magistrate, but he was bound by them. The magistrate seemed to him to be inconsistent in finding as he had done and also holding that the case was governed by *Carritt v. Godson*. But, accepting the findings, it followed of necessity that the appeal must be allowed.

Lord Justice Vaughan Williams said he concurred reluctantly.

Lord Justice Stirling also concurred.

### THE HOUSE OF COMMONS.

THE select committee appointed to consider whether any, and what, arrangements can be made to improve the accommodation provided for the general use of members of the House of Commons have agreed to the following report:—

Your committee have taken into consideration various representations which have been made to them as to the requirements of members for additional or improved accommodation, and they have also received evidence on certain general matters concerning the arrangements of the House, connected with questions of accommodation. Your committee proceed to state the requirements *seriatim*, with the recommendations which they make in each case.

#### 1. Smoking-room Accommodation.

It has been given in evidence, and indeed it is matter of common knowledge in the House, that the members' smoking-room on the main floor is always inconveniently crowded and very hot. The heat cannot altogether be avoided owing to the position of the room immediately over the kitchen, but it is hoped that it will be lessened by the means suggested below for reducing the temperature of the kitchen. The committee recommend that the present members' smoking-room be used as the strangers' dining-room, that the present middle dining-room be reserved for members only, and that the third dining-room, next the House of Lords, be used as a smoking-room.

There can be no doubt, however, that a large increase in the smoking-room accommodation is urgently called for. At the present time there are several rooms on the Terrace front and adjacent corridors vacated by Ministers who have removed to rooms in the late residence of the Clerk of the House; and it is possible, by making a few other reappropriations, to construct on this floor, beyond the present strangers' smoking-room, a series of three large rooms of the size of the last named, each measuring about 47 feet by 25 feet and 13½ feet high, fronting the Terrace. These rooms would form a suite separated by doors, with access also to each from a corridor running the whole length of the library corridor above.

Your committee advise that the two nearer rooms should be appropriated for members' smoking-rooms, and the furthest or most northern room for a members' reading-room.

Incidental to these alterations would be the removal of the bath-rooms and of the chaplain's room, as well as of the bar by the strangers' smoking-room, and the diversion of the staircase leading to the Ministers' corridor above. The members' staircase to the Terrace might advantageously be widened and improved. The baths could most conveniently be placed in the room now occupied by a Minister next the dressing-room, with which a communication could be opened; there would be space here for three baths, which ought to be sufficient. These alterations will entail the displacement of the two Ministers now occupying rooms on the Terrace front, and also of the two librarians. The librarians might be moved into the two rooms now occupied by the Parliamentary Secretary to the Local

Government Board and by the still-room maids. By a diversion of the passage and entrance from under the adjacent archway the small rooms there could be enlarged, and suitable accommodation obtained for three of the five Ministers displaced, the other two Ministers being moved to rooms now vacant on the upper floors. The chaplain and the two clerks-assistant could be given dressing-rooms on the mezzanine floor, as hereinafter stated.

Opportunity should be taken to fit up bookcases in the new smoking rooms and corridor for the accommodation of the ever-increasing number of books in the library, where no further space is available.

The various works required under this head will, including furniture, cost about 13,300*l*.

#### 2. Dining-rooms.

Your committee hear on all sides that great inconvenience is occasioned to members for want of more dining accommodation. It has been given in evidence that 300 dinners are served upstairs on a Government night, while there is room for only 140 diners on that floor, and that members have to wait some time for their turn at the tables. It does not appear that, if strangers were excluded from the upper dining-rooms, there would even then remain sufficient accommodation for members. The plans submitted to the committee show two new dining-rooms on the Terrace front, to one of which ladies would be admitted. There will still remain the three existing small dining-rooms for ladies. In connection with these, a ladies' retiring-room can be provided. The present members' smoking-room on the Terrace is absorbed in these rearrangements, which have the approval of the kitchen committee. The cost, including furniture, is estimated at 6,350*l*.

#### 3. Kitchen.

The accommodation is found to be in some respects insufficient and the ventilation unsatisfactory. Certain rearrangements and alterations in the kitchen department have been pressed for by the kitchen committee. The improvements which they have suggested are detailed in an Appendix, and the plans show how the works can be carried out. By an alteration of some of the fittings and methods of heating, it will be practicable to modify the high temperature prevailing in the kitchen. One of the requirements is that of a refreshment-bar for the messengers and subordinate staff of the House only, where they may obtain refreshments at a cheap rate. A petition, signed by upwards of 100 persons, has lately been presented to the kitchen committee asking for this accommodation, which might be provided in what was the servants' hall of the late residence of Sir Reginald Palgrave or the space adjacent. The cost of these works will be about 950*l*.

#### 4. Ladies' Gallery and Upper Floors.

The need for a larger refreshment-room for the ladies in the gallery has been often pressed on the kitchen committee. This should, in the opinion of your committee, be provided by adding to the existing room that next to it, which is now used by the *Times* reporters.

Several complaints have been made to us of the defective ventilation of the ladies' gallery. The question is complicated by the gallery being, for ventilation purposes, a part of the chamber of the House; but suggestions have been made for improvements which are commended for further consideration and experiment.

Your committee are convinced that better accommodation is required on the committee-room floor to enable witnesses and others attending public committees on business, to the number, it is stated, of 1,800 in a day at times, to obtain refreshments. By fitting up a refreshment-room in the place now used for the deposit of hats and coats, and cloak-rooms where refreshments are now sold, a much more adequate arrangement would be effected.

There are on the mezzanine floor opening out of the ladies' gallery staircase seven rooms of which little use is made except by the staff of the Serjeant-at-Arms for waste paper, storage, &c. These rooms, if rearranged and fitted up as proposed in plans submitted to your committee, with the windows enlarged, would, in their opinion, make serviceable offices and rooms for the chaplain, the clerks of the House, and others displaced.

The works and furniture under this head are expected to cost about 1,350*l*.

#### 5. Various Requirements.

A new water-closet and lavatory in the small waiting-room adjoining the smoking-room on the main floor have been asked for, and might be advantageously provided at a cost of 200*l*., but this would entail the removal of the police, for whom it is desirable accommodation should be secured.

Representations have been made to your committee on the crowded state of the tea-room and adjoining newspaper-room at certain times. Probably, however, the proposal to appropriate one of the new large rooms downstairs as a reading-room, as well as a rearrangement of the furniture, will go far to remove this complaint.



Suggestions have been made that more convenient accommodation is required for typewriting. As regards the situation of the present rooms, it appears to your committee that any disadvantage due to distance is counterbalanced by the comparative privacy of the rooms and their accessibility to the lady typists, who have not to pass through the inner precincts of the House. More space, however, is evidently required, and it is recommended that the adjoining conference-room F should be added to the typewriting-rooms. The heat of the rooms should be mitigated, if possible, by fitting outside blinds. The estimated cost of these works is 50*l*.

As regards accommodation for conferences and deputations, and for members' private secretaries, your committee desire to point out that the large committee-room at the north-west corner of Westminster Hall is very little used, and that it is available for these purposes on all but the very rare occasions when it is occupied by grand committees. The accommodation for lady secretaries has been considered, but it is regretted that no suggestion for affording additional space appears to be feasible.

Complaints have been made that there is an inadequate number of private lockers for members. It appears, however, from the evidence of the Serjeant-at-Arms that the deficiency is very small, and there is no doubt that it can be conveniently supplied.

A very considerable addition was made last year to the accommodation in the reporters' rooms, but there still seems to be need for more space for dining. This is a matter involving, it is understood, some structural difficulty and expense, and the committee recommend that the matter should be considered.

The accommodation now given to the telegraph operators and their assistants is quite inadequate, the present overcrowding being prejudicial to the health of the large staff employed. Your committee would recommend that the three rooms immediately under the present telegraph office, now used by the doorkeepers of the House of Lords, should be allotted for the use of the telegraphic staff, the doorkeepers being accommodated in the rooms now occupied by the assistant engineer, who would be moved into the ground floor of the late residence of the librarian of the House of Lords. These alterations have been rendered possible by the courteous consideration of the Lord Great Chamberlain, and of the officers of the House of Lords. The cost of these works is estimated at 450*l*.

A proposal was considered by your committee for constructing an additional storey on the top of the tea-room and reading-room. It would, to some extent at least, interfere with the light to the windows of the library corridor, and the need for it does not seem to be sufficiently urgent to justify the outlay involved.

Nor can your committee recommend the construction of a new smoking-room in the cloister court, which they think open to objections, æsthetic and other.

#### 6. Ventilation of Committee-rooms, &c.

Much inconvenience, and even danger to health, has been complained of as regards the ventilation of the committee-rooms. They are often crowded and a better supply of fresh air is urgently needed. Experiments have been tried by the Office of Works in two of them, Nos. 6 and 9, with a marked improvement in each case. Your committee recommend that the whole of the suite should be dealt with without further delay, so that the improvements may be completed before another session.

It may be here observed that there can be little doubt that the ventilation of the building generally would be more efficiently worked if all attendants authorised to control the heating of rooms, the opening and shutting of windows, &c., were under one jurisdiction, viz. that of the resident engineer.

Time has not enabled your committee fully to inquire into the general system of ventilation employed in the building, and they suggest that this would be a fitting subject for further inquiry at an early date.

#### Total Cost of Services.

With a suitable margin for contingencies which may well arise in carrying out extensive structural works, the total cost of the services recommended by this committee may be estimated at 30,000*l*.

The committee strongly urge that their recommendations should be carried out as soon as possible, in view of the fact that the present accommodation is quite inadequate for the large number of members who are in constant attendance for long periods at a time.

**Mr. Goscombe John's** colossal bronze statue of the late Duke of Devonshire is to be unveiled at Eastbourne on August 17. Permission has been given to the statue committee to proceed at once with the putting in of the foundations, in order that the concrete may have time to consolidate before proceeding with the erection of the statue.

## TESSERÆ.

### The Cavern Temple of New Grange.

ON plan New Grange resembles the upper part of a cross as the avenue does the stem. There are three recesses, one facing the avenue or gallery, and one on each side. In the one on the right is a large stone vase, which antiquaries have denominated a rock-basin. Within the excavated part of this large basin are two circular cavities alongside of each other, about the size of a child's head. Several also of the rude stones composing this recess are decorated with a variety of devices, circular, zigzag and diamond shape. Some of this latter pattern seem to be of superior workmanship, the squares being indented. Many of the stones on each side of the adit have smaller rude marks upon them, and one of them has spiral zigzags. The construction of the dome demands notice. The avenue or gallery leading to the area is formed by large upright stones, pitched perpendicularly in a row on each side, and thus they support the flat stones which form the roof. This covering rises gradually till it reaches the dome, which is not (like our modern cupolas) formed by keystones converging to a centre, but, after the manner of our staircases, each huge stone projects a little beyond that underneath it. A large flat stone at top makes the cove of it entire. The tallest of the stones forming the adit to the sacellum is 7 feet 6 inches high; its companion on the opposite side about 7 feet. The outward surface of the rock basin is about 3 feet 6 inches high and 3 feet 2 inches deep.

### Primitive Forts.

The ancient *din* or *dinas* and the Irish *dun*, as the words import, were the alarm posts in which the inhabitants of a district assembled in time of invasion—an event that rendered the construction of a proper and secure receptacle for that purpose absolutely requisite. *Din* signifies "what surrounds," i.e. an entrenchment. From this name of the British citadels we have the Roman *dinum*, *dinium* and *dunum*, and also the tune, *don*, *ton* and *town* of the Saxons. *Dun* is the same word in the Belgic dialect, whence it was principally used in England and Ireland. In this species of fortification the ancient Britons and Irish lodged their wives and children, and into it drove their cattle from the low adjacent country on any sudden invasion. Here they formed garrisons and made their stand, and from hence they sallied forth with confidence to repel the foe. Such fortresses were generally constructed on the most lofty hills, which, though from want of water untenable for any great length of time, were from the same cause subject to much wet, and thence enabled the warriors for a certain period to defend themselves. The *dinas*, therefore, of necessity was the strongest kind of fortification, and we consequently always meet with it strengthened by several ramparts as a fixed place of security in case of danger. The *caer*, in contradistinction to the *dinas*, seems to have been the name applied to such entrenchments as were thrown up on the march or retreat of an army, where time would not permit a fortification of more studied and laborious construction. We therefore generally find the *caer* consist of one single vallum and ditch.

### The Savoy in 1691.

Among Wren's employments as Surveyor-General under the monarchy of William III. was a command to ascertain and report to the Privy Council upon the buildings and other properties formerly occupied by the Jesuits and Benedictine monks in the precincts of the ancient Savoy Palace in the Strand, which he reported to consist of "a building called the Jesuits' College, 212 feet along the river Thames and 27 feet broad, adjoining the house, now Henry Allen's to the eastward, and to the house now possessed by the widow Salisbury to the west." The tower at the east end of the college, about 36 feet square, was then debased to a laystall and public house of office, and the Jesuits' chapel which adjoined the college on the south, and the military hospital or barracks, so appropriated by Evelyn in the im politic war with Holland, on the north, with an office for the priests, a kitchen, with offices and yards, for the fraternity, &c. There were also two empty houses, recently occupied by the Benedictine monks, which extended from the college to the hospital. To such base uses had the college of the Jesuits and the monastery of the Benedictines in the Royal Palace of the Savoy descended.

### Symbolical Patterns.

In the earliest dawn of civilisation the arts were the repositories of the myths and mysteries of national faiths. Embroidery was one of them, and the border which edged the garment of a divinity, and the veil which covered the grave of a loved one, or the flower-buds and fruit which fringed the hangings and curtains in the sanctuary, each had a meaning, and therefore a use. These symbolical designs and forms were constantly reproduced, and all human ingenuity was exercised in reforming, remodelling and adding perfect grace to the expression of the same idea. The cross was a sign and



a pattern in prehistoric art. It was the double of the Tau, the Egyptian emblem of life; and while the Jews reject the Christian cross, they still claim to have warned off the destroying Angel by this sign in blood over the lintels of their doors in the first Passover. The gamma was the sacred letter of the Greeks; and arranged in different forms had different meanings. In the second form it was called the gammadion, and under this name was woven into stuffs for ecclesiastical use as late as the thirteenth century. Can any invention of man show more intention than the wave-pattern? The airy leap drawn downwards by the force of gravitation; controlled, and again made to return, but strong to insist on its own curve of predilection, rushing back under the same circle; strengthened by the downward movement to spring again from its original plane; beginning afresh its Sisyphus labour, and facing the next effort with the same grace and agility. Undying force and eternal flowing unrest—these are the evident intention of the wave-pattern. There is near Bologna an ancient Phœnician burial-place. Many of the strangely formed tombstones have the wave-pattern roughly carved upon them. It is to be found wherever their universal commercial activity led them. Perhaps the pattern was sacred to the Phœnicians, who were always being borne over the sea, and to whom the wave must have been most familiar and significant.

#### Chinese Architecture.

The columns and rafters used in the construction of Chinese houses are rather the bars of a light cage than the support of heavy weights—the perpendicular beams serve less to support than to unite the cross timbers or horizontal rafters. The framework of the roof is only a light fabric of bamboos placed one above another, supported by ledges and diminishing in size as they rise. The ends of these transverse rafters rise either out of the column which they cross, or from the walls themselves, and sustain that part of the roof which overhangs the building. Columns in China have no capitals; two reasons have prevented the adoption of this universally admitted part of the pillar. The first consists in the absence of both architrave and entablature; the second in the use of double roofs. The first or lower roof being generally only a lean-to or pent-roof, the slope of which necessarily conceals the height of the column, every species of figure, whether for use or ornament, not only appears superfluous, but has not perhaps entered the mind of the architect. Bricks are made in great perfection; the Chinese join them together beautifully, so as to form triangles, squares, circles, figures or flowers, &c., which gives to the exterior a very finished appearance. The bricks in size are about 10 inches long, 4 inches wide, and rather more than 2 inches thick. A one-brick wall will therefore have a hollow of 2 inches between the stretchers of its two faces. Those of the Great Wall are reported as being 15 inches long, half that in width, and nearly 4 inches thick. The walls of their houses are generally about 18 inches thick. On the foundations they lay three or four layers of bricks entirely solid. After which they dispose them on the two faces of the wall frontways and lengthways (as headers and stretchers) alternately, so that the front ones meet and occupy the whole breadth; but between those that are disposed lengthways there remains a void space in the middle of the wall. On this first range they lay a second, disposing the bricks lengthways, observing to cover the joints of the front bricks in the first range with a whole brick in the second, and so they proceed alternately from the bottom to the top, and by this means the expense both of labour and materials is considerably diminished and the weight of the wall much lessened. Marble is found in the province of Fokien, and is very common in those of Chanton and Kiangnan, which would equal the best in Europe if it were well polished; but they make little use of it in their public buildings. There is neither palace nor temple, nor any other edifice at Pekin or elsewhere entirely of marble. Though pillars are frequently used in their buildings, they have hitherto employed nothing but wood for that purpose. It is uncommon to see anything built even of stone beside bridges and memorial arches, which adorn the streets of the principal cities in each province; and marble is generally applied for pavements, thresholds of gates, the foundations of some of the pagodas and the lining of canals.

#### GENERAL.

**The King** has lent to Leighton House the picture by the late Lord Leighton, *Cimabue's Madonna being Carried through the Streets of Florence*, which was purchased by Queen Victoria in 1855.

**The King** has been graciously pleased to grant a warrant of appointment as lock and safe makers to His Majesty to Hobbs, Hart & Co., Limited, Arlington Street, Islington, and Cheapside, who held a similar appointment to Queen Victoria.

**Messrs. Clayton & Black**, of Brighton, the School Board architects, have designed some additions to the Southwick

Board schools, which are being erected by Messrs. Field & Co. builders, at a cost of about 4,000*l*.

**The Electing Trustees** of the British Museum have elected the Duke of Cornwall and York to the trusteeship recently vacated by the resignation of the King.

**Lord Wemyss** proposes to move in the House of Lords on Tuesday next:—That in the opinion of this House it is desirable that models of the proposed public buildings in Whitehall and Parliament Street should be made and publicly exhibited, as recommended by Professor Aitchison (late president of the Royal Institute of British Architects) and by the present president and council of the said Institute.

**Mr. J. S. Rogers**, the American locomotive engine builder, has left over a million and a half pounds as a legacy to the Metropolitan Museum of Art at New York. Should the museum not be able to accept the legacy as an endowment fund, the money is to go to other New York institutions.

**Baron de Baye** has offered to the Municipal Council of Paris a collection of ancient jewels and embroideries which he gathered in southern Russia, with a view to founding in Paris a museum of Russian art, as he has already done at St. Petersburg of French decorative art.

**The Directors** of the joint railway companies have accepted the tender of the firm of Sir John Aird to carry out the scheme of improving the Portsmouth Harbour station at an expenditure of 40,000*l*.

**It has been Officially** announced at Simla that the King has been pleased to offer to the Viceroy a series of paintings for the hall proposed to be built in Calcutta as the All India Victoria Memorial. They were executed by command of Her late Majesty, and illustrate important events in her life and reign.

**Miss S. Curtis** has bequeathed 1,000*l*. to the churchwardens of the parish church of Tamworth, Staffordshire, for the restoration fund.

**The Greek Government** has received an offer from Genoa to undertake a search for submerged objects of art off Cerigo, but in view of the exorbitant conditions suggested the offer has been rejected.

**The Committee** of the Bishop Creighton Memorial Fund have commissioned Professor von Herkomer, R.A., to paint a half-length portrait of the bishop for addition to the National Portrait Gallery, and a replica for Fulham Palace.

**Mr. Pearson Bellamy**, architect, has died at his residence in Tentercroft Street, Lincoln, in his 80th year. He was articled to the late Mr. Nicholson at Lincoln. Mr. Bellamy afterwards commenced business in Lincoln, and eventually entered into a partnership with Mr. Hardy, which had a long existence. He was well known as an architect in connection with town halls, corn exchanges and cemeteries. One of his chief buildings was the Ipswich Town Hall. His principal cemeteries were those of Leicester and Loughborough, while the Corn Exchanges at Hull, Lincoln, Grimsby and Retford are from his designs.

**The Tramway** from Pontorson to Mont Saint-Michel will be opened on July 28.

**The Society of Architects** propose to arrange for a summer excursion to Oxford on July 27, when Mr. N. W. Harrison will meet the party and act as leader.

**Efforts are being Made** towards the raising of a sum of 12,000*l*. towards the restoration of the cathedral of St. Davids. It is proposed to restore the eastern group of buildings, consisting of Bishop Vaughan's chapel, the vestibule of the lady chapel and the lady chapel itself, which is further east and is the largest and most important building of the group. It is also hoped that the work, which is, as before, under Mr. J. Oldrid Scott's direction, may include the removal of the inappropriate buttresses on the north side of the nave and some attempt to arrest the decay of what remains of St. Mary's College.

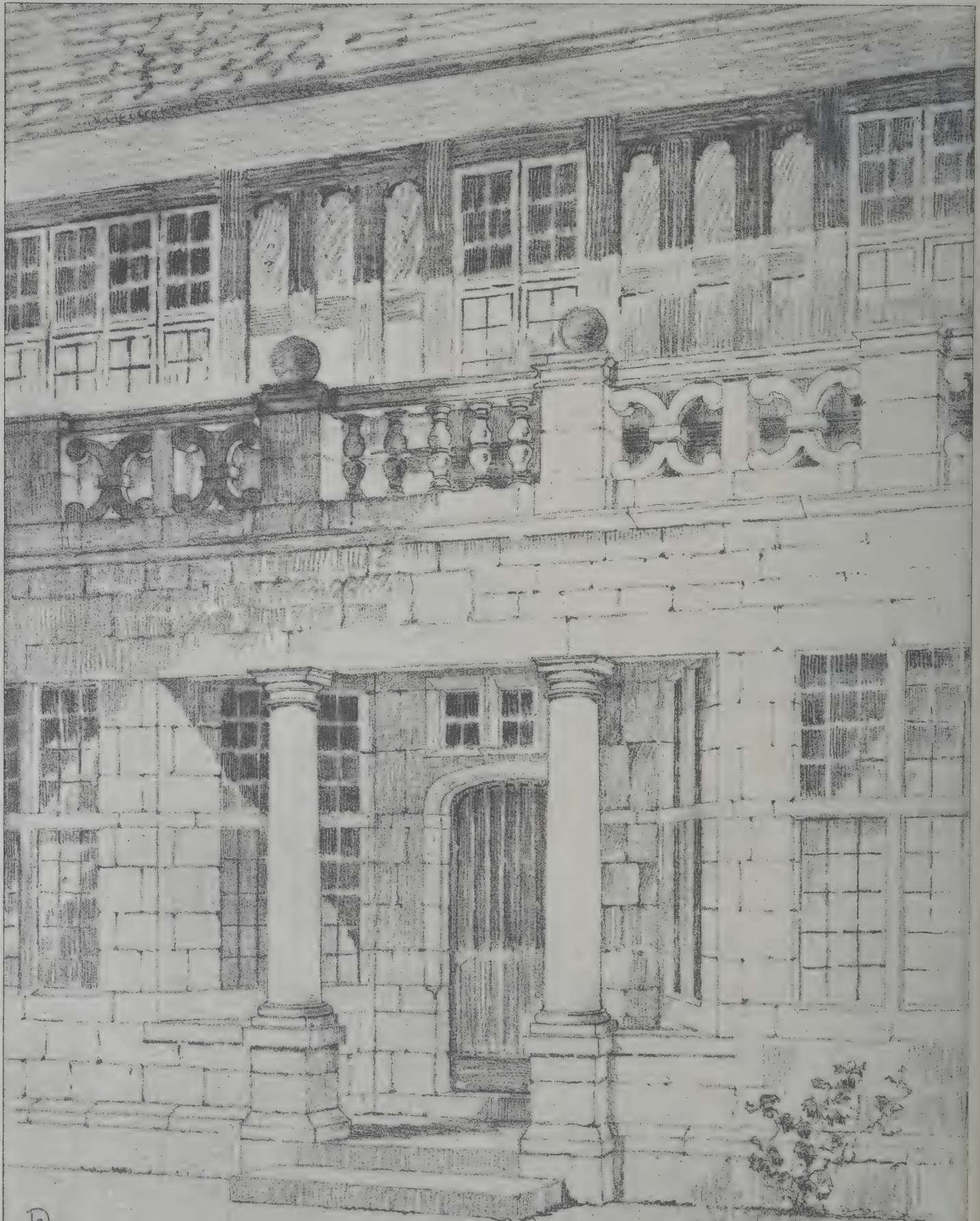
**The General Committee** of the Wykehamist South African War Memorial Fund has this week met in Lincoln's Inn Old Hall. The committee decided that the memorial should take the form of a new entrance gate into the school grounds from Kingsgate Street. It was resolved that the governing body should be informed of the scheme and their general approval should be requested.

**The Opening Ceremony** in connection with the Guinness Trust Buildings at Hammersmith will take place on July 17. The buildings are situated in the Fulham Palace Road, and two out of seven blocks are ready for occupation. Altogether accommodation will be provided for 400 families, and only bona-fide persons of the working class are eligible. They will be let in suites of one, two, three or four rooms, the rents being from 2*s*. 6*d*. to 6*s*. 6*d*. a week, according to position and number of rooms. The convenience of the tenants is to be studied in every way. Hot water will be supplied on each landing, store-room is provided for perambulators, a play-shed for the children and a reading and recreation room for the adults.



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The Architect, July 12<sup>th</sup> 1901.







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# THE Architect and Contract Reporter

## EDITORIAL NOTICES.

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

## TENDERS, ETC.

*\*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

## COMPETITIONS OPEN.

**CHELSEA.**—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

**MANCHESTER.**—July 31.—Competitive drawings are invited for a fire station, a police station and other buildings, to be erected on land abutting upon London Road, Fairfield Street, Commerce Street and Whitworth Street, at a total cost not exceeding 85,000*l.* Premiums of 300*l.*, 200*l.* and 100*l.* Lithographed plan of site and copy of conditions may be obtained on application to the City Treasurer, Town Hall, Manchester.

**PENZANCE.**—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

**SHEFFIELD.**—Aug. 31.—Plans and estimates are invited for the alteration of Eccleshall Church. The Rev. T. Houghton, Eccleshall Vicarage, Sheffield.

## CONTRACTS OPEN.

**ARGENTINE REPUBLIC.**—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., or personal application.

**ATHERTON.**—July 17.—For erection of engine and exhauster house at the gasworks, Atherton, Lancs. Messrs. Thomas Newbigging & Son, engineers, 5 Norfolk Street, Manchester.

**ATHERTON.**—July 18.—For erection of public swimming and slipper baths at Atherton, Lancs. Mr. F. H. Grimshaw, surveyor, Atherton, Manchester.

**AUSTRALIA.**—For construction of a bridge over Sydney harbour. Conditions of tendering and specifications embracing full particulars, together with plans, may be obtained on application to the Agent-General for New South Wales, 9 Victoria Street, London, S.W.

**BEVERLEY.**—July 31.—For repairs to the White Horse inn, Hengate. Mr. F. G. Hobson, clerk to St. Mary's Churchwardens, Newbegin, Beverley.

**BLACKBURN.**—July 15.—For alterations to slaughter-house No. 4, construction of two rop-houses, painting and whitewashing at the abattoirs, and additions to the scavenging superintendent's house at the storeyard. Mr. William Stubbs, borough and water engineer, Municipal Offices, Victoria Street, Blackburn.

**BLACKBURN.**—July 22.—For extension of the electricity works, Jubilee Street. Mr. A. S. Giles, borough electrical engineer, Jubilee Street, Blackburn.

**BRADFORD.**—July 16.—For extension, consisting of cookery, laundry, manual training-rooms and swimming-bath, of Feversham Street Board school. Messrs. Mawson & Hudson, The Exchange, Bradford.

**BURLEY.**—July 16.—For erection of a residence at Burley, Yorks. Messrs. H. & E. Marten, 25 Cheapside, Bradford.

**BURY.**—July 30.—For extension of the engine and boiler-houses and other works at the electricity works, Rochdale Road, Bury, Lancs. Mr. Arthur W. Bradley, borough surveyor, Bury.

**CATERHAM.**—July 22.—For alterations and additions to the laundry at Caterham Asylum. Mr. T. Duncombe Mann, clerk, Asylums Board, Embankment.

**CANNOCK.**—July 30.—For erection of an infirmary at the workhouse at Cannock. Mr. Ashton Veall, architect, 84 Darlington Street, Wolverhampton.

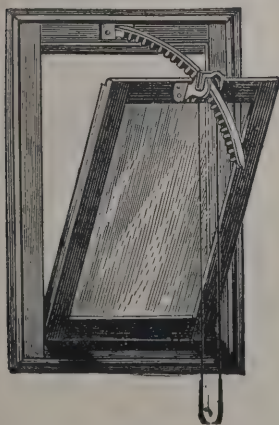
**CANTERBURY.**—July 17.—For alterations, &c., at the old museum, Guildhall Street. Mr. Arthur C. Turley, city surveyor, Tudor Chambers, Canterbury.

**CANTERBURY.**—July 19.—For repairs, painting, &c., to Section No. 2, which includes the male blocks, gasholders, &c., at the Kent County Lunatic Asylum, Chartham Downs. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

**CHAILEY.**—Aug. 1.—For erection of an isolation hospital, caretaker's house and other works at Chailey, Sussex. Mr. Henry Card, 10 North Street, Lewes.

**CORNWALL.**—July 16.—For alterations at Gulval Cross Board school. Mr. T. H. Cornish, clerk, 8 Parade Street, Penzance.

**DEWSBURY.**—July 19.—For erection of four houses and boundary walls in Thornhill Road. Messrs. Holtom & Fox, architects, Corporation Street, Dewsbury.



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*Medals Awarded at the Building Trades Exhibition, London, 1887; International Inventions Exhibition, 1885; Adelaide Jubilee International Exhibition, 1887.* [4]



**DIDCOT.**—July 23.—For erection of a store-house, office, &c., at Didcot station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, W.

**DISTINGTON.**—July 19.—For erection of a dwelling-house in Main Street, Distington, Cumberland. Mr. Thomas Wilson, Flower Hill, Distington.

**DURHAM.**—July 19.—For rebuilding Bradbury bridge, the erection of a new retaining-wall, Wallnook bridge, Witton Gilbert, and painting the following bridges, viz. Aldin Grange, Cocken Ford, Blackhall Mill, High Teams (half), Pensher, Woodham Beck, Daddryshield (Wear), Daddryshield No. 2, Ireshone Burn, Killhope Mill, Killhope Foot, Nancy Pasture Foot, Parkhouse Pasture, Wolsingham, Westgate, Wearhead. Mr. William Crozier, county surveyor, Shire Hall, Durham.

**DURSLEY.**—July 15.—For decorative and other work at the parish church. Messrs. Waller & Son, architects, College Green, Gloucester.

**EAST STONEHOUSE.**—July 17.—For erection of lodge and lavatories at Victoria Park, East Stonehouse, Devon. Mr. A. W. Debnam, architect, Town Hall, East Stonehouse.

**ERITH.**—July 15.—For construction of engine and boiler-house, chimney-shaft, sanitary work, water and fire services, rain and surface-water drains, approach roads for the new electric-light station. Mr. Charles H. Fry, clerk, District Council Offices, High Street, Erith.

**FARNHAM.**—July 15.—For erection of purifiers at the gas-works. Mr. G. McDonald, 104 West Street, Farnham.

**HADLEIGH.**—July 15.—For erection of two cells, &c, painting, papering, &c., at Hadleigh police station. Mr. A. Ainsworth-Hunt, county surveyor, Sudbury.

**IRELAND.**—July 20.—For completing the church of St. John's, Kilkenny. Mr. William H. Byrne, architect, 22 Suffolk Street, Dublin.

**IRELAND.**—July 15.—For erection of a house at Killybegs. Mr. E. J. Toye, architect, Strand, Londonderry.

**IRELAND.**—July 16.—For repairing three houses in O'Connell Street, Sligo. Mr. T. M'Ternan, Sunny Vale.

**KENCHESTER.**—July 21.—For widening of the culvert over the brook near the chemical works, Kenchester, Hereford. Mr. T. Llanwarne, clerk, 8 St. John Street, Hereford.

**KINGSTON-ON-THAMES.**—July 16.—For a small addition to the C nurses' home at the workhouse. Mr. William H. Hope, architect, Hampton Wick.

**KINGSBURY.**—July 24.—For erection of schoolroom, offices and alterations to present buildings at the schools at The Hyde, N.W. Messrs. Hudson & Hunt, 40 Upper Baker Street, W.

**KYO.**—July 19.—For alterations and additions to Oxhill Board school, Kyo, Durham. Mr. Geo. Thos. Wilson, architect, 121 Durham Road, Blackhill.

**KNARESBOROUGH.**—July 18.—For erection of a chapel and school in High Street, Knaresborough. Mr. William Rhodes Nunns, architect, Market Street, Bingley.

**LANCASHIRE.**—July 16.—For construction of a retaining-wall in Frank Street, Bury. Mr. Arthur W. Bradley, borough surveyor, Bank Street.

**LANCASTER.**—July 20.—For reslating a portion of the roof of one of the Bridge End houses. Mr. T. Cann Hughes, town clerk, Lancaster.

**LEEDS.**—For erection of a brick-built warehouse at Meanwood. Mr. Mark Walker, 1 Sandhurst Terrace, Woodside, Horsforth.

**LEEDS.**—July 15.—For erection of premises for the West Riding Union Banking Company in Park Row. Messrs. Oliver & Dodgshun, architects, Park Square, Leeds.

**LEEDS.**—July 15.—For erection of underground conveniences at Kirkgate Market. Drawings, &c, at the City Engineer's Office, Municipal Buildings, Leeds.

**LEEDS.**—July 17.—For erection of the buildings of the Seacroft infectious diseases hospital extension. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

**LITTLEBOROUGH.**—July 18.—For rebuilding Sladen Mill Littleborough, Lancs. Mr. J. R. Blacka, architect, Todmorden.

**LONDON.**—July 17.—For repairs, painting, cleaning, &c., at the infirmary in the Fulham Road, S.W. Mr. E. T. Hall, architect, 54 Bedford Square, W.C.

**LUTON.**—July 15.—For erection of a bathroom and providing and fixing three iron staircases at the workhouse infirmary. Messrs. J. R. Brown & Son, architects, Castle Street Chambers, Luton.

**MACCLESFIELD.**—Aug. 1.—For erection of a male epileptic ward for fifty patients, and nurses' home, at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

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**MANCHESTER.**—July 23.—For extension of Victoria station, Manchester (contract No. 2), comprising station roof, platforms, fish yard, &c, and the removal of the old Cheetham Hill Road bridge, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

**NEWPORT.**—Aug. 5.—For erection of a library, technical institute, &c., at Newport, Isle of Wight. Mr. F. Newman, county surveyor, St. Thomas Street, Ryde, Isle of Wight.

**NORTHALLERTON.**—For erection of a house, cottage and stabling, &c., at Thirk Road. Mr. John Walker, North Arch House, Northallerton.

**NOTTINGHAM.**—For improvement of out-offices at the old Basford (Percy Street) schools. Mr. A. N. Bromley, architect, Prudential Buildings, Queen Street.

**PADDINGTON.**—July 15.—For erection of mortuary buildings and chapel at the north end of Manor Place. The Town Clerk, Town Hall, Paddington.

**PADDINGTON.**—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

**PITT HILL (DURHAM).**—July 23.—For alteration of premises, for the Beamish and West Pelton Club, Limited. Mr. M. N. Foster, architect, Stanley, R.S.O.

**PLYMOUTH.**—July 23.—For erection of fire and police station at Laira. Mr. James Paton, borough engineer.

**POPLAR.**—July 16.—For erection of two blocks of working-class dwellings, to be known as Melbourne Buildings and Sydney Buildings respectively, upon a plot of ground abutting on Brunswick Road and Ann Street, for the London County Council. Particulars at the architect's department, Housing of the Working Classes Branch, 18 Pall Mall East, S.W.

**POPLAR.**—July 24.—For erection of a medical officer's residence and officers' quarters at the workhouse, High Street. Messrs. J. & S. F. Clarkson, architects, 136 High Street Poplar, E.

**RAUNDS.**—July 22.—For erection of shoe factory. Messrs. Adams Bros., boot manufacturers, Raunds, Northants.

**RUGBY.**—For alterations and additions to St. Andrew's boys' schools. Mr. E. H. Lingen-Barker, architect, 146 St. Owen Street, Hereford.

**SALISBURY.**—For erection of the Woolpack Inn, Endless Street. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

**SCOTLAND.**—July 15.—For erection of a laundry at Slateford, Edinburgh. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

**SCOTLAND.**—July 15.—For erection of new and the reconstruction of old houses for the working classes at Pipe Street, Portobello. Mr. Thomas Hunter, W.S., town clerk, City Chambers, Edinburgh.

**SCOTLAND.**—July 17.—For repairs and improvements to church, manse and offices at Newhills, Aberdeen. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

**SCOTLAND.**—July 20.—For supply of feeders, mains and roadwork, arc lamps, &c, at Kirkcaldy. Mr. Wm. L. Macindoe, town clerk, Kirkcaldy.

**SCOTLAND.**—July 20.—For alterations upon Invergyle House and offices at Stronachlachar, Loch Katrine. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

**SCOTLAND.**—July 21.—For erection of car-sheds, work and repair shops at Ladyburn, Greenock, for the Greenock and Port Glasgow Tramways Company. Mr. F. Hewer, 33 Cathcart Street, Greenock.

**SCOTLAND.**—July 29.—For construction of part of the sub-structure of the extension of Glasgow Central Station. Mr. J. Blackburn, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

**SHEFFIELD.**—For erection of a round chimney at the Nunnery Colliery. Particulars at the offices, Corn Exchange, Sheffield.

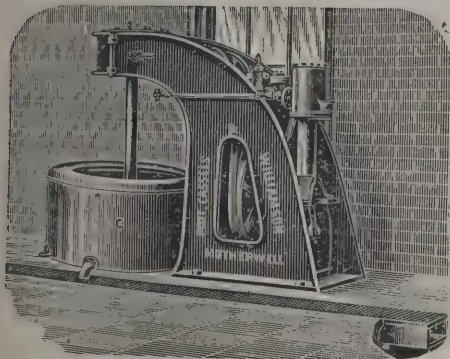
**SHEFFIELD.**—July 22.—For erection of sand-house, brass-foundry, stores, offices, oil store, &c., adjoining the car-sheds, Tinsley, Sheffield, for the tramways committee. Mr. C. F. Wike, city surveyor, Town Hall, Sheffield.

**SHEFFIELD.**—July 23.—For erection of a school and offices at Bradway. Mr. Joseph Norton, architect, Alliance Chambers, George Street, Sheffield.

**STEPNEY.**—July 18.—For supply of plant and cables, for the electrical committee. Mr. Arthur Wright, consulting electrical engineer, 27 Osborn Street, E.

**STOKE-UPON-TRENT.**—July 15.—For erection of three shops and warehouse in High Street. Messrs. R. Scrivener & Sons, architects, &c, Hanley.

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SUNDERLAND.—Aug. 2.—For erection of electric tramcar sheds, Hylton Road. Messrs. Barnes & Coates, architects, 41 Fawcett Street, Sunderland.

SWINDON.—July 18.—For erection of pupil teachers' centre and higher elementary school, Euclid Street. Messrs. Bishop & Pritchett, architects, Swindon.

WALES.—For erection of house, stable and coach-house at Pontlottyn. Particulars of Mr. J. S. Galliford, Pontlottyn.

WALES.—July 15.—For erection of 20 or more cottages at Trealew. Mr. Lewis, 14 Sherwood Place, Llwynypia.

WALES.—July 15.—For repairs and additions to the parish church of St. Bride's-super-Ely, near Cardiff. Mr. Geo. E. Halliday, architect, Cardiff.

WALES.—July 18.—For cementing and painting the Harp inn, Gelligaer, and rebuilding the four houses adjoining. Mr. Geo. Kenshole, architect, Station Road, Bargoed.

WALES.—July 20.—For new sanitary appliances, repairs and painting (exterior and interior), at the Cardiff infirmary. Mr. Edwin Seward, architect, at the Infirmary.

WALES.—July 20.—For rebuilding the Tynrhoe Arms, Cymle, Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—July 20.—For erection of a house (29 feet frontage) at Crumlin, Mon. Mr. R. L. Roberts, architect, Abercarn.

WALES.—July 29.—For taking-down the present farmhouse and erection of a new house, with outbuildings, stabling and other conveniences at Bowlers' Barn Farm, near Abergavenny; and for erection of an additional boiler-house and chimney shaft, 112 feet high, at the Monmouthshire asylum, erection of new stores, sheds and yard for masons, &c., and the conversion of the present stores into pathological rooms. Mr. B. J. Francis, architect, Abergavenny.

WALES.—Aug. 7.—For erection of new Board schools at Ely, near Cardiff, for boys, girls and infants. Mr. Edgar Down, architect, 31 High Street, Cardiff.

WATFORD.—For alterations and additions to the Watford Field girls' school. Mr. C. P. Ayres, architect, Burvale, Watford.

WEST HAM.—July 23.—For construction of an underground sanitary convenience, Broadway, Stratford, E. Particulars at the Borough Engineer's Office, Town Hall, West Ham.

WIMBLEDON.—July 18.—For construction of underground conveniences in High Street and St. Mark's Place. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway.

WOLSHINGHAM.—July 16.—For alteration to premises at Wolsingham. Specification may be seen at the Wolsingham stores.

WOOLSTON.—July 20.—For erection of police station at Woolston, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

YORK.—July 15.—For erection of a brick wall, about 260 yards long and 3½ yards high, on the premises of the York Lunatic Asylum, Bootham. Messrs. Demaine & Brierley, architects, Lendal, York.

## TENDERS.

### ALDERSHOT.

For erection of buildings and shaft in connection with the electric-lighting station. Mr. NELSON F. DENNIS, architect. Quantities by Messrs. LEMON & BLIZARD.

#### Accepted tenders.

Geo. Kemp, Aldershot, buildings . . . £2,695 0 0  
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#### Accepted tenders.

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R. & G. Brown, Gitson Street . . . £461 0 0

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For erection of twenty-five dwelling-houses and other works near Little Houghton. Mr. WALTER J. SYKES, architect, Hoyland, near Barnsley.

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| M. Fleming, Eastgate, Barnsley, slater and plasterer      | 701    | 0  | 0 |
| W. H. Rawlin, Hoyland, near Barnsley, plumber and glazier | 173    | 19 | 0 |
| F. C. Wilson, Wombwell, painter                           | 92     | 0  | 0 |

## BARNSTAPLE.

For alterations and additions to the Royal and Fortescue hotel. Mr. ARNOLD THORNE, architect, 16 Cross Street, Barnstaple.

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|-------------------------------------------|--------|----|---|
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For altering and converting existing premises at Postern Gate into shops. Mr. ERNEST G. DAVIES, architect, 6 St. John Street, Hereford.

R. HEAD & SON, Bridgnorth (accepted) . . . . . £243 17 0

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For erection of stable, carriage-houses, &c., at Danes' Dyke. Mr. J. EARNSHAW, architect, Bridlington.

A. GARDAM, Marshall Avenue, Bridlington (accepted) . . . . . £351 14 0

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For constructing a bridge over the Middle Chine, West Cliff. Mr. F. W. LACEY, borough surveyor.

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| Goddard, Massey & Warner, Ltd., Nottingham                    | 3,205 | 0  | 0 |
| T. O. Dixon, Southampton                                      | 3,000 | 0  | 0 |
| J. C. Lang, Liskeard                                          | 2,950 | 0  | 0 |
| E. H. Page, Cardiff                                           | 2,850 | 0  | 0 |
| E. H. Page                                                    | 2,696 | 0  | 0 |
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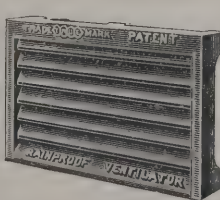
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|-----------------------------------------|--------|---|---|
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| H. Dougill                   | 485  | 0 | 0 |
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|                |      |    |   |
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| E. Mills       | 277  | 0  | 0 |
| W. Nash        | 275  | 0  | 0 |
| H. L. Holloway | 267  | 0  | 0 |
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| Hall Bros.     | 177  | 0  | 0 |

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|---------------------------------------|------|----|---|
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| Field                           | 5,443  | 0  | 0 |
| T. White                        | 5,357  | 0  | 0 |
| Jesse Finch                     | 5,259  | 0  | 0 |
| S. KNIGHT, Cuckfield (accepted) | 5,204  | 18 | 0 |
| Peerless & Dennis               | 5,189  | 0  | 0 |
| Architect's estimate            | 5,350  | 0  | 0 |

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S. KNIGHT, Cuckfield (accepted) £210 7 0

**HOUNSLOW.**

For laying about 1,600 feet of 12-inch stoneware pipe sewer (Hassall's double joint), with manholes, &c., in Staines Road. Mr. P. C. PARKMAN, surveyor, Hounslow.

|                                                 |      |    |   |
|-------------------------------------------------|------|----|---|
| Mowlem & Co.                                    | £686 | 0  | 0 |
| A. C. Soan                                      | 680  | 0  | 0 |
| R. W. Swaker                                    | 637  | 17 | 0 |
| T. Chapman                                      | 545  | 4  | 0 |
| LAWRANCE & THACKER, Clapham Junction (accepted) | 533  | 0  | 0 |

**HULL.**

For painting work at the Pearson Park. Mr. JOSEPH H. HIRST, city architect.

|                                                        |      |    |   |
|--------------------------------------------------------|------|----|---|
| Stephenson & Christopher                               | £238 | 0  | 0 |
| T. W. Bailey                                           | 233  | 17 | 0 |
| Lightowler & Son                                       | 230  | 18 | 6 |
| HULL PAINTING & DECORATING Co., Spring Bank (accepted) | 156  | 12 | 6 |

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Architect" will be forwarded on application to P. A.  
GILBERT WOOD, Publisher, Imperial Buildings, Ludgate Circus.



## IRELAND.

For additions to dwelling-house, Kilmacrenan. Mr. JOHN M'INTYRE, architect, Letterkenny.

|                                                              |      |    |    |
|--------------------------------------------------------------|------|----|----|
| W. Wilson . . . . .                                          | £171 | 0  | 0  |
| D. M'Caffrey . . . . .                                       | 151  | 3  | 10 |
| W. J. MOONEY, Bishop Street, Londonderry (accepted). . . . . | 129  | 10 | 0  |

## JARROW.

For painting and colouring at the Grange schools.

|                                              |     |    |   |
|----------------------------------------------|-----|----|---|
| T. Fraser . . . . .                          | £73 | 10 | 0 |
| H. COONEY, Monkton Road (accepted) . . . . . | 60  | 0  | 0 |

## LONG EATON.

For erection of cart-sheds, steam-roller shed and other extensions at the depôt in Fawley Road. Mr. F. WORALL, surveyor.

|                                                 |      |    |   |
|-------------------------------------------------|------|----|---|
| G. Youngman & Son . . . . .                     | £440 | 0  | 0 |
| F. Perks & Son . . . . .                        | 433  | 0  | 0 |
| J. Bull . . . . .                               | 415  | 10 | 0 |
| J. BROWN & SON, Long Eaton (accepted) . . . . . | 413  | 0  | 0 |

## LONDON SCHOOL BOARD.

For halls and other improvements, Weston Street school, Southwark.

|                                   |        |   |   |
|-----------------------------------|--------|---|---|
| F. & H. F. Higgs . . . . .        | £4,923 | 0 | 0 |
| J. Garrett & Son . . . . .        | 4,795  | 0 | 0 |
| H. Wall & Co. . . . .             | 4,697  | 0 | 0 |
| J. Marsland & Sons . . . . .      | 4,490  | 0 | 0 |
| J. Appleby . . . . .              | 4,464  | 0 | 0 |
| Johnson & Co. . . . .             | 4,370  | 0 | 0 |
| E. Triggs . . . . .               | 4,289  | 0 | 0 |
| Stimpson & Co. . . . .            | 4,248  | 0 | 0 |
| General Builders, Ltd.* . . . . . | 3,958  | 0 | 0 |

For enlarging the manual centre and providing a room for science teaching, &c., Hither Green school, Lewisham.

|                                    |        |   |   |
|------------------------------------|--------|---|---|
| Johnson & Co. . . . .              | £3,354 | 0 | 0 |
| Holliday & Greenwood, Ltd. . . . . | 2,910  | 0 | 9 |
| F. & H. F. Higgs . . . . .         | 2,906  | 0 | 0 |
| W. Johnson & Co, Ltd. . . . .      | 2,886  | 0 | 0 |
| Kirk & Randall . . . . .           | 2,878  | 0 | 0 |
| J. Garrett & Son . . . . .         | 2,799  | 0 | 0 |
| J. Smith & Sons, Ltd. . . . .      | 2,724  | 0 | 0 |
| J. & C. Bowyer* . . . . .          | 2,379  | 0 | 0 |

\* Recommended for acceptance.

## LONDON SCHOOL BOARD—continued.

For new house for schoolkeeper, East Lane school, Bermondsey Wall.

|                             |        |   |   |
|-----------------------------|--------|---|---|
| H. Wall & Co. . . . .       | £1,248 | 0 | 0 |
| Maxwell Bros., Ltd. . . . . | 1,192  | 0 | 0 |
| Lathey Bros. . . . .        | 1,164  | 0 | 0 |
| F. & H. F. Higgs . . . . .  | 1,152  | 0 | 0 |
| J. Appleby . . . . .        | 1,133  | 0 | 0 |
| Rice & Son . . . . .        | 1,095  | 0 | 0 |
| W. Akers & Co. . . . .      | 1,055  | 0 | 0 |
| J. & C. Bowyer . . . . .    | 1,013  | 0 | 0 |
| T. D. Leng* . . . . .       | 996    | 0 | 0 |

For partitions, &amp;c, Shillington Street school, Battersea.

|                                |      | A. | s. | d.  |
|--------------------------------|------|----|----|-----|
| W. Hammond . . . . .           | £790 | 0  | 0  | —   |
| T. Hooper & Son . . . . .      | 789  | 0  | 0  | —   |
| F. & H. F. Higgs . . . . .     | 759  | 0  | 0  | 6 9 |
| Lathey Bros. . . . .           | 737  | 0  | 0  | 6 9 |
| J. Marsland & Sons . . . . .   | 730  | 0  | 0  | 4 0 |
| E. B. Tucker . . . . .         | 697  | 0  | 0  | 6 6 |
| R. S. Ronald . . . . .         | 684  | 0  | 0  | —   |
| E. Triggs . . . . .            | 674  | 0  | 0  | —   |
| General Builders, Ltd. . . . . | 657  | 0  | 0  | 4 6 |
| R. H. Galbraith . . . . .      | 653  | 0  | 0  | —   |
| J. Garrett & Son* . . . . .    | 641  | 0  | 0  | 6 0 |

A. Price for supply of additional pitch pine blocks or for blocks omitted from quantity provided in specification at per yard super.

For works on site, Swaffield Road school, Earlsfield.

|                                 |      |   |   |
|---------------------------------|------|---|---|
| W. Hammond . . . . .            | £390 | 0 | 0 |
| R. E. Williams & Sons . . . . . | 378  | 0 | 0 |
| R. S. Ronald . . . . .          | 365  | 5 | 0 |
| E. Triggs . . . . .             | 292  | 0 | 0 |
| Lathey Bros. . . . .            | 269  | 0 | 0 |
| Maxwell Bros., Ltd. . . . .     | 265  | 0 | 0 |
| J. Garrett & Son* . . . . .     | 253  | 0 | 0 |

For sanitary works, Hugh Myddelton school, Clerkenwell.

|                             |      |   |   |
|-----------------------------|------|---|---|
| J. Peattie . . . . .        | £225 | 0 | 0 |
| Bristow & Eatwell . . . . . | 210  | 0 | 0 |
| Stevens Bros.* . . . . .    | 197  | 0 | 0 |

\* Recommended for acceptance.

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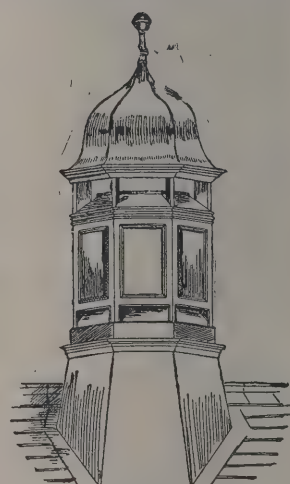
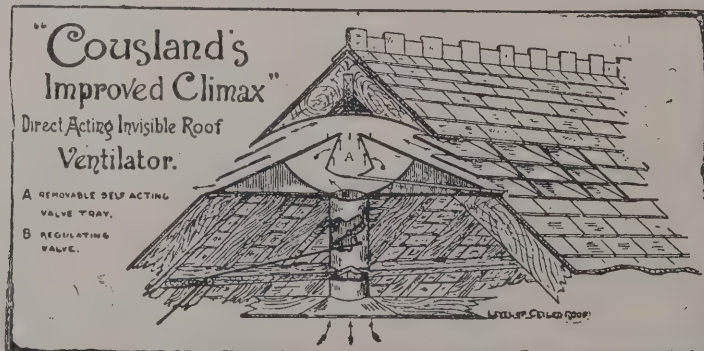
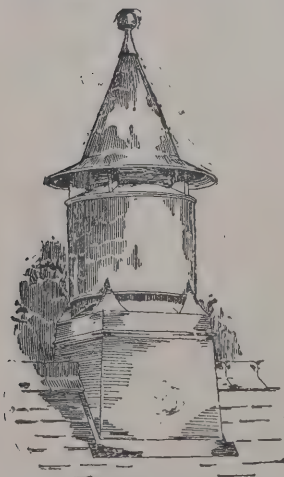
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Prices and full particulars from Secretary, 157 STRAND, LONDON.





LONDON SCHOOL BOARD—continued.

For provision of a porch for infants' department, Surrey Lane school, Battersea.

|                                 |      |   |   |
|---------------------------------|------|---|---|
| H. & G. Mallett . . . . .       | £305 | 0 | 0 |
| R. S. Ronald . . . . .          | 305  | 0 | 0 |
| W. Hammond . . . . .            | 293  | 0 | 0 |
| R. E. Williams & Sons . . . . . | 293  | 0 | 0 |
| Lathey Bros. . . . .            | 289  | 0 | 0 |
| Rice & Son . . . . .            | 289  | 0 | 0 |
| Maxwell Bros. . . . .           | 288  | 0 | 0 |
| E. B. Tucker . . . . .          | 260  | 0 | 0 |
| W. J. Coleman & Co.* . . . .    | 233  | 0 | 0 |

For sanitary and drainage works, Flint Street school, Walworth.

|                                |        |    |   |
|--------------------------------|--------|----|---|
| G. Parker . . . . .            | £6,669 | 0  | 0 |
| Martin, Wells & Co.. . . . .   | 4,042  | 0  | 0 |
| J. W. Falkner & Sons . . . . . | 3,209  | 0  | 0 |
| R. P. Beattie . . . . .        | 2,968  | 15 | 6 |
| Ashby & Horner . . . . .       | 2,770  | 0  | 0 |
| Johnson & Co. . . . .          | 2,746  | 0  | 0 |
| J. & C. Bowyer . . . . .       | 2,621  | 0  | 0 |
| J. Willmott & Sons* . . . . .  | 2,550  | 0  | 0 |

For additional heating surface, Faunce Street school, Kennington Park Road.

|                                                      |      |    |   |
|------------------------------------------------------|------|----|---|
| W. G. Cannon . . . . .                               | £198 | 0  | 0 |
| Brightside Foundry and Engineering Co., Ltd. . . . . | 190  | 0  | 0 |
| T. S. Knight & Sons . . . . .                        | 190  | 0  | 0 |
| J. C. Christie . . . . .                             | 155  | 0  | 0 |
| G & E. Bradley . . . . .                             | 131  | 0  | 0 |
| M. Duffield & Sons . . . . .                         | 121  | 0  | 0 |
| J. Esson . . . . .                                   | 118  | 10 | 0 |
| Wenham & Waters, Ltd.* . . . .                       | 118  | 0  | 0 |

For additional heating surface, Langford Road school, Fulham.

|                                                      |      |    |   |
|------------------------------------------------------|------|----|---|
| G. Davis . . . . .                                   | £410 | 0  | 0 |
| Purcell & Nobbs . . . . .                            | 322  | 0  | 0 |
| J. Defries & Sons, Ltd. . . . .                      | 299  | 15 | 0 |
| Bates & Sons . . . . .                               | 295  | 0  | 0 |
| The Lighting Corporation, Ltd. . . . .               | 290  | 18 | 4 |
| G. & E. Bradley . . . . .                            | 275  | 0  | 0 |
| Brightside Foundry and Engineering Co., Ltd. . . . . | 275  | 0  | 0 |
| C. Seward & Co . . . . .                             | 270  | 0  | 0 |
| T. S. Knight & Sons* . . . . .                       | 270  | 0  | 0 |

\* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For new offices for junior girls, Burghley Road school, Highgate Road.

|                                 |      |   |   |
|---------------------------------|------|---|---|
| Marchant & Hirst . . . . .      | £275 | 0 | 0 |
| C. W. Killingback & Co. . . . . | 231  | 0 | 0 |
| G. Godson & Sons . . . . .      | 225  | 0 | 0 |
| T. Cruwys . . . . .             | 208  | 0 | 0 |
| Stevens Bros.* . . . .          | 185  | 0 | 0 |

For heating works, Webb Street school, Bermondsey New Road.

|                                                      |      |   |   |
|------------------------------------------------------|------|---|---|
| Comyn, Ching & Co. . . . .                           | £154 | 0 | 0 |
| W. G. Cannon . . . . .                               | 119  | 0 | 0 |
| Brightside Foundry and Engineering Co., Ltd. . . . . | 118  | 0 | 0 |
| W. Simmons . . . . .                                 | 109  | 0 | 0 |
| Stevens & Sons . . . . .                             | 100  | 0 | 0 |
| Palowkar & Sons* . . . . .                           | 85   | 0 | 0 |

\* Recommended for acceptance.

LONDON.

For the construction of an artesian well, the supply and erection of pumping machinery, and the supply and erection of water-softening plant.

Accepted tenders.

|                                                                         |        |   |   |
|-------------------------------------------------------------------------|--------|---|---|
| W. Brown & Son, High Street, Tottenham (Section A) . . . . .            | £1,860 | 0 | 0 |
| Stanhope Engineering Co., 20 Bucklersbury, London (Section B) . . . . . | 395    | 0 | 0 |

For erection of two small houses in Upper Tooting Park, S.W. Mr. WILLIAM HUNT, architect, Donington House, Norfolk Street, Strand, W.C.

|                                                                                       |        |   |   |
|---------------------------------------------------------------------------------------|--------|---|---|
| W. & C. BROWN, 1 Inman Road, Wandsworth, tender on amended plans (accepted) . . . . . | £1,616 | 0 | 0 |
|---------------------------------------------------------------------------------------|--------|---|---|

PADDINGTON.

For repairs at the infirmary.

|                                                 |        |   |   |
|-------------------------------------------------|--------|---|---|
| Whitty & Co. . . . .                            | £1,170 | 0 | 0 |
| Richards . . . . .                              | 980    | 0 | 0 |
| Mills . . . . .                                 | 975    | 0 | 0 |
| FOXLEY, 27 King Street, W. (accepted) . . . . . | 953    | 0 | 0 |
| Dakers . . . . .                                | 950    | 0 | 0 |
| Wontner & Co.. . . . .                          | 947    | 0 | 0 |
| Athey . . . . .                                 | 940    | 0 | 0 |
| Inns . . . . .                                  | 875    | 0 | 0 |
| Barnard & Sons . . . . .                        | 868    | 0 | 0 |
| Spiers & Sons . . . . .                         | 728    | 0 | 0 |

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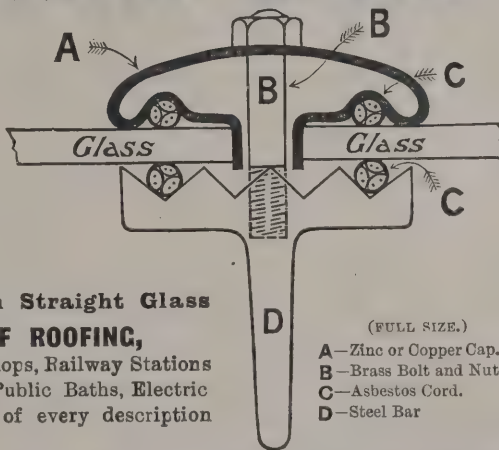
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This System allows for full expansion and contraction of glass, and absorbs any vibration by machinery or other causes.

No Drip whatever from condensation.

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The "HANDY" Fire Bucket Tank contains 6 Fire Buckets, which are always ready with water.

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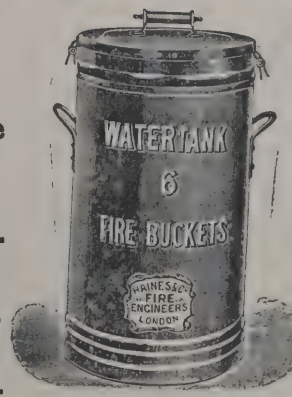
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HAND PUMP.



WATER TANK.



## PORTSMOUTH.

For painting and decorating the Portsmouth police court, coroner's court, magistrates' room and offices, town clerk's offices and the rate offices.

E. J. ARTHUR, 66 Fawcett Road (accepted) . £194 10 0

For erection of a boiler-house and coal bunkers at the depot for electric power.

|                     |        |   |   |
|---------------------|--------|---|---|
| Colthrop . . . . .  | £7,550 | 0 | 0 |
| Croad . . . . .     | 5,500  | 0 | 0 |
| Ward . . . . .      | 5,499  | 0 | 0 |
| Quick . . . . .     | 5,255  | 0 | 0 |
| Learmouth . . . . . | 5,188  | 0 | 0 |

*Amended tenders.*

|                            |       |   |   |
|----------------------------|-------|---|---|
| Croad . . . . .            | 5,050 | 0 | 0 |
| Ward . . . . .             | 4,922 | 0 | 0 |
| Learmouth . . . . .        | 4,790 | 0 | 0 |
| QUICK (accepted) . . . . . | 4,715 | 0 | 0 |

## PETERSHAM.

For construction of 375 yards of 21-inch stoneware pipe surface-water sewer along River Lane. Mr. J. H. BRIERLEY, borough surveyor, Richmond, Surrey.

|                                            |        |    |   |
|--------------------------------------------|--------|----|---|
| A. C. Soan . . . . .                       | £1,531 | 2  | 6 |
| H. Williams . . . . .                      | 1,078  | 8  | 6 |
| R. Ballard, Ltd. . . . .                   | 997    | 12 | 0 |
| Meston & Hale . . . . .                    | 960    | 8  | 9 |
| H. Bentham & Co. . . . .                   | 943    | 0  | 0 |
| G. Wimpey & Co. . . . .                    | 925    | 14 | 6 |
| B. Nowell & Co. . . . .                    | 872    | 10 | 6 |
| S. KAVANAGH, Surbiton (accepted) . . . . . | 828    | 13 | 9 |
| W. Swaker . . . . .                        | —      | —  | — |

## PRESTON-IN-HOLDERNESS.

For execution of certain alterations to Preston-in-Holderness Board school, Yorks. Mr. GEORGE THORP, architect, St. Mary's Chambers, Lowgate, Hull.

|                                           |        |    |    |
|-------------------------------------------|--------|----|----|
| R. Finch . . . . .                        | £1,085 | 2  | 6  |
| Leadley & Co. . . . .                     | 1,073  | 12 | 6  |
| Jackson & Sons . . . . .                  | 1,064  | 11 | 1  |
| Hull General Builders' Co., Ltd. . . . .  | 1,039  | 0  | 7  |
| C. Greenwood . . . . .                    | 1,026  | 10 | 0  |
| T. Kendall . . . . .                      | 1,001  | 0  | 0  |
| J. R. Woods . . . . .                     | 1,000  | 4  | 6  |
| Evans & Co. . . . .                       | 974    | 3  | 8  |
| J. W. Fenwick . . . . .                   | 953    | 0  | 0  |
| SMITH BROS., Preston (accepted) . . . . . | 952    | 18 | 11 |

## PRESTON.

For painting the grammar school railings, Cross Street.

SANDERSON & SOUTHWORTH, Preston (accepted) £252 0 0

For fibrous plaster work, &c., required at the grammar school, Cross Street.

G. ARROWSMITH, Preston (accepted) . . . . £85 0 0

## SCOTLAND.

For erection of two villas at Dunkeld Road, Blairgowrie.

*Accepted tenders.*

A. Hill, builder  
Somerville & Son, joiner.  
J. Bell, plasterer.  
G. P. Kidd, plumber.  
R. Y. Craigie, slater.  
C. Brown & Co., Ltd., lather.

For additions and repairs to Glenelg public school.

J. MACRAE, Inverness (accepted) . . . . £413 19 0

## STOCKPORT.

For excavating for and erection of a brick retaining wall surmounted with stone coping and cast-iron railings along Dawbank (late Rock Row), and for the demolition of the old Wheat Sheaf premises, &c. Mr. JOHN ATKINSON, borough surveyor.

|                                             |      |    |   |
|---------------------------------------------|------|----|---|
| J. Harding & Son . . . . .                  | £867 | 9  | 0 |
| J. L. Clarkson . . . . .                    | 838  | 4  | 6 |
| Wellerman Bros. . . . .                     | 829  | 18 | 4 |
| T. & W. Meadows . . . . .                   | 748  | 0  | 0 |
| J. Briggs . . . . .                         | 734  | 0  | 0 |
| W. Pownall . . . . .                        | 720  | 0  | 0 |
| M. Lane . . . . .                           | 700  | 0  | 0 |
| W. C. Broadhurst & Co. . . . .              | 690  | 0  | 0 |
| D. Eadie . . . . .                          | 679  | 0  | 0 |
| D. MULLANEY, Stockport (accepted) . . . . . | 624  | 0  | 0 |

## TUNBRIDGE WELLS.

For painting the old fever and small-pox hospitals at the sanatorium. Mr. W. H. MAXWELL, borough surveyor.

|                                                   |     |    |   |
|---------------------------------------------------|-----|----|---|
| E. & O. Strange . . . . .                         | £39 | 7  | 0 |
| J. F. May . . . . .                               | 34  | 3  | 0 |
| C. Goddard . . . . .                              | 25  | 10 | 0 |
| BENOY & SON, Tunbridge Wells (accepted) . . . . . | 24  | 10 | 0 |

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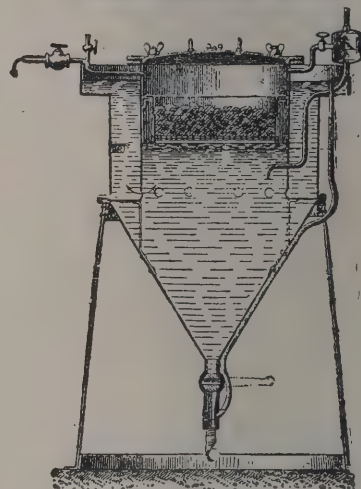
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**SOWERBY BRIDGE.**

For pulling-down of a portion of premises in Carlton Street, Sowerby Bridge, and rebuilding the same as a working-men's club and institute. Mr. S. WILKINSON, architect, Sowerby Bridge.

*Accepted tenders.*

R. Longbottom, mason.  
W. Fox & Son, joiner and carpenter.  
J. Stafford, plumbing, glazing and heating.  
G. Whiteley, slater and plasterer.  
E. Whitehead & Co., painter.  
J. Hitchen & Son, Halifax, iron roof work.  
Leeds Steelworks, Ltd., Leeds, steel joists.

**THRAPSTON.**

For reconstruction, paving and kerbing of 400 square yards (more or less) of footpath in High Street, Thrapston, Northants. Mr. GEO. SIDDONS, surveyor.

|                                           |      |    |   |
|-------------------------------------------|------|----|---|
| Freeman & Son . . . . .                   | £190 | 0  | 0 |
| Croft Granite Co. . . . .                 | 178  | 10 | 0 |
| Victoria Stone Co. . . . .                | 169  | 0  | 0 |
| Coates & Son . . . . .                    | 165  | 0  | 0 |
| Empire Stone Co. . . . .                  | 165  | 0  | 0 |
| Excelsior Stone Co. . . . .               | 165  | 0  | 0 |
| Alexander Stone Co. . . . .               | 164  | 0  | 0 |
| C. PETTIT, Thrapston (accepted) . . . . . | 159  | 10 | 0 |

**WAKEFIELD.**

For whitewashing, painting and cleaning the interior of the Union workhouse infirmary.  
C. TURNER & SONS, Wood Street (accepted).

**WALTHAMSTOW.**

For repairs to shop premises. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, E.C.

|                               |      |    |   |
|-------------------------------|------|----|---|
| M. Calnan & Son . . . . .     | £172 | 2  | 0 |
| E. S. Hammerton . . . . .     | 153  | 8  | 6 |
| E. Jackson . . . . .          | 125  | 0  | 0 |
| W. HENNESSEY . . . . .        | 121  | 13 | 0 |
| S. WHITE (accepted) . . . . . | 98   | 10 | 0 |

**WARRINGTON.**

For erection of the Delph Lane pumping station, near Houghton Green. Mr. JAMES DEAS, engineer, Municipal Offices, Warrington.

C. W. DAVENPORT, Stockton Heath, Warrington (accepted) . . . . . £8,271 10 0

**WALES.**

For erection of bandstand, shelters, wrought and cast-iron railings and gates, and the construction of roads, foot-paths, sewers, &c., in connection with proposed park and recreation grounds, Penarth. Mr. EDGAR J. EVANS, surveyor.

*Park.*

|                                               |        |    |    |
|-----------------------------------------------|--------|----|----|
| Barnes, Chaplin & Co. . . . .                 | £2,599 | 12 | 10 |
| F. Ashley . . . . .                           | 2,386  | 10 | 6  |
| T. Bevan . . . . .                            | 2,112  | 16 | 7  |
| T. Rees . . . . .                             | 2,088  | 1  | 0  |
| MACKAY & DAVIES, Cardiff (accepted) . . . . . | 2,084  | 4  | 9  |

*Recreation Ground.*

|                               |       |    |    |
|-------------------------------|-------|----|----|
| Mackay & Davies . . . . .     | 2,233 | 15 | 7  |
| F. Ashley . . . . .           | 2,233 | 15 | 3  |
| T. Bevan . . . . .            | 2,161 | 11 | 4  |
| Barnes, Chaplin & Co. . . . . | 2,141 | 0  | 4  |
| T. REES (accepted) . . . . .  | 2,029 | 16 | 10 |

*Cliff Walk.*

|                                      |       |    |    |
|--------------------------------------|-------|----|----|
| Barnes, Chaplin & Co. . . . .        | 1,047 | 6  | 11 |
| F. Ashley . . . . .                  | 1,036 | 0  | 8  |
| T. Rees . . . . .                    | 926   | 3  | 0  |
| T. Bevan . . . . .                   | 897   | 13 | 5  |
| MACKAY & DAVIES (accepted) . . . . . | 890   | 5  | 7  |

For erecting vestry at Caersalem, Bargoed.

|                                |      |   |   |
|--------------------------------|------|---|---|
| W. Morris . . . . .            | £339 | 6 | 3 |
| D EDWARDS (accepted) . . . . . | 339  | 0 | 0 |

For extensions to and erection of a vestry adjoining Moriah chapel, Bedlinog. Mr. P. VIVIAN JONES, architect, Hengoed.

J. H. JAMES, 13 Kinraig Street, Roath, Cardiff (accepted) . . . . . £1,180 0 0

For renovating the Zion Congregational church, Llanhilleth, and house attached.

L. PHILLIPS & SON, Crumlin, Mon (accepted) . £19 2 0

**WATH-ON-DEARNE.**

For furnishing the hospital for infectious diseases, near Wath-on-Deerne, Yorks. Mr. WILFRID T. CAMPSALL, architect, 19 Figtree Lane, Sheffield.

|                                                           |      |    |   |
|-----------------------------------------------------------|------|----|---|
| T. B. & W. Cockayne, Ltd. . . . .                         | £657 | 0  | 0 |
| G. Allinson & Son . . . . .                               | 619  | 2  | 0 |
| T. & J. ROBERTS, Moorhead, Sheffield (accepted) . . . . . | 590  | 17 | 7 |

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For alterations to the foundry, Richmond Street. Messrs.  
S. J. WILDE & FRV, architects, Boulevard Chambers,  
Weston-super-Mare.

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| G. Lucas . . . . .                                              | £135 | 10 | 0 |
| C. Taylor & Son . . . . .                                       | 127  | 0  | 0 |
| W. M. Dubin . . . . .                                           | 125  | 0  | 0 |
| C. & E. STRADLING, Anstice Terrace ( <i>accepted</i> ). . . . . | 103  | 0  | 0 |

**WHITECHAPEL.**

For pulling-down and rebuilding Nos. 162 and 164 Commercial  
Road, E., for Mr. L. FRUMKIN. Mr. ERNEST H.  
ABBOTT, architect, 6 Warwick Court, Gray's Inn, W.C.  
Quantities by Mr. ALFRED JOHNSON, 34 Imperial Build-  
ings, Ludgate Circus, E.C.

|                                      |        |    |   |
|--------------------------------------|--------|----|---|
| William Griffiths & Co, Ltd. . . . . | £2,800 | 0  | 0 |
| P. & J. S. Wood . . . . .            | 2,756  | 0  | 0 |
| W. J. Maddison . . . . .             | 2,596  | 0  | 0 |
| R. & E. Evans . . . . .              | 2,559  | 0  | 0 |
| J. Wright . . . . .                  | 2,427  | 10 | 0 |
| S. Salt . . . . .                    | 2,426  | 0  | 0 |

*Received too late for Classification.*

**SIDCUP, KENT.**

For sinking a well complete with engines and pumps at the  
new children's homes for the Greenwich Guardians.  
Messrs. T. & T. N. DINWIDDY, architects.

|                                            |        |   |   |
|--------------------------------------------|--------|---|---|
| TILLEY & SON ( <i>accepted</i> ) . . . . . | £3,438 | 0 | 0 |
|--------------------------------------------|--------|---|---|

**HOLT, NORFOLK.**

For erection of the new Gresham's school and head-master's  
house, for the Governors. Mr. HOWARD CHATFIELD  
CLARKE, architect, 63 Bishopsgate Street Within, London,  
E.C.

|                                                              |         |   |   |
|--------------------------------------------------------------|---------|---|---|
| Hall, Beddall & Co. . . . .                                  | £53,443 | 0 | 0 |
| E. Lawrance & Sons . . . . .                                 | 51,577  | 0 | 0 |
| Cornish & Gaymer . . . . .                                   | 51,557  | 0 | 0 |
| Colls & Sons . . . . .                                       | 51,223  | 0 | 0 |
| Parnell & Son . . . . .                                      | 48,657  | 0 | 0 |
| F. S. Halliday . . . . .                                     | 48,327  | 0 | 0 |
| G. RICHES, Cromer ( <i>modified and accepted</i> ) . . . . . | 45,980  | 0 | 0 |

**SEAFORD.**

For completion of the outfall sewer of Seaford with 24-inch  
pipes.

|                                                           |      |   |   |
|-----------------------------------------------------------|------|---|---|
| B. COOKE & Co., Westminster ( <i>accepted</i> ) . . . . . | £820 | 0 | 0 |
|-----------------------------------------------------------|------|---|---|

**TRADE NOTES.**

H.M.S. *Leviathan*, first-class cruiser, 14,150 tons, 30,000  
i.h.p., recently launched from the Clydebank shipyard of  
Messrs. John Brown & Co., is to have non-flammable wood  
used throughout for the constructional woodwork and fittings.

MESSRS. PERRY & CO., of 17 Grafton Street, Bond Street,  
have received the notification that the King has been graciously  
pleased to confer upon them the royal appointment of lustre-  
and lamp manufacturers to His Majesty.

MESSRS. COUSLAND & MACKAY, ventilating engineers,  
Glasgow and Manchester, are carrying out the ventilation of  
St. Thomas's Church, Henbury, near Macclesfield, by means  
of Mackay's patent direct-acting ventilators, of which they are  
the sole makers.

MR. HENRY DENNIS, of Ruabon (the Ruabon Coal &  
Coke Co., Ltd.), announces that Mr. Robert H. Johnson has  
been appointed London agent for the brick and terra-cotta  
department of the business, which will be carried on as here-  
tofore at the London office, 17 Wharf, South Wharf Road,  
Paddington, W

THE new schools, Lofthouse, near Wakefield, are being  
warmed and ventilated by means of Shorland's patent Man-  
chester grates, patent exhaust roof ventilators and special inlet  
panels.

MR. TOM JONES, late with Mr. James Gibbons, of Wolver-  
hampton, has commenced business on his own account as a  
manufacturer of locks, panic bolts, door furniture, reversible  
windows, &c., at 47 Guilford Street, W.C, under the title of  
Tom Jones Lock and Company.

MESSRS. W. JAMES & Co., by acquiring adjoining premises,  
have been able to fit up complete showrooms, comprehensive  
of all kinds of ornamental glasswork, at their works, Willes-  
Road, Kentish Town, N.W. The advantage of this is obvious,  
their patrons being able, in addition to choosing designs for  
stained glass, &c., to select the various tints, glasses, &c., to be  
used from the actual stock, which is of a very extensive and  
varied character, and also to see the work in progress.

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THE Birkbeck Building Society has attained its Jubilee, having been established in 1851, and its directors may well be congratulated on their fiftieth annual report which has just been issued, which sets forth that the receipts from shareholders on completed and uncompleted shares during the last twelve months amount to 294,150*l.* 2*s.* 9*d.*, and the amount repaid 277,496*l.* 10*s.* 1*d.*, showing a balance now due to investors of 963,912*l.* 4*s.* 3*d.*, being a net increase on the year of 16,653*l.* 12*s.* 8*d.* The deposits received during the year amount to 13,938,904*l.* 7*s.* 4*d.*, and the sum repaid is 13,924,573*l.* 12*s.* 7*d.*, leaving a balance now due to depositors of 9,015,439*l.* 12*s.* 3*d.*, being an increase on the year of 14,330*l.* 14*s.* 9*d.* After writing off all realised losses, there remains a clear surplus profit of 25,459*l.* 10*s.* 1*d.* for the year, as shown in the balance-sheet, thus increasing the permanent guarantee and temporary reserve funds to 513,222*l.* 17*s.* 5*d.* being the largest sum ever reached—amounting on an average to over 10,000*l.* per year for each of the fifty years of the Society's existence.

### NEW CATALOGUE.

MESSRS. MATHER & PLATT, of Salford Iron Works, Manchester, have sent us a copy of a very elegantly prepared catalogue of the exhibits which they have installed at the Glasgow Exhibition. It is exquisitely printed in sepia on paper of a luxurious quality, the text being profusely interspersed with artistic illustrations in black, depicting the various machines manufactured by the firm, comprising locomotives, condensers, filters, water and sewage purifying apparatus, water-softening plant, pumping machinery, fire appliances, strong-room doors, printing machines, and many other useful and interesting machines and appliances.

### SOUTH FORELAND ESTATE, ST. MARGARET'S BAY.

THIS is situate about two miles south-east from Martin Mill station, on the Dover and Deal section of the South-Eastern and L. C. & D. railways, and four miles north-east from Dover. The church of St. Margaret-at-Cliffe, near to, is a fine specimen of Norman architecture, and the massive tower contains a clock and one bell. The curfew, it may be mentioned, is still rung here during the winter.

### ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: THE SCREEN AND CHOIR.

THE NEW CHILDREN'S HOMES AT SIDCUP, KENT, FOR THE GREENWICH GUARDIANS.

FERRING GRANGE, WORTHING.

PORCH AT HALIFAX.

TOURELLE, HALIFAX.

St Margaret's Bay is a picturesque, sheltered inlet, which seems likely to become at no distant period quite a fashionable watering-place.

The guillemots breed in the cliffs in great numbers, and the finest-flavoured lobsters in England are said to be found in the locality. A small pier was constructed below the cliffs, by the order of Archbishop Morton, for the defence of the fishing craft.

The two lighthouses on the South Foreland are but a short distance apart, and this is the nearest point to the French coast. The light at Dunkirk is here visible, as well as those at Calais and Boulogne. The view from the cliffs is magnificent, and is rendered more than usually interesting from the large number of vessels of all kinds that are constantly passing to and fro. The estate referred to occupies a grand position extending up to the verge of the cliffs, and rises to about 350 feet above sea level, while the climate is of a remarkably bracing and salubrious character.

On Tuesday last Messrs. G. Wheatley & Son, of Chancery Lane, offered for sale, after the usual pleasant preliminaries, in a marquee on the property, sixty-eight plots of eligible freehold building land, some of which passed hands at fairly good prices, varying according to size and position, while others were withdrawn in order, we understand, that they might subsequently be dealt with by private treaty.

### VARIETIES.

THE United Methodist Free church at Lowerplace, Rochdale, has been reopened after alterations which have cost 320*l.*

THE new Presbyterian church erected at Chollerton, North Tynedale, was opened for divine worship on Saturday afternoon.

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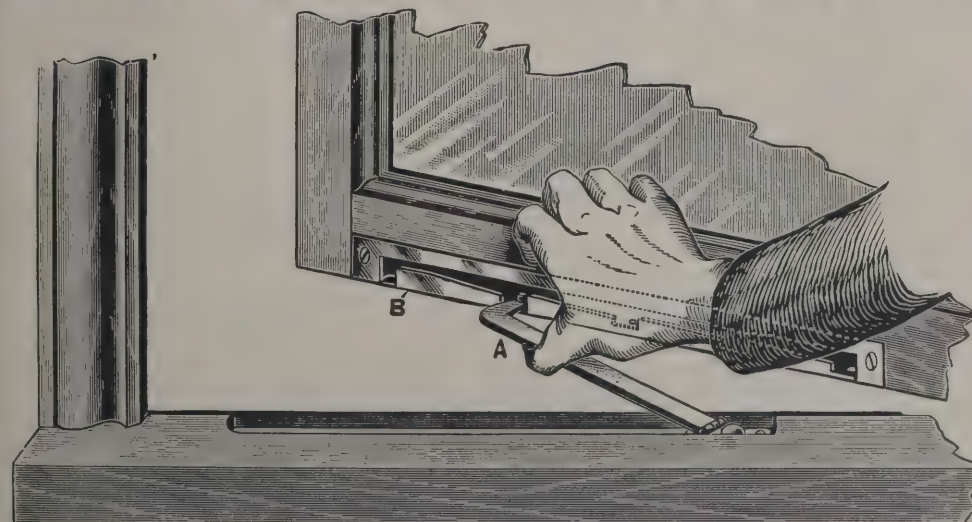
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ments, therefore only ONE STOCK.

[4]





A NEW drill hall which has been erected at a cost of 600*l.* at Stroud, for the accommodation of the C company of the 2nd Volunteer Battalion Gloucester Regiment, was opened on the 5th inst.

MR. W. VAUGHAN, architect, Bradford, has been appointed permanent architect to the Bradford School Board. Mr. Vaughan has been chief architectural assistant to the Bradford Corporation for the past nineteen years. The new position is worth 300*l.* per annum, and Mr. Vaughan will be allowed to take two pupils.

A JOURNEYMAN painter named William King, working at Barrow-in-Furness, has received intimation from a firm of London solicitors that owing to the death of an uncle in Australia he has become heir to 125,000*l.*, and requesting him to proceed to London at once. King left Barrow, and will probably proceed to Australia. There is said to be also considerable landed property.

THE Northern Architectural Association (England) paid a visit to Edinburgh on Saturday. The company included Mr. Caws (president), Mr. Taylor (vice-president) and Mr. Plimmer (secretary). They were received and entertained to luncheon by the Council of the Edinburgh Architectural Association, and afterwards visited St. Mary's Cathedral, St. Giles's Cathedral, the Parliament Hall, the Royal Exchange, George Heriot's Hospital and the McEwan Hall, under the leadership of Mr. Henry F. Kerr, president of the Edinburgh Architectural Association.

AT the examination in carpentry and joinery held at Carpenters' Hall, London Wall, on the 3rd inst., the following candidates were successful:—*First Class.*—(1) Jas. Sandham (silver medal); (2) H. T. Barnes (bronze medal). Frank Turner, W. J. Stone, G. W. Filby, F. E. Glover. *Second Class.*—H. O. Armstrong, H. Searle, W. G. Pack, E. C. Durnford, F. H. Sharp, H. E. Pack, W. R. Peirce, Wm. Court, R. Pierson; C. F. Parsons, F. W. Spring, W. G. Brooks, and W. H. Gardner. The candidates came from various parts of the country—Lancashire, Yorkshire, Berkshire, &c. The examiners were Prof. Roger Smith (Master of the Company), Mr. Jno Slater, V.P., R.I.B.A., Sir Philip Magnus, Mr. Seth-Smith, P.A.A., and Mr. Jas. Bartlett (examiner, &c., to the Society of Architects).

THE reopening will take place this (Friday) evening of St. Saviour's Church, Falkner Square, Liverpool, which was destroyed by fire on February 4, 1900. The cost of rebuilding

the church was estimated at about 10,000*l.*, towards which 4,730*l.* was provided by the Ecclesiastical Buildings Fire Insurance Company, and subscriptions have been received amounting to 4,317*l.* The estimate included the reconstruction of the building, the transference of the chancel from the west to the east end, involving structural alterations, the erection of new entrance-porches, the reseating and furnishing of the interior, the provision of a new heating and ventilating apparatus, the substitution of electric light for gas, a new organ and the conversion of the cellars beneath the church into a parish room (capable of seating about 300) and smaller rooms suitable for classes and a club-room for young men.

### BUILDING AND BUILDERS.

THE present day schools at Tonbridge having become inadequate, new buildings are being erected at a cost of 1,075*l.*

A SITE has been secured for a new chapel close to the North-Eastern Railway works at Holgate, York.

PLANS have been passed for a new police-station at Chapeltown, Leeds.

MEMORIAL-STONES have been laid of a new church at Morthoe, near Ilfracombe. The building will seat 250 and will cost 1,500*l.*

THE foundation-stone of new goods offices and accessories at Eye station were laid on the 3rd inst. Other alterations and improvements will soon be effected at the station, these things being necessitated by the steady increase of business.

A NEW church and schools, to supersede the existing school chapel, is to be built at Newport, Mon. The cost will be 7,000*l.* The church will accommodate 600, and the school about the same number.

THE Boston Town Council have decided to apply to the Local Government Board for sanction to a loan of 20,000*l.* for the provision of new municipal offices and police-courts for the borough. The new rifle butts have been completed.

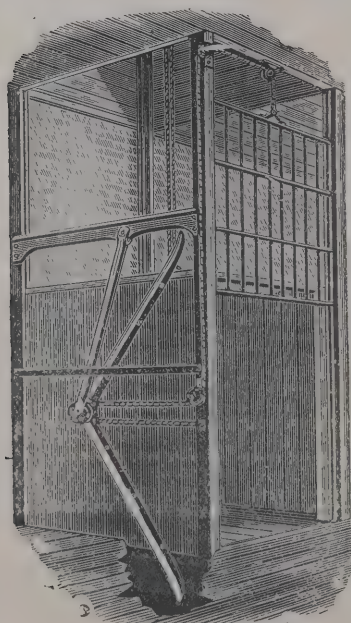
THE Dalkeith Burgh School Board have accepted estimates for the erection of the new public school in the Crofts, Dalkeith. The estimated cost, including the price paid for the site, is 11,967*l.*

THE buildings of Mansfield College, Oxford, are to be completed shortly by the erection of a lodge at the gateway. Sir W. H. Wills has offered the college council 1,000*l.* towards

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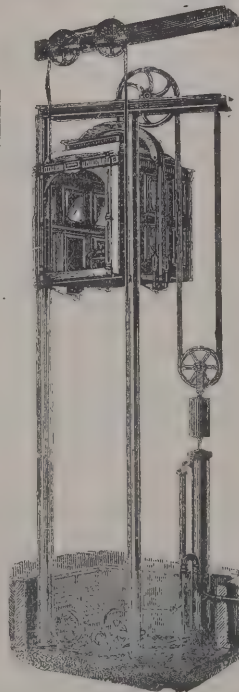


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**ELECTRIC.**

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**HAND.**

**SAFETY.**

**SILENCE.**

**EASE OF**

**CONTROL**

**SMOOTHEST**

**RUNNING.**

**ESTIMATES ON  
APPLICATION.**

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Glasgow—J. Monkhouse Cartmell, 64 Buchanan Street.  
Newcastle-on-Tyne—Hind & Co., 21 Collingwood St.  
Dublin—Booth Bros., Upper Stephen Street.  
Yorkshire—Builders' Agency, 12 Park Lane, Leeds.  
Holland—Hausmann Bros., Wijnstraat 46, Wijnhaven 37, Rotterdam.

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**HYDRAULIC AND ELECTRIC  
CRANES.**

**STEAM AND  
HAND POWER LIFTS,  
DINNER LIFTS,**

**ETC.**



the cost, and plans prepared some years ago by Mr. Basil Champneys are to be utilised.

THE memorial-stone will be laid on Thursday, the 18th instant, of the fire-station in course of erection at the junction of Horn Lane and Tunnel Avenue with Lower Woolwich Road, East Greenwich.

MEMORIAL-STONES have been laid of a new day school at Midsomer Norton, the Education Department having decided to give no more grants after this year for the present building. The new buildings will cost about 4,500*l.*, and accommodation will be provided for 486 children.

THE Local Government Board inquiry into the sea defence of Lowestoft brought out the interesting fact that since 1882 500 feet of foreshore have been engulfed, and about 20,000*l.* has been spent to retain the remainder. The present scheme will involve an outlay of 37,000*l.* for sea-wall and groynes.

THE Welton Rural District Council have received the report of Mr. J. R. Elliott, C.E., of Nottingham, upon a scheme to supply Bardney with water. A pumping station with filters and water tower is proposed, and a loan of 3,000*l.* will be required.

At the monthly meeting of the Hull Town Council Mr. Panton suggested that the plans for the new public hall should be thrown open for competition, but the Mayor said that they were desirous of keeping the expenses down, and their own architect would be fully equal to the task of supplying them.

THE preliminary steps have just been taken towards the building of the much-discussed cathedral at Liverpool. With a view to testing the adopted site at St. James's Mount for the foundation-laying, test-holes have been bored in different portions of the site.

THE foundation-stone has been laid of the new façade which is being erected at the Forres, N.B., Mechanics' Institute. The old front of the Institute had got so dilapidated that a new front was rendered necessary, and this is being carried out at a cost of 1,400*l.*

A MEETING of the congregation of Erskine U.F. church, Falkirk, has been held to consider a recommendation for a joint meeting of session and managers that a new church be built on a new site. The location of the present church is not at all suitable, while the building itself is not adapted to the requirements of a growing congregation. After some discussion it was decided by a considerable majority to adopt the recom-

mendation submitted, and a committee was appointed. The proposed church is expected to cost about 8,000*l.*

THE Corporation Bill for powers to build a new wide viaduct road to the railway stations and Admiralty pier at Dover has passed its second reading unopposed in the Commons. This improvement is to cost about 100,000*l.*, and is an adjunct to the great scheme of harbour enlargement and amelioration now proceeding.

THE West Ham Town Council have decided to spend 60,000*l.* in the erection of public bath-houses for Stratford, and a site has been secured in Romford Road. The baths will be built in elaborate fashion, and will rank among the finest in the kingdom. The large swimming-bath, which will be 100 feet by 35 feet, will have a gallery round it, capable of accommodating 500 persons, and the dressing-boxes will be constructed so as to fold back against the wall, providing space for an additional 500 spectators. Provision will be made for flooring over the bath in the winter, so that it may be used as a gymnasium or entertainment hall. There will be several slipper baths with waiting-rooms, as well as a Turkish bath.

At the Salford Town Hall on Tuesday Colonel A. G. Durnford, R.E., held an inquiry on behalf of the Local Government Board into the application of the Salford Corporation for permission to borrow 5,000*l.* for sanitary purposes, 1,200*l.* for the erection of bandstands in Peel, Seedley, Albert and Ordsal Parks, and 11,500*l.* for the rebuilding of Broughton Bridge. Mr. Greenhalgh, of the Town Clerk's Department, made the application for the Corporation, and in reply to the Inspector, said that the assessable value of the borough was 925,222*l.*, and the outstanding loans under the Public Health and Sanitary Acts 57,316*l.* Evidence having been given by Dr. Tattersall, medical officer, Mr. J. Corbett, borough engineer, Mr. Charles S. Allott, bridges engineer, and Councillor Williams, the inquiry closed.

### GRAND HOTEL, SOUTHWOLD.

THE Coast Development Company, which is perhaps best known in connection with its excellent fleet of "Belle" steamers, abundantly justifies its name by the enterprising manner in which it is revivifying or improving the watering-places on the east coast. Its latest effort in this direction has resulted in the provision of a new, high-class and thoroughly up-to-date hotel, "The Grand," at Southwold, which was inaugurated by a very pleasant luncheon on Tuesday last.



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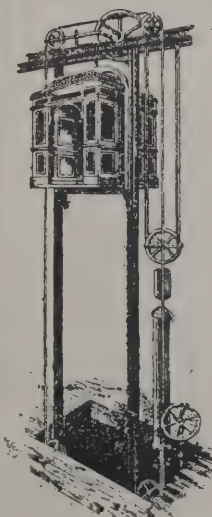
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The hotel, erected from designs by Mr. Chas. H. M. Mileham, of Lincoln's Inn Fields, consists of a main block nearly 150 feet in length and of six storeys in height, with an annexe two storeys high, extending nearly the whole length of the building. The ground-floor storey and the lower ground-floor are faced externally with red brick; the two storeys above are coated with rough-cast of a warm cream colour, and the next storey and the roofs above are covered with red tiling, the several fronts being further diversified by turrets, bay windows and verandahs, which, together with the stone porches, windows and cornices, and the green jalousies and ironwork, give an agreeable variety of colour and outline to the whole. The main block, facing the sea, contains the principal public rooms, the lounge, dining-room, reading-room and drawing-room, and the visitors' rooms. In the western annexe is the principal entrance for the reception of visitors, with the vestibule, office and manager's room, smoking and billiard-rooms, and also the kitchen and culinary offices, &c. The visitors' rooms, some of which have bay windows and verandahs, are mostly on the first, second and third floors, and nearly all face the sea. Running right and left from the principal stairs and lift on each of the upper floors are corridors, in which are secondary staircases, the whole height of the building. The interior is lighted throughout by electric light. The lounge is a spacious apartment on the ground floor and in the centre of the building, approached by the vestibule on one side and by the eastern porch on the other, and from it all parts of the interior are directly accessible by corridors, stairs and lift. The dining-room is about 50 feet in length and 34 in width. Three columns support its ceiling and the superstructure above. Along the sea frontage of this apartment are four bay windows, spanned by the arches of a continuous arcade, while the service is conveniently administered from the opposite side of the room. The reading-room is a smaller apartment, similarly arranged, with arched bays. The smoking-room is entered from the inner lobby of the western porch, and is served by a hatch from the bar, which is placed between it and the dining-room. The billiard-room is lighted by a top light as well as by side windows. It has a half-domed recess at one end, and platforms in the usual way for spectators of the game. It is approached through lobbies, both from the vestibule and the lounge, which also give convenient access to the lavatories on the ground floor. The drawing-room, with its panelled walls and ceiling and its arched bays, is on the first floor, approached by the lift or the principal stairs, on the half-way landing of which is a cosy

recess, with seats, &c. The stair brings the visitor opposite the door near one end of the drawing-room, while the corresponding door near the other end opens into an ante-room leading to an asphalted terrace or flat roof, overlooking the west garden and tennis-courts and the country beyond. This flat roof—called the battlements—makes a delightful open-air lounge, and will probably be a favourite spot for afternoon tea. There is a complete system of heating the public rooms, staircases and corridors by radiators in order to fit the hotel for residence in the winter. Though quite complete in itself the building is arranged for future extension by wings at the north and south ends.

### THE WARRINGTON CORPORATION WATERWORKS.\*

IN 1846 powers were obtained from Parliament by the waterworks company, and in the following year the Appleton reservoir in Cheshire was constructed, the engineer being the late J. F. Bateman. The drainage area was 540 acres, and the reservoir, together with two residuum lodges, had a capacity of 50 million gallons; two filter-beds, with an aggregate sand area of 1,300 square yards, were also constructed, and a clear-water tank holding 350,000 gallons, from which the water was taken to the town. The level of top water in the storage reservoir was 133.81 feet, and that in the clear-water tank 114.95 feet above Ordnance datum.

In 1858, upon the advice of the late Mr. J. F. Bateman, the level of Appleton reservoir was raised 3 feet, giving a capacity of 60 million gallons, and a water area of 20½ acres. A 24-inch culvert was also laid, conveying the waters of the Hatton and Daresbury brooks, having a watershed of 820 acres, to the reservoir, the available flow being, however, limited to the discharging capacity of the culvert. No extensions have been carried out at Appleton since the above date. No compensation water is given from this reservoir, nor is the undertaking limited in any way in regard to the appropriation or diversion of any springs or streams.

In 1868 further extensions being necessary, the directors called in the late Mr. Thomas Duncan, at that time water engineer to the city of Liverpool, who advised the sinking of

\* A paper read by Mr. James Deas, Assoc. M. Inst. C. E., engineer, at the meeting of the Association of Waterworks Engineers.

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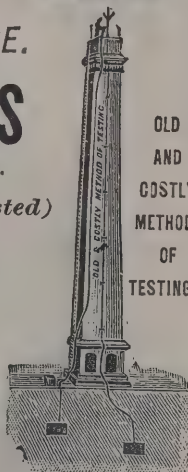
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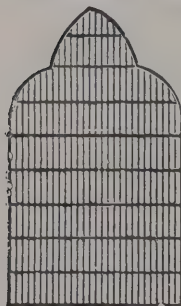
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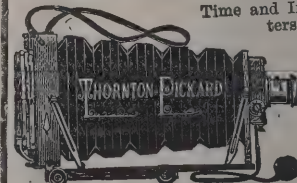
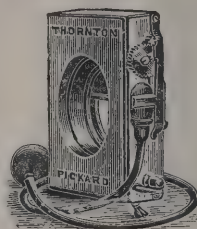
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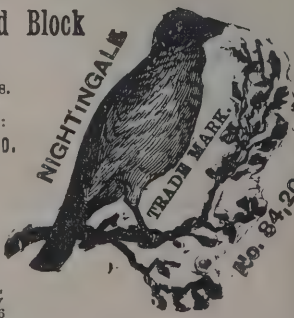
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wells at Winwick, in Lancashire. These works were carried out by Mr. C. H. Beloe, M.Inst.C.E., of Liverpool, and consisted of the following:—Two wells were sunk to a depth of 150 feet (or 40 feet below Ordnance datum) in the new red sandstone, one within the engine-house and the other immediately outside it. At a depth of 50 feet from the surface a large chamber was excavated in the sandstone, which throws the two wells into one from this depth to the bottom. From the bottom an unlined borehole 18 inches in diameter was carried down to 212 feet below it, or 252 feet below Ordnance datum, but was afterwards plugged on account of the bad quality of the water. An engine and boiler-house, service reservoir, cooling pond and two cottages were also erected. The machinery comprised a single-cylinder beam engine, having a normal speed of 10 strokes per minute, cylinder 30 inches in diameter and stroke of 6 feet; two single-acting pumps 18 inches in diameter and 4-foot stroke, one of them situated in the engine-house well and the other in the well outside; a small horizontal engine alongside the engine-house acts as a stand-by for the outside pump. The engines were erected by Messrs. Yates & Thom, of Blackburn, in 1871. There were also put down three Cornish boilers, 6 feet in diameter and 25 feet long, working at 40 lbs. pressure. A jet condenser and a small cooling pond were also provided. The service reservoir is rectangular in shape and is built of brick and concrete, having a capacity of  $2\frac{1}{4}$  million gallons. The tops of the covering arches were so formed as to contain about 9 inches of water, for the purpose of keeping the water inside the reservoir cool. The top-water level in the reservoir is 131 feet above Ordnance datum.

As soon as the Winwick works were available the use of the Appleton water for domestic purposes was discontinued.

In 1878 further works were necessary on account of the rapid growth of the town and district, and Mr. Alfred Moore, M.Inst.C.E., of Manchester, who was then consulted, advised a great number of works, only one of which was carried out, viz. extensions at Winwick as follows. A new engine-house was built, containing two single-cylinder beam engines, by Messrs. Daglish, of St. Helens; cylinders 21 inches diameter, stroke 6 feet, each engine driving a single-acting pump, 17 inches diameter and 3 feet stroke, fixed in a well under the house at 15 strokes a minute; a third well was sunk 80 feet from the other two, and connected by a tunnel in the rock; a tunnel was also driven in a south-easterly direction for a distance of 1,200 yards, the work being carried on from four shafts. The

level of the invert of this tunnel is 38 feet below Ordnance datum. The engines are capable of lifting  $2\frac{1}{2}$  million gallons per day of 24 hours. This was the last extension carried out previously to the passing of the Waterworks Purchase Act in 1890, under which the Corporation acquired the undertaking from the company in the same year at the price of 278,000*l*.

The Appleton and Daresbury watersheds consist of well-cultivated lands, carrying a considerable population, and when the works at Winwick were constructed in 1868 all domestic consumers were changed over from one system to the other, and the Appleton water was thereafter used solely for trade and sanitary purposes, involving practically a duplicate system of mains through the town. Winwick water is also used for trade purposes in some cases, but if possible, and if the water is suitable for the industry, that from Appleton is used exclusively for such purposes.

The district of supply is a fairly large one, embracing an area of over 40,000 acres, and the populations actually supplied were, in 1861, 34,105; in 1871, 40,837; in 1881, 53,608; in 1891, 68,748; and in 1901, estimated at 80,000.

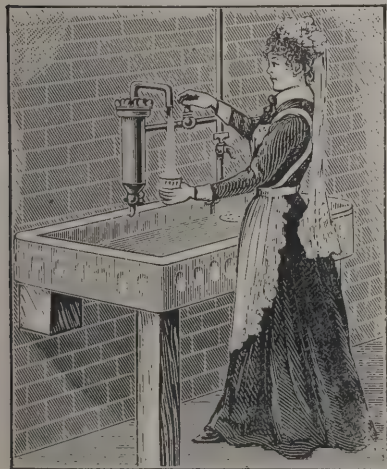
From Winwick there are pumped annually about 550 million gallons, of which amount 90 millions are used for trade purposes and the remaining 460 million gallons for domestic purposes. From Appleton there are supplied 130 million gallons, giving a domestic consumption of 460 million gallons and a trade consumption of 220 million gallons per annum.

In 1898 the demands necessitated additional supplies both for domestic and trade purposes, and the Corporation instructed the author to prepare the necessary plans, &c., and Mr. James Mansergh (now president of the Institution of Civil Engineers) was also called in to assist the Corporation in getting their Bill through Parliament. Powers were obtained in this Act for the various works described below, which are being constructed from the designs and under the superintendence of the author, at an estimated total cost of 247,000*l*.

The new works for the domestic supply comprise an entirely new pumping-station at Delph Lane, about  $1\frac{1}{2}$  mile east of Winwick, with a pump well 12 feet 6 inches diameter and 160 feet deep, at the bottom of which an adit 6 feet high by 4 feet wide is being driven in a north-easterly direction for a distance of about 1,200 yards, there being three working shafts in addition to the pump well. The contract for the well and heading complete is let to Mr. George Lawson, of Rutherglen, at 24,400*l*. The buildings will comprise an engine-house 50 feet by 35 feet, boiler-house 50 feet by 19 feet, coal-shed

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50 feet by 19 feet, workshop and store 50 feet by 15 feet; houses for the engine-driver and stoker will also be provided.

The water from the new well will be lifted by means of a triple-expansion vertical receiver engine actuating two deep-well pumps 18 inches diameter and 3 feet 6 inches stroke to a cast-iron tank under the engine-room floor, and thence the water will be delivered by means of force-pumps through  $1\frac{1}{2}$  miles of 20-inch cast-iron rising main to the Winwick reservoirs. It is intended at some future time to duplicate the whole of the machinery, the buildings being made large enough to allow of this being done. The high, intermediate and low pressure cylinders will have diameters of 13 inches,  $22\frac{1}{2}$  inches and 35 inches respectively, and steam will be supplied at a pressure of 160 lbs. per square inch from two Lancashire boilers 18 feet long by 7 feet diameter, having Simpson's superheaters and Green's economiser attached. The engines and pumps are to be capable, when running at their normal speed, of raising 3 million gallons of water per 24 hours against a head of 250 feet, and the duty guarantees are as follows:—13.9 lbs. of steam and 1.5 lb. of Welsh steam coal per pump horse-power hour.

The plant is being supplied by Messrs. J. Simpson & Co., London, the contract price being 11,175*l*.

The rising main is being laid by Messrs. Jowett Bros., of Burscough, at a contract price of 1,940*l*., the pipes and specials being supplied by the Staveley Coal and Iron Company at a contract price of 4,330*l*.

At Winwick the service reservoir accommodation is being increased by a new reservoir 215 feet by 190 feet, and 20 feet depth of water; its capacity is  $4\frac{1}{2}$  million gallons, and top-water level 131.35 feet above Ordnance datum. It is entirely of concrete, the roof being formed of concrete arches supported on eleven cross-walls. The floor and main walls are lined with Callender's bitumen sheeting, with a facing of  $4\frac{1}{2}$  inches of blue wire-cut Ruabon brick, and the roof is laid with bitumen sheeting to prevent infiltration of surface water. The new reservoir is provided with the usual inlet, outlet, scour and overflow pipes, also connections to the existing reservoir. The contract for the reservoir, together with boundary walls, roads, &c., is let to Mr. George Bell, of Manchester, at 22,000*l*. A 27-inch Venturi meter will be fixed on the service main leading to the town, so that the rate of consumption may be continuously recorded.

An entirely new service is being put down for the higher parts of the district of supply, and a pair of Worthington pumps

are being fixed in a new engine-house close to the Winwick service reservoirs for this purpose. The engine-house, which is being built by Messrs. R. W. Collin, of Warrington, at a price of 1,785*l*., has a committee-room and other necessary offices attached. A new boiler-house and coal-store has also been built, the former being provided with two Lancashire boilers, 30 feet long by 8 feet diameter, for supplying steam to the new Worthington pumps at 150 lbs. per square inch, which pressure will be reduced to 40 lbs. for the supply to the old engines. The engines are of the Worthington triple-expansion type, having high-pressure steam-cylinders 8 inches in diameter, intermediate steam-cylinders 12 inches in diameter, two low-pressure steam-cylinders 20 inches in diameter, double-acting plungers 7 inches in diameter, all having a uniform stroke of 15 inches, each engine being capable, when running at a normal speed, of raising half a million gallons per day of twenty-four hours, through six miles of 10-inch and 8-inch diameter rising main, the water being drawn direct from the service reservoirs into a suction stand-pipe in the engine-house.

The engines are being constructed by Messrs. J. Simpson & Co., at a contract price of 2,954*l*., and the duty guarantees are as follows:—25 lbs. of steam and 3 lbs. of coal per pump horse-power hour. These engines deliver into a new high-level service reservoir at High Warren, which is circular in plan, 126 feet diameter at top-water level, depth 16 feet, and capacity  $1\frac{1}{4}$  million gallons. The top-water level is 340 feet above Ordnance datum. The floor, walls and roof are of concrete, the roof being supported upon cast-iron columns, carrying rolled steel joists and arched steel channels and expanded metal sheeting; a dwarf wall runs across the reservoir so that one half can be used for supplying the district while the other half is being cleaned out. Callender's bitumen sheeting is used for the walls and floor, and also for covering the roof. The contract for this reservoir has been let to Mr. C. W. Davenport, of Warrington, at 6,748*l*.

The rising main to this reservoir, and the service pipes to the town therefrom, have been supplied by the Stanton Iron-works Company, at a cost of 6,700*l*., and laid by the Corporation workmen. Where the main passes under the Manchester Ship Canal (in subway) it is formed of lap-welded steel pipes 10 inches diameter, tested to 500 lbs. per square inch *in situ*, supplied by Messrs. T. Piggot & Co., of Birmingham, at 515*l*. All cast-iron pipes throughout the works have solid lead joints, no yarn being used, and in the case of pipes 18 inches and upwards in diameter the whole of the joint is poured.

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The valves and similar apparatus throughout the works are being supplied by Messrs. Glenfield & Kennedy, of Kilmarnock, at a cost of 700*l*. There will also be a complete system of electrical level transmitters, indicators, and recorders for the reservoirs and wells, the instruments being manufactured by Mr. George Kent, of London, and the connections, &c., being executed by the Warrington Electric Light and Power Company.

The new works for the trade supply consist of a storage reservoir of a capacity of 170 million gallons on the Daresbury brook, utilising a watershed of 940 acres. This will be formed by an earthen embankment 800 yards long and 65 feet maximum height. There will be the usual tunnel outlet and a line of pipes conveying the water to the existing filters at Appleton. The estimate for this reservoir is 100,000*l*., and the general surveys have been made and negotiations for the land are in progress. At Appleton two new filters and a service reservoir will be constructed, and the existing filters will be reconstructed. Workmen's cottages will also be built. It is hoped that these works will be commenced in the autumn of this year (1901).

### THE "NEW ART" AT SOUTH KENSINGTON.

A PARAGRAPH has been going the round of the papers, writes Mr. Lewis F. Day in the *Manchester Guardian*, announcing the gift to the Victoria and Albert Museum of a collection of "new art" furniture, now to be seen in what was lately the tapestry court at South Kensington, but apparently no one has questioned the propriety of accepting such a gift. I venture to do so. There may be a certain savour of ungraciousness in looking closely into the value of a gift, offered no doubt with the most generous intentions, but the interests of art and education are not served by the rash acceptance on behalf of the nation of whatsoever it may seem good to a would-be donor to bestow upon it. If the museum is to fulfil its purpose there must obviously be not only surveillance, but very strict surveillance over whatever is admitted into it. A great responsibility rests with someone, with whom precisely it is not given to us to know—probably with the President of the Board of Education, possibly with some of my own good friends. The policy of admitting into the national collection the work of living artists, and especially of producers actively engaged in trade, is at the best doubtful. The abuses to which it might

lead are so patent that in years past admission has been most jealously guarded. Perhaps, as events prove, it has not been an unmixed evil that the "funds of allocation," to quote the paragraph, were not sufficient to permit of relaxation in severity. There may or may not be need for a museum "where the manufacturers and artisans of this country might see what other nations are striving for in the direction of original design not based upon past productions," though that is not the end to which South Kensington Museum was established, but rather to preserve for our instruction and enlightenment the best that has been done. Old work was not always good, but the conditions under which it was done were more favourable to art than are the conditions of modern trade; time has sifted it, and, as a consequence, the national collection is composed, and must be composed, largely of old work, all the more valuable because it is not what is being done nowadays, because it holds up an ideal of art and workmanship which competitive trade has done much to degrade. In any case the purpose of the Victoria and Albert Museum is (or else there is a very general mistake on this point) educational. Is it not under the control of the Board of Education? And the Board has appointed, as we know, a Council of Artists to advise them. Why not, then, consult them on a question of this importance? It is not for a moment to be supposed that artists like Mr. Walter Crane, Mr. Onslow Ford, Mr. Graham Jackson and Sir William Richmond are responsible for admitting into the very best of society these ill-mannered specimens of upstart art, of giving them, indeed, a place of conspicuous honour there, and, by implication at least, recommending them to the attention of the student whose taste is yet to be formed. As though he were not too prone already to follow a new fashion, whatever it be, and to look with youthful disdain upon the masterwork of the past, from which he has all to learn, and learns so little, because he so little appreciates it.

We have heard during the last few years too much about the "new art." It has long been the catchword of enterprising tradesmen. Is it now seriously to be accepted by the wardens of artistic education? Do they know no better than to confound originality with novelty? Are they not aware that what is good in this "new art" is not new, and that what is new is not good? Grant that there may be promise in its unrest, the very readiness of the new generation to go with it argues natural sympathy between the two, and the needlessness therefore of encouraging the restive to kick over the traces. Those of them who may have been held in till now by a doubt

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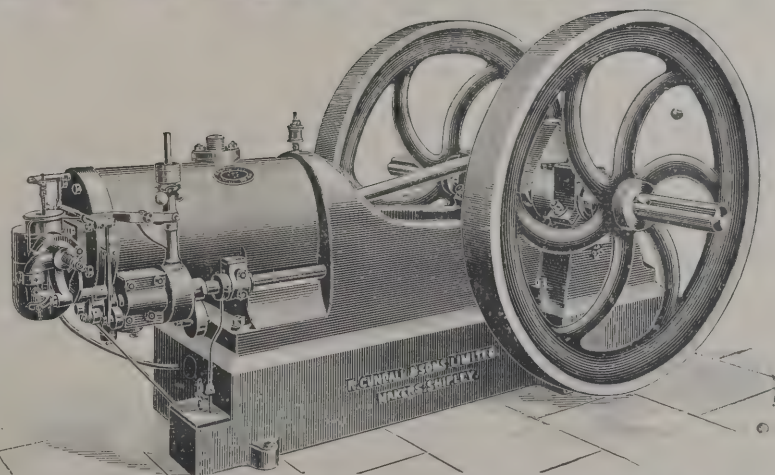
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as to the wisdom of breaking loose from any restraint which the influence of the museum was calculated to impose upon youthful recklessness will doubt no longer. Have they not now authority for giving reins to the wildest that is in them? And it seems the project is presently to circulate this unfortunate collection and send it round in succession to various manufacturing towns. Alas that the Circulation Department should lend itself to such service, to the greatest demoralisation of the greatest number.

The collection is, it might be contended, an object lesson. To pass from this "new art" furniture into the neighbouring court, where stand the noble specimens of Renaissance cabinet-work temporarily deposited in its favour, is to emerge from nightmare into repose. How dignified are the old *cassoni*, cabinets and tables, even when the carving on them is exuberant. But that is not the impression the contrast is likely to produce upon the student inflamed by "up-to-date" extravagance and not yet arrived at appreciation of what is finest in design. He will see in it, and it appears as if he were meant to see in it, no warning, but encouragement, incitement to do what he had better leave undone. He will not ask himself how far the new artists have succeeded; enough for him that they have dared—that will naturally win his sympathy and admiration, and there is no denying their daring; they have always the courage to go astray, not apparently realising the danger in so doing.

It is not meant to say or to imply that the disciples of "the new" have not done good work in furniture. There are in the cases in the centre of the room specimens of French, Danish and American work in glass, pottery and metal (not apparently part of the gift, and chosen with much better judgment), which represent departures in technique, if not always in taste, of which it behoves the British craftsman to take note, and the furniture itself is often distinctly interesting, but it is almost invariably marred by extravagance. M. Gallé, for example, is seen to much greater advantage in his cleverly manipulated glass than in his furniture. What was merely fantastic in glass-blowing strikes one as quite frivolous in cabinet-work. M. Gallé is an artist of imagination, but the charm of his work is purely personal. Never was genius more likely to lead his followers astray. It is the fashion to extol the taste of the French; they have, indeed, a certain knack of artistry lacking in Englishmen; but of controlling taste, judgment or reticence little enough, as a glance round the new room at South Kensington will show.

The theory, tenable in itself, that artists in the making should not be influenced in their studies by authority, is hardly one that an educationist can hold; carried to its logical conclusion, it would result in leaving the student without education. It is the plain business of a Board of Education to have a very definite opinion as to what is calculated to advance learning, and to have the courage of its opinion. It has always been a mystery, for example (in so far as it is not explained by cowardice or conscious incompetence), why in a museum the labels attached to various objects do not always tell us what is remarkable in them and why they are there, instead of describing, as they often do, only what everyone can see with his own eyes; but so long as no word of warning is vouchsafed against art unworthy of emulation, the authorities should hesitate to expose it in an educational museum. The point at which to draw the line may be open to dispute, but it will hardly be disputed that it should be drawn at the confines, if not of sobriety, of sanity at least.

The cause of quarrel with this "new art" is not that it is new, but that it is not sober or sane enough to be endorsed by the educational authorities. Who would wish to sleep in such a bed, to face such a settle, to sit in such chairs as are assembled in what was the tapestry-room at South Kensington? Who would care to contemplate such a tapestry as is there shown? The name of M. Grasset is no excuse for such a tame and tawdry production. Think of what Burne-Jones and Morris have together done in this country and then of this childish performance set up for admiration. And the picture is by no means an exceptional instance of poor colour; it is of a piece with other thin and crude French tinting, and no more worthy of reproduction in the loom than the posters of the same and other artists on the walls, themselves, it must be said, strangely out of place in a permanent national museum. That they go well enough with the furniture does not say much for that. So does the frieze above, stencilled by Mr. T. T. Blaylock. And the fact that he is equal to the occasion goes to prove, were proof needed, how little our art students have to learn from design of this kind, long since only too familiar to them in the pages of every illustrated periodical which has to do with decorative art. Indeed, this "new art" of the French and others is but a foreign version of our own English extravagance carried to yet further excess. It is the delirious art of men raving to do something new, oblivious in their rage alike of use and beauty. It is precisely the last thing it was desirable to set before the student, calculated as it is to counteract the good

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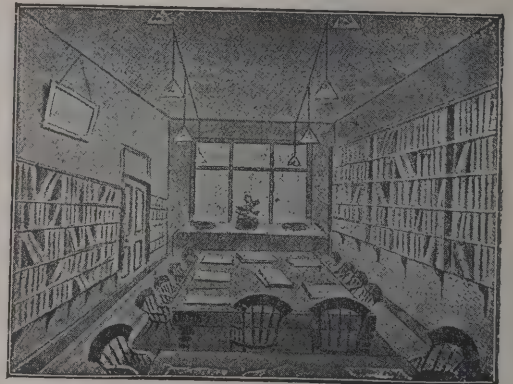
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effect of the museum upon his taste. Whatever the munificence of the donor, it ought never to have been accepted and ought not to be sent on circulation.

### ELECTRIC LIGHTING AT YORK.

A RECORD report has been presented to the electric-lighting committee of the York Corporation by Mr. C. A. Midgley, the city electrical engineer. In it he states that, after payment of all outgoings, including interest and sinking fund, and also discharging the debt of 310*l.* 19*s.* 6*d.*, incurred in preliminary expenses, there is left a net profit of 98*l.* 15*s.* 9*d.* The year has been a phenomenal one, and has created a record which has never been equalled by any provincial station in its first year. Speaking of the capacity of the plant in the station Mr. Midgley says:—Professor Kennedy installed four engines and dynamos with a total horse-power of 320. With this plant we were in a position to supply 6,000 lamps of eight candle-power, each burning simultaneously. So great was the demand, however, that a 400 horse-power engine and dynamo was installed for the past winter. This No. 5 set is itself capable of supplying 7,000 eight candle-power lamps, but even with this set we have not been able to have one of the others laid off, and at the end of the year (March 31, 1901) we had a total lamp connection of 16,400 eight candle-power lamps connected to the mains, and we have over 5,000 eight candle-power lamps applied for, the majority of which will be connected by the end of July. . . . With reference to the mains, I beg to report that we have had practically no trouble with these during the past year; the mains, however, which were laid to Professor Kennedy's specification, are overloaded in all the streets, and will be quite unable to cope with the coming winter's demand. Professor Kennedy in his original scheme based his figures on a total lamp connection of 6,000 eight candle-power lamps, which he estimated would take about two years to reach; this figure was reached by the time we were ready to supply, and by the end of our first year we connected and were supplying current to 16,400 eight candle-power lamps. The report proceeds to specify the extra mains and extensions of mains required to meet the demand for the coming winter, and states that the total cost of these extensions, exclusive of excavations, jointing and materials, will amount to, approximately, 8,600*l.* In connection with the present extensions in the station, Mr.

Midgley finds that it will be necessary to alter the capacity of the battery to one four times as large as the present one, at an expenditure over and above the cost presented to the Local Government Board, of 2,000*l.*, exclusive of necessary extension of buildings. The estimated cost of the battery and building is 2,250*l.*, making a total expenditure on mains and extensions for the coming winter of 10,850*l.* Mr. Midgley concludes with the opinion that all the works are absolutely essential if the present rate of progress is to be maintained, and says that the applications for the light are already so extensive that the expenditure cannot but be remunerative. The committee, it may be added, propose to carry out the extensions of the mains, and also to alter the capacity of the battery as mentioned in the city electrical engineer's report, and for that purpose to enter into the necessary contracts. It is also proposed to make an application to the Local Government Board for their sanction to borrow the above-mentioned sum of 10,850*l.*

### ELECTRICITY IN GLASGOW.

At the sixth annual meeting of the Incorporated Municipal Electrical Association Mr. W. A. Chamen, C.E., presided. In the course of his opening address he congratulated the Association on the further large increase of membership from seventy-seven committee members at last convention to ninety-nine, and from 142 engineer members of all classes to 165 at the present time. Their present total membership was thus 264, or an addition of fifty-five since last convention. He stated that the number of units of electricity sold in Glasgow during the year ended May 31 was roughly 6½ millions. By issuing a sliding scale of charge the cost of production worked out at about 3*l.* 18*d.* per unit, or perhaps less, and it was estimated that 9,000,000 units would be sold for next year at an average cost of production of 3*l.* 3*d.* per unit. The charges were 6*d.* for the first 365 hours' use per annum of the maximum demand and 1*d.* thereafter, with, however, uniform rates of 3½*d.* for domestic consumers, theatres and halls, 3*d.* for churches, and 1½*d.* for power. Many of the consumers, however, would be paying only about 2*d.* per unit for lighting under the sliding scale.

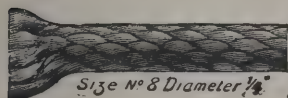
Baillie W. Maclay read a paper "On Street Lighting," in which he discussed the relative values of incandescent gas and electricity for street purposes. Whatever else electricity might have accomplished, there could be no doubt that since its

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advent in 1880 there had been a steady and rapid improvement in the standard demanded for street illumination. There was nothing to show that for main thoroughfares where a really brilliant illumination was desired incandescent gas could in any way equal, far less surpass, electric light. A great deal had been made of the argument that electric lighting was "patchy," giving a brilliant illumination within a certain radius from the lamp and a comparatively poor illumination at points midway between, and great efforts had been made to show that by converting the ordinary flat-flame gas lamps into incandescent mantle lights the illumination was much more evenly distributed, although it might not be so intense at points near the lamps. This, however, had been investigated by electrical engineers, and it had been found that an equal standard of lighting, measuring the light at points midway between the lamp columns, could not be obtained in this manner, except by using such a number of incandescent gas mantles that the cost would be more than that of electric lighting to give the same result. So far it would seem that incandescent gas lighting in streets was not unlikely to have the same result as it had had in house lighting. It had been observed by those in a position to know best that the ordinary consumer of electric light went through three stages—first, ordinary gas; second, incandescent gas; and third, electric light; and for this reason electricity-supply authorities could not but welcome the improvement over ordinary gas which the gas mantle promised.

Bailie Mackenzie, Edinburgh, said he agreed with all that Bailie Maclay had told them except with regard to his criticism of their gas friends. He did not think it was conducive to pleasant working in municipal life that two departments should be at variance. He did not mind a healthy rivalry, but when they considered the enormous amount of public money that was sunk in gas undertakings they, as public men, could not do anything less than promote that industry as much as they could. While he wished the gas undertaking all success, he did all he could to further in a legitimate manner the interests of electric light. In Glasgow they had had large experience of electric light, and he understood that they were going ahead pretty fast. It was a question of money. If the community wished to bring in electric light and were prepared to pay for it three times the cost of gas they would get it. He thought he interpreted the opinions of municipal men in general when he said that the Corporation were prepared to pay the additional expense of having electric light in the main thoroughfares, but much as he wished the electric light to succeed, he would not,

as a municipal representative, be prepared to advocate so much lighting of side and unimportant streets. The cost of the lamps in Great Western Road was quite 500*l.* per mile per annum. With the introduction of the electric tramways this was quite necessary, but it could not be said that 500*l.* was a reasonable charge for small streets. Before the Corporation of Edinburgh took up lighting, a company composed of local people wanted to do the job for them. The Corporation, however, decided to keep electric lighting in their own hands. Many of the large shop and hotel keepers in Princes Street were members of this company, and, not having got the lighting, were a little ill-pleased, and they decided—at least they said so—not to have anything to do with electric lighting. They did not at first, but the Edinburgh Corporation set up fifteen lamps in Princes Street about 45 yards apart, and these illuminated the street so brilliantly that to go into a shop was like going into a coal-pit, and the shopkeepers were compelled in self-defence to put in electric light. The consequence was that every shop and hotel and club in Princes Street had this system introduced.

Alderman Pearson, Bristol, said he was substantially in accord with Bailie Maclay's views. His experience of the natural growth on this subject was that it began with an ordinary burner, and advanced to that of the mantle burner. When the mantle smashed at an inopportune moment, as mantles generally did, the user made a remark which was not reported as a rule, and then approached the electricity committee with a view to obtaining a supply.

Bailie Finlay, Glasgow, said he had no doubt that when people came to realise the advantages of electricity in their houses this light would hold the field. In Glasgow we had only a few hundred lamps. If we had a thousand lamps in our main thoroughfares it would lend a great impetus in the direction of cheapening the price to the people. He represented a ward in Glasgow with a population of about 150,000. The first line of electric tramways had been laid down on it, extending from Mitchell Street to Springburn, a distance of about two miles and a quarter. What had been the result? As a magistrate he found that the troubles caused by "corner boys" had diminished, and a certain kind of crime which he could not speak of more particularly had fallen very considerably. On the whole he thought they ought to be proud of trying to push their electric light on the public. In Glasgow the authorities did not apply profits from public undertakings in reduction of the rates. They held that the large consumer of electricity ought to get it at the lowest possible price.



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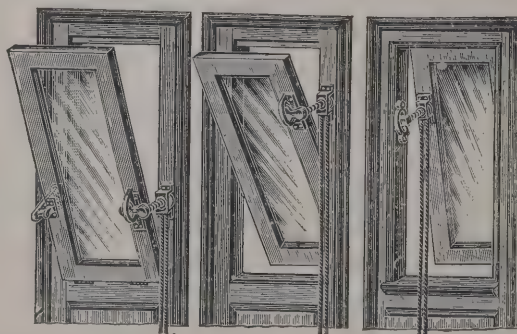
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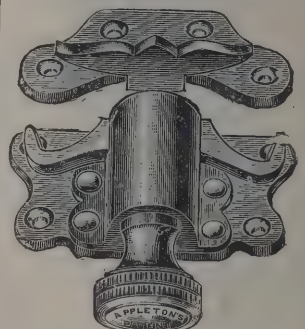
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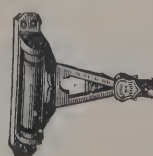
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# The Architect.

## THE WEEK.

LORD WEMYSS has gained a victory of which he must be proud, for the contest was over an architectural subject. On Tuesday he proposed in the House of Lords that models of the proposed Government Offices at Whitehall should be prepared and publicly exhibited. The Government opposed the motion on the ground that the expenses would amount to at least 600*l*. The Marquis of LANSDOWNE objected not only on account of the great inconvenience which would be caused by a delay, but also because it was doubtful whether a model always gave a perfectly clear impression of the effect which a building when erected would produce. Unless it were a model on a colossal scale, it would probably fail altogether to do so. It should also be borne in mind, he said, that unless the model included the whole neighbourhood it would give an inadequate impression of the appearance of the buildings when completed. Lord LANSDOWNE said he remembered citing, in regard to these particular buildings, the colossal edifices known as Whitehall Court, immediately to the rear of the site of the new War Office buildings, for the construction of which the Government were not responsible, and which had the effect of dwarfing any smaller buildings placed in their proximity. In spite of the anticipations of the noble Marquis, there was a majority of twenty-one in favour of the proposal. We need not inquire whether Lord WEMYSS was endeavouring to do something towards the realisation of INIGO JONES's great scheme, but for most people a model is more easily understood than any geometrical drawings, even when they are aided by perspectives. There is no doubt it was customary in SHAKESPEARE's time to submit models rather than drawings to building owners, and the practice gained the approval of Sir HENRY WOTTON, who was well acquainted with the procedure in Italy. The sum of 600*l*. will be only an insignificant addition to the expenditure, while it will enable the public to realise what is contemplated.

A FEW years ago it was decided by one of the metropolitan magistrates that a brick wall erected as a screen on each side of a shop should be demolished because a license from the County Council had not been obtained. With this precedent before him another police magistrate, Mr. D'EYNCOURT, might reasonably think himself justified to affirm that two buildings erected on a vacant piece of ground on one side of an old building, and which went beyond the general line of frontage, could not be regarded as an extension of the old building, and contravened the London Building Act. The magistrate declined to state a case for the opinion of the King's Bench Division. Counsel applied on Saturday for an order upon the magistrate to show cause why. Mr. Justice DARLING agreed with the magistrate, and thought the case was frivolous and comic, and in that opinion Mr. Justice PHILLIMORE concurred. When on Monday last application was made to the Court of Appeal the Master of the Rolls said a rule *nisi* should be granted. His lordship declined to say whether the points were frivolous or not. When the rule came on for argument it would be open to the other side to show that the points were frivolous.

THE proceedings of the Parliamentary committee appointed to consider the Bill by which powers are sought to sell and dispose of the site of Christ's Hospital in the City came to a conclusion on Tuesday last. Sir F. GODSON, the chairman, said that the committee found the preamble proved, subject to a right of pre-emption to the London County Council to acquire the whole or such portions of the site as might be agreed upon, the amount of land and price to be settled by arbitration on the basis of its value as building land. To avoid the loss that would be the result of undue delay where property of such great value was concerned, the award should be made within six months from the date of the Royal assent to the Act. On the suggestion of counsel the committee afterwards agreed to allow a four months' interval to enable the County Council to make their application, and three or four

months will be allowed for arbitration. The clerk to the London County Council, who was the last witness, said it would be a wicked thing if excavations were made and buildings erected regardless of any discoveries of objects of antiquarian and historical interest that might be made. The archaeological interest attaching to the cloisters and to the whole of WREN's buildings justified their preservation. The proposal to remove the stones to Horsham he treated as a ridiculous idea. Such objects of interest as were discovered should belong to the City Corporation or the Council. It was agreed that all objects of geological or antiquarian interest discovered shall, subject to the rights of the Crown, be deposited in the Guildhall Museum as the property of the Mayor and Aldermen and Commons of the City of London. Duplicates of one another or of objects already in the museum, or which it is not desired to preserve in the Guildhall Museum, shall be handed over to the London County Council to be preserved in such manner as the Council may resolve. As the Governors of the Hospital may now be said to have the desired authority to sell the ground, the difficult problem remains to settle how it may be disposed of. Many speculators would gladly pay a high price for the site to cover it with commercial buildings of various kinds, and that is likely to be the final arrangement. It is to be hoped that the part required for an enlargement of St. Bartholomew's Hospital will be reserved. To keep so valuable an area sacred because a few children were buried in the vaults does seem to be opposed to common sense, especially when so many churchyards in London have had to be utilised for modern buildings.

THE proposal to convert the hall of the Houses of Parliament, which was once adorned with frescoes, into a refreshment-room, must revive the history of a great failure. Some of the ablest painters who were then living entered with enthusiasm on the experiment of painting the walls, but the only surviving example of a large series illustrative of the poets is the *St. Cecilia* of Sir JOHN TENNIEL, that was inspired by the lines in DRYDEN's great ode. The artist at the time was known as a promising young painter. He had given no signs of the remarkable skill in representing political incidents with a dignity which heretofore was unknown in caricatures. It was probably owing to the simplicity of his methods and the thinness of the colour that his fresco did not succumb like its companions to the deadly power of the London atmosphere. It also has shown signs of decay, but, owing to the loving watchfulness of Professor CHURCH, the chemist, the painting is likely to endure for several years. The vanished pictures deserved a better fate.

WHAT can be done by a few earnest men for the preservation of antiquities against degradation or destruction has been exemplified at Rye. Some time ago the members of a local committee for the preservation of ancient buildings expended 150*l*. on the restoration of the Landgate. The Town Council then proposed to erect a very large "convenience" against the old structure. The lovers of antiquity have been enabled to obtain the services of Mr. A. H. TILTMAN as honorary architect, and in a letter dated the 4th inst. he wrote:—"If its erection is permitted, then a great part of, if not all the trouble that the committee and myself have taken to conservatively repair this most interesting monument of Mediaeval times will have been wasted, and a permanent eyesore established that will offend every inhabitant who has the least appreciation of antiquarian and archaeological remains." The committee for the preservation of the ancient buildings of Rye therefore requested the Corporation to, if possible, delay the work, so that time might be given for the consideration of either an alternative site or a scheme for using a portion of the present site without touching the towers of the Landgate, or so adversely affecting the view of the same. The contract for the "convenience" has been entered into, and any change will involve some expense, but the preservation committee, who have already laid out money in various ways, have expressed their willingness to contribute to the cost of alterations in order to save the ratepayers from unnecessary expenditure. A plan is to be prepared by Mr. TILTMAN in order to suggest a less objectionable site for the "convenience."



## COMPOSITION IN PAINTING.

THE word composition, in relation with painting, is only another way of expressing the phrase "unity in variety." There cannot well be composition without a number of parts to be regulated, and in figure-pieces they consist of separate representations of human and other beings. In landscapes there are also several components, each of them having sufficient independence to be made, if required, the subject of a special picture or drawing. Marine subjects are sometimes thought to be wanting in this quality, but a good artist will take care to give a distinct character to every wave, unless he is anxious to suggest a calm day when water is in repose. Then again, drapery and accessories should have imparted to them whatever is necessary to make them *sui generis*. If, as is commonly the case, they are made subservient to the figures and aid in unfolding their character, they can acquire an interest which does not belong to ordinary studies of draperies.

Masters of composition have not always been satisfied with making all the elements of a picture combine in attaining a single aim. They considered they possessed such mastery over the elements—that is, creative power—they were competent to put two or more independent compositions side by side. Painting thus resembled a fugue. But at the present day the youngest student of art would hardly require to be told to avoid the imitation of PAUL VERONESE, when on the right side of a picture he depicted CHRIST blessing the water in which He was about to be baptized, and on the left the Temptation of CHRIST. VERONESE could refer to many ancient bas-reliefs in which subjects still more disconnected were brought together. It was, no doubt, through the influence of antique art that the learned POUSSIN introduced in his painting of the Cure of the Paralytic a group of an old man giving alms to a woman. But more remarkable was the practice of RAPHAEL. In his last triumphant work of the *Transfiguration* he has inserted the figures of a couple of contemporaries who were concerned in the commission for the painting, as if they were adoring spectators of CHRIST. Still more astounding is the representation of people who are types of suffering, doubt and faith. We have in fact two pictures in one, resembling the sanctuary and crypt of a church. Criticism has invented many explanations in order to demonstrate that duality is a mark of the highest genius, but it would not be wise for any modern painter to attempt a similar experiment. In *The Dispute of the Sacrament*, another of RAPHAEL'S masterpieces, we have also a combination of celestial and earthly transactions, but in this case the arrangement corresponded with the popular belief that Heaven was not far removed from the altar of a church. The introduction of a figure of a Pope in some of RAPHAEL'S most important canvases is probably not to be attributed to the painter, but is rather due to orders which he could not disobey. The fact, however, remains that although the practice was common, our thoughts on seeing the more modern figures have to be diverted from their natural course, and instead of one great drama, we appear to have detached scenes from several. In a picture as in a drama, there should be no doubt about the protagonist. In the *Eliodora*, LEO X. appears as if controlling an incident which relates not only to the Biblical scene of HELIODORUS, but to the expulsion of ATTILA. When a difficulty of that kind arises it is impossible to have perfect composition, as the principal figure is an anachronism and the attention is distracted by its existence.

The error arising from the introduction of figures regardless of chronology is more marked when we remember how easy it is to arrange figures in such a way that those which we may call supplementary or rather superfluous will appear to be the most important. If the pyramidal principle be adopted a personage of trivial interest could be made to appear as dominating the whole group. In *The School of Athens* there would, for instance, be no difficulty in placing a cardinal who was a friend of RAPHAEL in the position of PLATO, and one of the Italian princes could be introduced as listening to SOCRATES instead of ALCIBIADES. From this fact it will be evident that a mechanical grouping, although in one sense it can be called composition, does not attain that truer and higher

grade which appeals to the intellect and is in keeping with the subject. Some early artists overcame the difficulty by writing names near the figures, and then it was less necessary to place the principal figure in the centre of the picture or to make it serve as an apex.

The arrangement of lines is important, and the old artists were not in error when they spoke of the means of union as a chain, and described one of the indispensable qualities of grouping as equilibrium, as if the figures formed a problem in mechanics and were subject to the laws of gravity. Sometimes the idea was expressed by a comparison to the pyramid, and at others to a "bunch of grapes." One remarkable example of that chainage is to be seen in RUBENS'S *Battle of the Amazons*, of which we published a large illustration. As a painting it may not rank high, and we are inclined to think that it was executed in order to demonstrate to his pupils the necessity of a connection between figures. The artist's aim is gained in a great measure by means of drapery; but although there may be too many scarves, the effect is more impressive than could be obtainable by the "bunch of grapes" of TITIAN and the Italians. The task was rendered more easy by the absence of any necessity to emphasise a principal figure.

It would be difficult to find a Greek work in which so much labour was bestowed in order to keep the figures in a big group and amenable to the artist's idea of composition. Some of the noblest scenes in Greek life were processions in which there was an approach to a republican uniformity of interest. In their paintings and in their reliefs they seem to express the processional idea, and with figures so arranged it was not necessary to have an elaborate system of composition. Perspective, being in an elementary state, was unable to allow of more than the simplest arrangements. Another drawback was the keeping of the figures on one plane, and if similar restrictions were imposed in our time composition would have to be simplified. MASACCIO'S *Restoration to Life of the King's Son* is a proof of the influence of the Greek principle, for all the men are of the same height, and they appear as if arranged to take part in a procession. This noble work is also an example of the indifference to order in time, if not in place, which was one of the signs of liberty or license of which early Renaissance artists took advantage. In one part of the picture the saint is seen blessing the boy, while in another he is seated on a throne with devotees around him. The picture would not be considered as exemplifying academic rules of composition, but yet it has a decorative charm unknown to works which are laid out on a scientific basis.

The latter incident indicates one of the differences between modern and ancient painting. MASACCIO'S patrons wished to suggest their reverence for St. PETER, and regardless of all laws of artistic propriety, they introduced a second figure of the saint. It was customary in those days for people to console themselves by manifesting their loyalty to the saints and their certainty of saintly protection. Pictures of the kind must have exercised an enormous influence in popularising pyramidal composition. RAPHAEL'S Sistine Madonna is the most prized of those examples, but we now possess another excellent one by him in the National Gallery. The Meyer Madonna, by HOLBEIN, is probably the latest important work of that class, and there is no doubt that in such pictures the arrangement of the figures is almost too regular. In sculpture, however, similar grouping is always likely to be adopted. Mr. HAMO THORNYCROFT, for instance, in order to produce the desired effect, makes his scholars of St. Paul's School kneel on each side of the seated Dean COLET, and in that way suggests the supremacy of the founder and teacher. HOGARTH, it may be remarked, thought the *Laocoon* had suffered in order to vindicate the principle of the pyramid, for he said the priest's sons are represented as little men rather than as children; but the peculiarity is more apparent in prints than in the statue itself.

With easel pictures it is possible to study them at leisure, and at length interpret the subject and identify the figures. But with mural decorations the case is otherwise. The great name of RAPHAEL does not prevent visitors to the Vatican from carping at him and condemning him because some of his figures cannot be explained by compilers of guide-books. In spite of the power displayed in the paint-



ing, the great series by RUBENS in the Louvre relating to HENRI QUATRE and MARIE DE MEDICIS is not appreciated, because it is now impossible to discover what the girls in bare feet and other figures have to do with State affairs. Allegory has its use in mural work, but it must be so plain that all who glance at it can understand it. We may patiently endeavour to make out the meanings of the mysteries which SPENSER expressed in fine language, but illustrations of the scenes are generally found to be too oppressive for the spectators.

While, however, we praise composition and recognise its importance, it will not make amends for the absence of other qualities. On this subject FUSELI said in his grandiloquent way, "whether its groups be embrowned on a lucid sky, or emerge from darkness, whether it break, like a meridian sun, on the reflected object with RUBENS, or, from REMBRANDT, flash on it in lightning; whatever be its form or its effect, if it be more or less than what it ought to be—a vehicle; if it branch not out of the subject as the produce of its root, if it do not contain all that distinguishes it from other subjects; if it leave out aught that is characteristic and exclusively its own, and admit what is superfluous or commonplace—it is no longer composition, it is grouping only, an ostentatious or useless scaffolding about an edifice without a base." In all but formal architecturesque paintings it is well that composition, or rather the planning of it, should not be too apparent. For as people do not form themselves into graceful groups unless under compulsion, there is a risk of the composition appearing to be a departure from nature.

### THE PULPIT.

THE subject which was assigned to the students of the history of architecture at the Ecole des Beaux-Arts a few weeks since was "A pulpit in a thirteenth-century church." It would not be becoming in us if we were to doubt the fitness of any exercise selected by M. MAGNE. But it is generally believed by archaeologists that no thirteenth-century pulpit has survived. DE CAUMONT, who was well acquainted with French churches, says he never met with a pulpit in one of them that was older than the fifteenth century. He refers to two, St.-Lo and Vitre, oriel pulpits, which were constructed externally to the churches in order to serve for sermons delivered to congregations in the churchyards. He believed that the pulpits in Strasburg Cathedral and Friedburg were not more ancient. Those belonging to earlier Gothic periods were probably made of wood, and that may account for the difficulty of discovering examples. Some of the carvings were probably used in structures of another kind, but there is a limit to the endurance of wood-work.

It is remarkable that M. MAGNE did not supply the students with any example of a thirteenth-century pulpit, but as a substitute gave a sketch of one more ancient, which is still to be found in the church of Brancoli in Tuscany. This is formed of stone, and the upper part stands upon columns which are supported by lions. There is a projection from the cornice forming a lectern, supported by an eagle. It is not without analogies with the modern type. VALERY described a pulpit as existing in the church of St. Ambrose, Milan, which was better adapted for oratorical action. "In this church," he said, "there is an immense old pulpit of marble opposite to the modern one; it is pretty much like the gallery used by the Romans, in which the orators had room to walk about. It struck me, while contemplating it, that in form as well as independence the Christian pulpit had replaced the *suggestum* of earlier days. These old pulpits are in much better taste than the kind of deal box suspended in our churches, above which rises a man who twists and agitates himself, and seems ill at ease in so narrow a space. Were not one habituated to this manner of preaching it would appear a very singular exhibition." The *suggestum* or *suggestus* was also the elevated spot from which soldiers were harangued by the general, and it was sometimes used as the lofty seat of the Emperor when viewing the public games.

It was allowable for M. MAGNE to invite his students to design a pulpit for which there was no precedent, but

which would be in keeping with other parts of a thirteenth-century building. They would certainly have been more usefully employed if they had endeavoured to design a pulpit which would be without the shortcomings of those which prevail in modern churches, because it is supposed invention is not exercised in anything which is to be employed in the services.

One of the difficulties attending an investigation of the few forms of pulpits arises from the uncertainty about the time of their origin. It is sometimes maintained that the ambo was the first pulpit, but it was used for reading epistles and gospels rather than for the delivery of original discourses. Orators amongst whom the traditions of pre-Christian Rome continued to have influence were not likely to be satisfied with being boxed up in a receptacle which restricted the amount of action. They were likely to seek a platform or stage like the Milanese example, which would allow of several steps being taken—action which is found impossible in any pulpits resembling those in modern churches. In the open places of some of the remote Italian towns we can still see friars occasionally exhorting congregations from temporary platforms, and the spoken word becomes more impressive from the dramatic action with which it is accompanied. One effect of confining orators to the limited area of the ordinary "tub" has been the partial extinction at least of that action or stage play which, according to DEMOSTHENES, was the first, second and third essential of eloquence. When we learn that a great preacher like BOURDALOUE, who must have been possessed of a Frenchman's love of gesture, was accustomed to close his eyes and to rest his hands on the rim of the pulpit during his sermons, we can understand how he was hampered and why many believed he was not an emotional orator. MASSILLON was less restrained, but as he sometimes used to cross his hands on his forehead as if he were afraid to hurt them against the pulpit, we must conclude his strongest effects were produced by the style of his delivery, without much aid from action. When the principal actor of the day once heard him, he said, "He is an orator, and men like myself are only comedians," but it was the sincerity of the utterance which made the impression, not the correspondence between action and expression.

Whatever was the cause which induced the clergy to adopt so circumscribed a variety of pulpit, there is no doubt it had become popular by the beginning of the thirteenth century. At that time NICCOLO PISANO produced his wonderful pulpit in Pisa, which although its decorations are partly copied from Pagan bassi-relievi, marks the beginning of a new era in the history of sculpture. The fine pulpit in the Santa Croce, Florence, by BENEDETTO DA MAJANO, is of a later time, and the reliefs deserve all the praise which VASARI bestowed on them, but the general effect is not as satisfactory as the details. The pulpits in San Lorenzo, Florence, which DONATELLO designed and his pupil BARTOLDO executed, are not unworthy of being under the same roof as the *Night, Dawn* and *Armed Thought*, of MICHEL ANGELO.

We need not trace further the progress of the pulpit, although the variations are few. Judging by many of the examples it would appear that so long as the enclosure for the preacher was respected designers might introduce what novelties they pleased. As specimens of sculpture in wood it would not be easy to surpass the figures of the Belgian pulpits, such as *The Temptation of Adam and Eve* in Brussels or *The Calling of St. Andrew* in Antwerp, which are introduced around the support. The figures are, of course, diminished in their effect by the clouds, drapery, birds and other incongruities which are near them. But the body of the pulpit is unaltered, and therefore the design was approved. Another type for which we can claim the design as well as the ownership is the two and three-decker pulpit which was once common throughout England, and which some amateurs would wish to see revived. But the preacher, together with the clerk, were partly concealed, and so long as that is secured the majority of ecclesiastics are satisfied.

It is the predilection of the clergy for an enclosure which perpetuates an arrangement which has many disadvantages. They consider, no doubt, that while they are surrounded by a fence of stone and wood they are secure from criticism and need not be afraid if their sermons are



not productive of much good. Small men are, however, made to appear as if out of place, as it is difficult for the most eloquent man to become impressive when little more than his head can become visible. There are, besides, other drawbacks. Mr. DU MAURIER's superior parson objected to his pulpit because it was impracticable for him to make every fold in his surplice tell, but we suppose such minor worries are of little account.

With the clergy in favour of one form, it is no wonder so little can be done by invention in order to introduce pulpits that would be novel and could be made auxiliaries to eloquence. At present there is more fitness when a clergyman speaks from a reading-desk, although by his renunciation of the right to fulminate over their heads he becomes more akin to the congregation he addresses. In a French church sermons are sometimes delivered from the steps of the altar, and it cannot be said that the effect is in any way diminished. Other priests endeavour to submit to the obstacles to fervid eloquence which the pulpit offers by sitting instead of standing, and making a *causerie* of their discourse. Remembering these facts, M. MAGNE might have suggested a different treatment from that which is exemplified in the Romanesque chapel of Brancoli, as well as in the majority of modern churches, and the effect of the innovation would not be confined to France.

#### LORD LEIGHTON'S HOUSE.

A PUBLIC meeting has been held in the Town Hall, Kensington, in support of the movement for the permanent maintenance for the borough and the nation of the house and grounds of the late Lord Leighton, with the collection of his drawings and sketches.

Sir H. Seymour King, M.P., the mayor, presided, and said that by the generosity of Lord Leighton's two sisters there was placed within their reach a rare treasure, and the question they had to answer was whether they should put out their hand and grasp it. They had the opportunity of acquiring the house in which Lord Leighton lived and worked, with its rare art treasures. All that was needed was a little money in order to endow the house in a modest fashion with the means of maintaining it. He was permitted to say that the King wished them every success, and would be very glad to see their idea carried out.

The Bishop of London moved the first resolution as follows:—"That this meeting warmly supports the movement which has been inaugurated, having for its object the dedication to the public of the house and grounds of the late Lord Leighton and the collection of art treasures secured therein, to be a memorial to that great artist, and as a public gallery, museum and centre of art work for the borough of Kensington." He said the Bishop of London was concerned with all that made for the happiness of Londoners, and therefore it was his duty to support any movement the object of which was to brighten the lives of the people. A long experience among the poorer classes had convinced him that they appreciated beauty of sound and beauty of form. Many who lived in the neighbourhood of Lord Leighton's house were poor, and it was partly for the poor who lived in the district and who could not obtain these things for themselves that the art treasures were intended. He could think of no more beautiful memorial to a man than the dedication to the public of the things which he had collected and loved, for they breathed, as it were, his very spirit in their midst. Another reason why he gave his cordial support to the scheme was that the house would be the centre of art teaching for the population of Kensington.

Sir William Richmond, R.A., in seconding the motion, said it did not fall to the lot of every generation to commemorate a great artist, a great man also, in so fitting a manner as that in which it was proposed to do in this instance. Leighton was a great artist; he was also a great man, a man of whom not only his country but foreign nations had a right to be proud. Facile and brilliant, Leighton was never satisfied with his achievements; his modesty was as conspicuous as his activity was untiring; the power of taking pains was a gift cultivated in him to perfection. If one word more than another applied to Leighton it was nobility. His was a name which engendered in many enthusiasm in all respects. The intention of the scheme was that the house should be maintained for the nation as a centre of all that was most beautiful and elevating in art, music and letters, and an intellectual possession accessible for the poor as well as for the rich. That intention was in complete harmony with Leighton's whole life.

Sir Robert Hunter, in supporting the motion, remarked that the house was especially adapted for public use.

Sir Martin Conway also supported the motion, which was agreed to.

Earl Percy, M.P., moved:—"That representations be made to the Borough Council of Kensington inviting their co-operation in securing the success of the movement, and suggesting that the Council might fitly commemorate their inaugural year of office by accepting the gift of this property and permanently maintaining it under their statutory powers as an institution for the encouragement of the study of literature, science and art in the borough." He said that the cost of maintaining Leighton House, if it were taken over, would not amount to more than a farthing rate, in addition to the library rate, once every three years. If the borough council could see its way to carry out the wishes of the meeting, Leighton House in their possession would be not merely a school of art, a museum of priceless curiosities, a concert or a lecture-hall; it would be a perpetual memorial of one who was a great citizen as well as a great artist, and a perpetual record of the pride and reverence which Kensington felt for one of the best and most distinguished of her sons.

Mr. Lionel Cust seconded the motion, which was supported by Mr. Thompson Sharpe, M.P., and Alderman Frye, and unanimously agreed to.

#### THE FRENCH EXPLORATION OF SUSA.

THE French expedition which for some five years has been engaged in the exploration of the city of Susa, the capital of the ancient Elamite kingdom, under the direction of M. Jacques de Morgan, has now completed its work, and a most valuable series of memoirs are being prepared by the director and other members of the expedition, and published by the Ministry of Public Instruction. The work of the mission has been so quietly carried on, says a correspondent of the *Scotsman*, that outside of the small circle of specialists in Assyriology, but little has been known of the very important discoveries that have been made, and which have added a new and important chapter to the reconstructed first volume of Oriental history. The site of Susa was an important one, and the early connection between Chaldea and Elam led archaeologists to hope that important results might be obtained, and these expectations have not been disappointed. Between the lofty ranges of Bakhtiari mountains which rise step by step like a giant staircase to the tableland of Iran, and the Tigris there stretches a rich plain watered by the Kerkhah, the Karun and the Dizful, and in the heart of this plain a few miles north of the town of Shustu are the two great tumuli which mark the site of the ancient city of Susa. The larger of the two mounds was partially examined by Loftus in 1850, but in 1884-86 it was carefully explored by M. Dieulafoy, who found it to contain the remains of the Apadanans, or palaces of Darius and Artaxerxes Mnemon, and the antiquities are now in the Susanian saloons of the Louvre. The smaller mound, manifestly an older site, appears to have been but little touched, though Loftus must have obtained his Elamite bricks from this site. This mound rises to a height of about 100 feet above the plain at the highest end, and has a length of 1,600 feet. The mound bore every indication of being an accumulation of the debris of more than one city, and acting upon his experience as an engineer, M. de Morgan decided to test its strata by a series of tunnels driven into the mound at various levels. The result of these test tunnels at once showed the great antiquity of the site. Space will not permit of a detailed examination of the various strata thus penetrated, but the following table will show the successive layers commencing from the base, a few feet above the level of the plain:—

1. The virgin soil, a pebbly ridge formed by the rain torrents from the high lands.

2. First settlement 10·93 metres above the plain. Pottery, hand-made, with red and brown decoration, similar to that found in the prehistoric settlements in Egypt and a few worked flints.

3. Second settlement 14·30 metres above the plain. Traces of a settlement of huts having been destroyed by fire. Pottery of a similar class to former settlement, but not so numerous. Large quantities of worked flints and quantities of the flint teeth of wooden sickles similar to those in use in Egypt.

4. Third settlement, 16·80 metres above the plain. A settlement destroyed by fire. Here enormous heaps of the sickle teeth were found, indicating that agricultural implements had been piled in heaps and the wooden frames decayed. Some of the teeth bore traces of the bitumen fastenings. Stone maces.

5. First town, 21·25 metres above the plain. Here traces of burnt brick walls were found. Also tanks or wells lined with terra-cotta pipes of large size.

6. Anzanian city, 29 to 30 metres above the plain. Traces of palaces burned with fire, and bricks inscribed with names of Elamite rulers. The city destroyed by Assurbanipal B.C. 640.

Above this was a layer of Greco-Persian remains, but no



trace of buildings; and on the surface Arab and modern Persian pottery left by nomad tribes encamping here in the summer. Here we have set before us in a regular sequence the history of this most important site. The Plain of Anzan, for such was the ancient name of this region, was always celebrated for its corn-growing qualities, and indeed is so to the present day. Strabo, writing on the fertility of this region, states that wheat produced a hundred, and sometimes two hundred fold; but more important still are the references to the rich corn harvests of Elam in the Assyrian inscriptions. The origin of the settlements is shown in the immense number of sickles found, which indicate that in very remote times the site was occupied by hill tribes during harvest and then abandoned, the sickles being piled in heaps. Two of these settlements, consisting of huts, had been destroyed by fire—perhaps by a raid from Babylonia, and then replaced by a small village settlement. In this last settlement traces of a water supply were found, and the only arms stone mace heads similar to those found by De Sarzec at Tello and by Petrie in the prehistoric settlements of Egypt. There was, however, no trace of writing nor were the mace heads sculptured, so that this first town is probably older than any in Chaldea.

It must be remembered that far back as the researches at Nippur, Tello and other Chaldean cities extend, to probably B.C. 5000, we have as yet no trace of a prehistoric age. If, then, this first town is prior to that age, what degree of antiquity must we assign to the settlements which precede it?

The historic age of this site really commences with the city found at a depth of about seven metres below ground. The extensive traces of fire and the deliberate demolition of the walls show that this was the city destroyed by Assurbanipal in B.C. 640, when he wreaked a terrible vengeance on the city for aiding his rebel brother Samas-Sem-ukui. The inscriptions discovered upon the site show that although the great hall of the palace was erected probably by Sutrak-Nakh-Khunti about B.C. 1100, there were at least portions very much older, probably about B.C. 2800, or even earlier. The bricks obtained by Dr. V. Schiel, the Assyriologist attached to the expedition, are almost as astonishing as the excavations in the tale they tell. The earliest bricks are written in cuneiform characters, not those we have usually been familiar with as the script of Elam or Anzan, but in a writing exactly similar to the archaic inscriptions of Chaldea. Moreover, they are not written in an Elamite language, but either in pure Semitic Babylonian, or in two cases in Sumerian. Here, then, we see that it was Babylonia that introduced writing, the chief element of civilisation, into Elam. Taking one of the oldest of these bricks we read—"To the god Susinak his lord for the life of Idadu, viceroy of Susa, Ardum-naram-Susinak (servant beloved of Susinak) (has given)." The title viceroy (patisi) naturally implies an over-lord, and that can only be found in Chaldea. We now see how it is in Genesis x. 22. Elam becomes the eldest of Shem, as being the first colony founded during the Semitic dynasty of Babylonia. Among the inscriptions found in Chaldea were several contracts of Naram-Sur, the son of Sargon, dated in the year "when he placed homage on Elam." By certain German critics, all such inscriptions of Sargon or his son were to be regarded as unhistorical. Among the bricks and other remains found at Susa are some bearing inscriptions of Naram-Sur, showing that he not only conquered the city, but also erected buildings there. So this ascribes a date of at least B.C. 3800 to the Elamite capital. Most important of all was the discovery of a great sculptured stile of victory of Naram-Sur, which had been set up by that conqueror at Sipir, one of the cities of Elam, but removed to Susa by the Elamite king Sutrak-Nakh-Khunti, who placed an Elamite dedication of his own upon it. So that the historical antiquity of the city is beyond doubt. Among the inscriptions found were many of the Kassite rulers of Babylon (B.C. 1800-1100), who it appears conquered Susa on their way down from the mountains to Babylonia. Some of these are of the greatest historical importance, but space will not permit of our dealing with them in this notice. It needs no comment to show of what immense importance these explorations are, and how M. de Morgan and his colleagues have added a new and important chapter to the history of the East, and given to civilisation in Western Asia a retrospective enlargement totally unexpected.

## DECORATION METHODS AND MATERIALS.

IN attempting a short description of the methods and materials employed in interior house decoration at the present time, I shall endeavour, writes Mr. W. H. Elliott, of Toronto, in the *Canadian Architect*, to be as concise in my statements as possible—describing the material, its advantages and disadvantages, where it may or may not be used satisfactorily, and so of the methods employed.

As in other things, decoration has its fashions. Styles come and go in public favour, and in five years the decorations of a

house may be quite out of date. This would be unfortunate if it were necessary. Many styles are never out of date, and they are usually the most desirable, temporary styles having their destruction inherent in themselves. It is quite possible to carry out a scheme of decoration which if entirely appropriate to its position will always give lively satisfaction both in colour and design.

I might also refer to some notions at times prevalent about the use of colour which do duty for the time as decorations. Not long since I heard a lecture in which the theory that each colour symbolised an abstract idea was gravely set forth, as that red was love—yellow, aspiration, &c. The folly of attempting to embody such ideas in schemes of decoration would be apparent to anyone giving only slight attention to the subject. Of equal value was a scheme for the decoration of a church in which the colour of the lower wall represented the bark of trees, higher up the leaves, then a golden sunset, and above all the pale green and hue of the evening sky. Very fanciful no doubt and possibly resulting in good hands in a harmonious arrangement of colour; but on what ground are we to transfer bodily the outer landscape to the walls of a church?

The possible scheme of colour is not objected to, but the gravity with which these and similar fads are presented as principles of decoration. The principles of decoration are worked on other lines. The amount of light usually governs the strength or depth of colour; the presence or absence of sunlight has its due weight, the purposes of the room, the tastes of its customary occupants and a hundred other considerations which are not fanciful, but very practical, influence the decorator in his work.

To follow some of these theories would be to tie ourselves to a certain arrangement for certain conditions in every case. For example, a very cheerful room may be carried out with blue as its motive colour (no matter what its signification may be), and a very dismal room may result from a badly-balanced scheme in yellow. And here let me say that in most cases one colour should strongly predominate when a successful effect is desired. Too positive colours in nearly equal proportions are fatal to repose of any room. The exception to this is, of course, when the colour is thoroughly broken up as in the Moorish or Romanesque styles. Another rule which is very safe is that all three primary colours should be represented in every scheme of decoration, otherwise a tame effect is certain. The red or yellow may be very much subdued in a blue room, and so of the other combinations, but their presence, if ever so quietly introduced, is unconsciously felt as a satisfying impression.

Looked at from the standpoint of durability many of the materials employed are far from satisfactory, but, happily or unhappily, durability is not often considered in present day decoration. The universal surface material, plaster, is anything but durable. Various attempts have been made to produce substitutes, but thus far without conspicuous success. For small surfaces what has been named plaster board is something of an improvement. It is usually a thickness of plaster-of-Paris or asbestos in which coarse canvas or scrim has been incorporated. When this material is cast in ornamental forms such as cornices, friezes, centres, &c., it is called staff. Lightness and strength are obtained by this method, and some comparatively large sections have been cast in this way.

For finer ornament various compositions are used which admit of plastic moulding to a limited extent. Ornament of this nature has become necessary on account of the extensive use of the French styles of the Empire, Rococo, &c. As a practical substitute for plaster the sheet metal designs so largely placed on the market at present are very satisfactory where the decorative effect is of little importance. They can hardly be classed as decorative material.

Where any work of importance is contemplated it is advisable to first cover the plaster surface with a strong cotton or burlap, so that cracks may not eventually injure the appearance of the work. Burlaps of various degrees of coarseness are now used extensively for covering wall surfaces, and are invaluable for the purpose—the texture giving an excellent surface for colour or decoration. The colour is obtained either by painting the burlap after it is fixed or by using the ready-dyed materials which may be obtained in all desirable colours. Burlaps, cottons and other similar materials are applied to the wall with ordinary flour paste, the wall being pasted instead of the material. Joints should be overlapped about an inch to allow for shrinkage, left several hours, then cut through both thicknesses with a sharp knife, the strips removed and the two edges brought neatly together. Dyed material does not require overlapping as it is already shrunk. For painting a rather open weave is preferable, the colour not filling it so as to hide the texture.

Decoration in glaze colours, outline relief work and other methods are employed with excellent effect on the painted burlap. Silks and woven tapestries are also used to a limited extent for covering the walls of the more important rooms of



the house. The cost of these both in material and application is, of course, much greater than that of other coverings, and it is questionable if the results gained justify the additional cost. These materials are usually tacked to thin strips of wood which have been nailed on all angles of the wall, the joints being concealed by silk cord gimp or rounded strips of wood which have been covered with the wall material. A lining of ordinary cotton or Canton flannel is usually applied first to the wall to protect the more expensive material from dampness and to give a softer surface. Hand-woven tapestries are only possible to the very few, so that practically we are confined to the products of the machine loom. All of these are closely reproduced in the many beautiful wall-papers now to be had. I have always maintained that such imitation is perfectly justifiable, as the material or groundwork is only a medium for transferring the design to the wall and of no importance in itself beyond its suitability for the special work in which it is employed. Ordinary silk will not retain its appearance on the wall as long as its reproduction in wall-paper, its texture making it a receptacle for dust, smoke, &c., which in a short time completely ruins its surface. No doubt this is more especially true of our houses in Canada, shut up closely as they are during a long winter with the accompanying accumulation of dust.

This brings us to the consideration of wall-paper as a medium for decoration—a material more generally used than any other, and undoubtedly more broadly adapted to the various requirements of house decoration. As I have already said, wall-paper has been designed to reproduce other materials in a cheaper and more practical form. Silk, leather, tapestry, cretonnes, &c., are now to be had in wall-paper in their choicest designs. The first cost of die-cutting, &c., being distributed over a large output, the richest and most elaborate examples of each fabric may be copied. How one is deceived by these reproductions when on the wall, but one may have the very best of design and weave the world affords, while if attempting to use the actual fabrics only a very moderate and perhaps undesirable selection is possible. There is, of course, a very large range and very superior range of designs which are not copies of anything but simply wall-paper.

Wall-papers are broadly divided into hand-made and machine-made—pressed flat, gilt and colour. The manufacture of hand-made papers follows somewhat the earliest type of printing press, but while the old printing press has long been discarded, the hand or block printing machine still retains a large place in wall-paper manufacture. The advantages are a more solid layer of colour and as a consequence a more forcible effect on the wall. Large designs also may be printed with blocks when the expense would be too great to construct a machine for the purpose. But of late years, with perfected machinery and skilful printing many designs are produced which test the ability of an expert to detect as not hand made. The best designs come from England—that is, designs which are purely wall-paper, not imitations of any other fabric. Such men as Burne-Jones, William Morris, Lewis F. Day, Walter Crane and others have given their best efforts to the designing of wall-paper and the result is what might be called a school of wall-paper design, which is drawn upon by the designers of other countries. These men by no means treat the wall as in all cases merely a background for other things, but rather as an important feature in the furnishing of the room. Of course where important pictures are to be hung many of their designs would be quite inappropriate, but unfortunately the number of important pictures bears a ridiculously small proportion to the number of rooms to be decorated. French designs excel in reproduction of silks, leathers, &c., and many of their papers are exquisite examples of the art of wall-paper making. By far the largest proportion of designs are studies of natural flowers slightly conventionalised. Always popular and easier of treatment than ornament, they peculiarly appear in the season's lines, although the really good floral designs of one season could be counted on the fingers of one hand.

Within the last year or two the reign of the frieze has perceptibly drawn to its close. At one time considered a sine qua non in every room—in fact almost as essential as the furniture—it is now relegated to the cheap parlour combinations as they are called, where ceiling, frieze and wall are beautifully matched, saving brains and much anxious thought to the dealer and the buyer. Wall-papers are now usually carried to the ceiling or cornice and finished at the top with a picture moulding. Ceilings if good are painted or tinted, if cracked are papered with something simple in design and of almost one colour. Sometimes the ceiling colour or paper is brought down a short distance on the wall to meet the wall-paper at the picture moulding. Sometimes the upper third of the wall is covered with a different design from the lower two-thirds, the picture moulding again acting as divider. A very pretty treatment for bedrooms is to carry a narrow border around each wall of the room forming them into large panels. These borders frequently have corner pieces to match. Papers

with the texture of burlaps, denims, &c., make a very good lower wall and are an excellent background for pictures. Ingrains or cartridge paper are now very little used. Pressed or raised papers except in leather effects are not much in use, good colouring being preferred to their somewhat showy effect. The stripe designs which come to us at present in such abundance will not continue to occupy so large a place in dealers' collections, yet they have an important use in giving an appearance of height to rooms whose ceilings are undesirably low, besides being an agreeable change from the ordinary run of designs. The old cretonnes and chintzes furnish a range of beautiful patterns for bedrooms, morning-rooms, &c.

The proper treatment for all of these patterns is to simply cover the wall with them, as would be done with the actual material.

Coming to the woodwork of the room, we find a variety of new tones for natural wood. Rich browns, deep mossy greens, Flemish oak finish, may be applied to ordinary pine or white wood with highly satisfactory results. The strong reds and greens of the wall at once call for special treatment of the woodwork, and these deep tones are the result. In direct contrast are the white and ivory tones which set off equally well the reds, greens and blues of the wall. The old-fashioned drawing-room in white and crimson or green is very much in evidence at present, while in the bedchambers white woodwork prevails, almost to the exclusion of everything else. Graining, while not tabooed on æsthetic grounds as formerly, does not seem to find a place with other prevailing features. Oak among hardwoods is in great favour, but more frequently finished in Flemish bog oak colouring than in the natural wood.

One of the most desirable importations of old-world ideas is the more general use of hard-wood floors. Very few realise the danger to health which lurks in the harmless-looking carpet which in many cases remains securely tacked to the floor for several years. An analysis of the dust accumulated in that time has revealed possibilities of disease which in many cases must have resulted in the actual thing.

A permanent floor may be laid in any house on top of the existing floor without alteration to doors or other woodwork of the room and at the cost of ordinary carpet. Parquetry designs add decorative character to this part of the room. Not the least important advantage gained by the use of hard-wood floors is the introduction of the very artistic and everlasting Eastern hand-made rugs which now adorn so many of our homes. When the life of these things is considered the money expended upon them is probably the best investment possible in house-furnishing.

## BRITISH AND AMERICAN ENGINEERS.

LAST year, on the occasion of the French Exhibition in Paris, a large party of American engineers, both civil and mechanical, visited London, and the presidents and councils of the Institutions of Civil and Mechanical Engineers organised receptions and conferences, excursions and invitations, for their entertainment. In acknowledgment of these courtesies two beautifully illuminated addresses have just been received by the Institution of Civil Engineers, one from the American Society of Civil Engineers and the other from the American Society of Mechanical Engineers. The board of direction of the American Society of Civil Engineers, in their address, say:—

"Apart from the professional feature, the graceful and magnificent entertainments and excursions arranged in behalf of American engineers are highly appreciated by our members, individually and collectively; the more so from a realising sense that such a reception could have been carried out only by an Institution whose standing and position before the public are established beyond question. While, therefore, our thanks are due primarily to the Institution, we desire to record our profound appreciation of the high honour conferred upon the profession in America by Her Gracious Majesty Queen Victoria in receiving its representatives at her Castle at Windsor. We also wish to acknowledge the charming hospitality of the Earl and Countess of Warwick, and the kindness of the Lord Mayor, Aldermen, and Common Council of the City of London in tendering their ancient Guildhall for the occasion."

The address of the American Society of Mechanical Engineers is as follows:—

"We, the President, Council and members of the American Society of Mechanical Engineers, in full recognition of the hospitality extended to us by your Institution during the past summer, hereby extend this official acknowledgment. Realising the profound international significance at this time of certain of the events included in the reception by the Institution of Civil Engineers of their American professional brethren, and fully appreciating the remarkable social courtesies so gracefully extended, we here record the sincerest thanks of the



American Society of Mechanical Engineers. In all those graceful courtesies, the ever-growing ties between the members of the Anglo-Saxon race throughout the world are evidenced and strengthened. We take this as a welcome opportunity to record our deep appreciation and hearty thanks."

### THE FUTURE OF ENGINEERING.

AN address to the students was delivered by Colonel Henry G. Prout at the Rensselaer Polytechnic Institute, in which he said:

Your first lesson will probably be in measuring your own strength with that of other men. A good deal of this you have had in college, but now it comes in a different way. Heretofore the struggle has been to meet conditions already laid down. Now the field of your efforts is bounded only by your own abilities, and if I were to specify one quality more important than any other in the work now before you, it is courage. The gods are always kind to a brave man. We have assumed so far that at this institution you have learned the principles of your art. Beyond that we are justified in assuming that you have trained your powers of observation of analysis and of reason. You have now to ascertain and to prove that you have the courage to use your weapons. I should say that one of the great lessons of human experience is never to admit, to yourself or to others, that you cannot do the job that you see before you. Voltaire said, "All general statements are false, and probably this one is also;" so what I am saying about the courage to attack anything that comes along will naturally work within reasonable human limits, knowing that probably there is not one Newton or one Napoleon among you. But my point is that more men fail from timidity than from too much courage. But do not imagine that courage does not see the dangers of the enterprise; that would be mere stupidity or blind conceit. I have a friend who has risen fast, and now, while still young, he is the president of a great railroad. He said to me the other day, "I never yet undertook a big job without being scared."

It has come in my way to know a good deal about the entrance of young engineers into railroad life. I have talked much of this with railroad men, and have had some experience of my own. The sum of the testimony is that engineering schools are the best recruiting ground for railroad officers. But it is pretty well agreed that when the young men come out of these schools they cannot draw, they cannot use their mathematics, they cannot write an acceptable English document. Here, again, we are speaking in general terms, but probably we are not far wrong. Of the drawing it is too late to talk now. If you are not good draughtsmen it is not likely that you ever will be. Of the mathematics I may perhaps say a useful word. It is not a question of higher mathematics, but of the everyday bread-and-butter mathematics. This is where the young graduate is deficient, and where he can quickly supply his deficiencies. For example, not long ago I asked a young man who had graduated with distinction at one of our best engineering schools to convert kilogrammes per square millimetre into pounds per square inch. It was a case of some tensile tests. After a good deal of labour he presented to me the astonishing conclusion that the specimens had broken under a strain of 0'221468 pound per square inch. You will observe that the precision was very great, but that the error was greater. Probably he had not come within 79 or 80 thousand pounds of the truth. I should advise you to begin at once to learn the short cuts in computation, and also to learn to use your sense as to the accuracy required in each operation, or possible in each operation. You must often have heard of the young engineer who paced the diameter of a circle and then multiplied the diameter by  $\pi$  carried to fourteen places of decimals to get the circumference. I have actually known an engineer to design a section of a rail with such precision that he expressed the width of the foot of that rail in six places of decimals.

I have spoken of the defective English training with which the young engineer is apt to start. This is a good deal more important than you are likely to suppose, and it is easier to correct. But first let me warn you against mere fluency in writing or in speaking. That is likely to produce bad English and not good English. You will remember Carlyle's saying about the English, that of all people on the earth they are the stupidest in speech and the wisest in action. The harm done and the fatigue inflicted by fluency are such that I have often thought that it would be a blessed thing for humanity if we were all struck dumb for a year.

But a clear, simple, accurate and, if possible, distinguished English style is a precious possession to the young engineer, and it is within the reach of nine men out of ten. It will come from so saturating your minds with good English that bad English is offensive. It is a mere matter of taste, and there is

no such thing as acquiring taste by rule. You might as well expect to become a judge of tobacco by talking about smoking. If, then, you wish to master a good English style, read good English. Read little of it, but read it thoroughly and constantly, and never read anything else. Do not read the daily newspapers further than to get the sort of information that every intelligent citizen ought to have.

You are permitted to enter on your work at the beginning of one of the greatest epochs in the history of our country. During your active lives our population will be doubled. That will mean more consumers, more producers and more competition. These opportunities will be multiplied and so will the men who do the work. We shall become the greatest manufacturing nation, the greatest carriers of ocean commerce and the greatest shipbuilders. In all of this the engineer must supply technical knowledge. His work will not be as picturesque as in the past, but there will be more of it and it will be of even greater importance to society. But, further, the engineer will invade the field of administration. He will gradually take the executive offices in the railroads and in the great industrial corporations. For this there are several reasons.

First, the day of the scientific man has come and the engineer will go to the front because of his technical acquirements. Second, his education and his experience develop those intellectual qualities which are required in handling great affairs, namely, observation, analysis and reason. But third, and most important, his education and experience will have developed the highest moral qualities. The engineer does not regard himself as a moral leader, probably he never thinks of that part of his work. But he is, and he must be, a moral leader, for his whole teaching and experience lead straight to absolute honesty of thought and purpose. If he is not fundamentally honest in his thought and conduct nature finds it out and his dam goes out, or his bridge falls, or his machine fails. He cannot be a sophist and an engineer at the same time, nature does not permit it. I remember seeing the matter stated by Macaulay somewhat in this way:—The man who reasons for some actual end in practice must be accurate. For disputation he needs no correct premises and only so much logic that he will not be caught.

Fortunately it happens that directly in proportion to the zeal and fidelity with which you serve the profession will be your fame and influence in that profession, and in such proportion will be the riches and the glory that will come to you. This again is a general proposition, certain to fail in many cases but true in a large way.

And how are you to serve that profession? There is no special recipe; the only way is by being brave and honest gentlemen and by using with diligence such faculties as the Lord has given to you. I will give you one bit of experience which may be of a little use sometime. About once in so often someone says that the engineers ought to adopt a code of ethics. He thinks a formal code would keep one engineer from stealing another engineer's job, or his glory, or something else that is his. My argument is that a code would bind the conscientious man and would not bind the roguish man or the man of coarse perceptions; the Ten Commandments, the common law and usages of decent society are code enough for any man in any profession. I venture the proposition that the codes of the medical associations have done great harm to society by the protection that they have thrown around incompetent physicians, and they have hurt the profession more than they have helped it.

I judge that in the next ten years or so the social use of the professional man will be far greater than it has even been in the past. To him society must turn for help in the great new problems raised by the combinations of capital and of labour. It is not likely that the law will find a way to stop these combinations; it is doubtful if it is advisable that they should be stopped; but they must be directed and perhaps controlled in some degree.

The business man measures his success by the money profit that he makes. He may or he may not have produced a beautiful article or a useful article; he may or he may not have added to the health or the happiness of the group of people just around him. These considerations are secondary; the primary considerations are dividends. Mind, I am not expressing an opinion or criticising motives; I am stating a fact. On the other hand, the primary consideration with the professional man must be the interest of his client, whether that client be a man or a city or state. He can think only incidentally of his fees. In fact, much fine professional work—much of the work most useful to the world—is done without any fees or money return whatever. Fortunately for the progress of the human race, man is endowed with a sense of duty, with a thirst for knowledge, with a desire for the approbation of noble minds. So the true professional spirit is evolved, and this spirit must save the railroads and the great industrial corporations from some of the disasters which arrogance and ignorance are provoking.



## NOTES AND COMMENTS.

CHEVREUL, the French chemist, did more than any of his predecessors to place the laws of colour on a scientific basis. Great artists before his time produced wonderful effects not only in painting, but in pottery, stained glass, textiles, &c. But every follower of the arts is not endowed with instincts equally strong, and it is well to have a guide which will prevent any discords in the opposition of tints. CHEVREUL's scheme of arithmetical proportions for contrasts of colour may be reckoned as only an empiric solution of subtle problems, but they have at least prevented many errors. It is, therefore, satisfactory to learn that a statue of the old Professor has been set up in the Jardin des Plantes in Paris. The sculptor, M. LÉON FAGEL, was well inspired when he represented CHEVREUL as he knew him—that is, as a venerable gentleman who had attained 102 years and bore them lightly as a flower. He was a great deal more airy in his manner and more able to enjoy life than many of the dandies who are to be met with in Paris. The figure suggests that the chemist must have discovered the elixir of perpetual youth, and as in the Quartier Latin most of the statues represent very serious men, the contrast offered by M. FAGEL's work is, therefore, gratifying.

As a reward for the zeal of the citizens in realising the International Exhibition, the Cross of the Legion of Honour was conferred on Paris. The distinction will not appear to foreigners to have much value, but if it reconciles the bourgeoisie to the increased taxation a political stroke was accomplished which will bear imitation. It is remarkable that the first public monument which is to display the order will be the memorial of CHARLES GARNIER outside the Opera House. That work which required some difficulties to be overcome in laying the foundations appears to be advancing. M. PASCAL, the architect, has obtained several large blocks of stone from the Government dépôt, some of which were quarried in the time of the first NAPOLEON. As the expenses will be heavy contributions are sought from other countries. A committee has been formed in New York to collect subscriptions, and it is expected 1,000 dols. will be obtained.

WHEN metal was first used as a material for columns and girders the loads to be supported must have been remarkably well behaved. They were always found in the positions which gave least trouble to the constructors and to the makers of formulæ. More modern loads have a tendency to irregularity and seem to strive for a lopsided support. It is therefore necessary for the engineer and architect to take things as he finds them and to provide for eccentric loads. Several investigations of the subject have been conducted, and a very useful paper by Mr. J. M. MONCRIEFF, which expresses the present state of knowledge on "The practical column under central or eccentric loads," was read before the American Society of Civil Engineers. It was found in the course of the inquiry that a column showed higher strength when apparently loaded eccentrically than when loaded directly over the geometrical axis. Mr. MONCRIEFF in his paper endeavours to explain the cause of the anomaly and to deduce new formulæ which would meet varied conditions in practice. Several varieties of columns are dealt with and elaborate diagrams are given showing the application of loads under various circumstances. The curves in them, he says, follow definite laws, and the author adheres to them in his own practice. He has not much faith in the old formulæ, for he says, "It is surprising to think of the enormous number of cast-iron columns which have been put into use without any justification for the loads imposed on them, except a simple faith in HODGKINSON's, GORDON's and RANKINE's formulæ, and in the numerous tables calculated therefrom and published in engineering pocket-books and treatises." In the discussion which followed the reading the majority of the members approved of Mr. MONCRIEFF's reasoning. One of the speakers mentioned the case of the Astoria Hotel, in which there are about 3,600 columns, each of which had to be especially taken into account. The statement is sufficient to suggest the care which is bestowed on designing the steel framing of American buildings.

THE late GODEFROID GUFFENS, who died a week ago in Brussels in his eighty-eighth year, must have had more experience as a mural painter than any other artist of the nineteenth century. From the character of his work his name did not often appear in the catalogues of exhibitions of easel pictures, and he was consequently less generally known as a painter than many inferior artists. For a long time M. SWERTZ was associated with him, and it was difficult to distinguish between their works. His paintings are to be seen in the council chambers of several of the old town halls of Belgium. In *The Architect* illustrations have appeared of his *Entry of Philip the Bold, The Departure of Godfrey of Bouillon and the Crusaders; Europe, Asia, Africa and America*, besides some of his paintings from the walls of churches and the remarkable series which illustrated the history of one of the old families of Antwerp. His works were characterised by careful drawing and archæological accuracy, with the quiet colouring which is necessary in architectural decoration. There was no affectation of archaicism. M. GUFFENS was the last of a band of painters who helped to restore Flemish art to its ancient level.

It is considered desirable to raise the sum of 10,000*l.* in order to restore the abbey church of Malmesbury, a building which has much interest in the ecclesiastical history of England. It is supposed there was a town there before the Roman invasion, and when the foreigners attacked it the castle was allowed to remain. A monastery is said to have been founded by a hermit called MALDULPH, and Malmesbury is thought to have been a corruption of Maldulph's Bury. ALDHELM presided over the school in the reign of ATHELSTAN, and the king granted a charter and many other gifts to the town. The Saxon basilica existed until the time of the Norman Conquest. The nave of the Norman church was erected between 1140 and 1160, and the building was described by LEYLAND as "a right magnificent thing." Originally it was a cross-church, but the central tower had fallen before LEYLAND saw the abbey. Norman, Early English and Decorated are represented in the building. The nave is now used as the parish church. The Bishop of BRISTOL says that when he went there its condition caused him great anxiety. The flying buttresses and parapets were actively dangerous, and there were grave fears lest a double buttress at the south-west point should give way, in which case the singularly noble south porch would have been destroyed. By great exertions the people in and near Malmesbury have raised between 3,000*l.* and 4,000*l.*, and this has enabled the authorities to make safe almost the whole of the six bays used as the church. But much is needed beyond barely making safe; and the more ruined parts of the old building cry out for attention. Hence the appeal for additional funds. The church was purchased by the parishioners of the neighbouring St. Paul's parish at the time of the Dissolution, when the Abbey buildings were converted into a cloth factory. WILLIAM of Malmesbury, the Mediæval historian, was librarian of the Abbey in the twelfth century, and might have been abbot if he had cared to assume the responsibility of the office. He claimed that he was an eye-witness of many of the scenes he described, and for others depended on trustworthy witnesses. For what occurred before his time he could only depend on other writers.

## ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: VIEW FROM NORTH-EAST.

THE HORNIMAN FREE MUSEUM: EXTERIOR, FROM CORNER OF ELLIOTT BANK. SOUTH GALLERY. ARCADE BETWEEN THE NORTH AND SOUTH GALLERIES.

THIS building was lately presented to the London County Council for the benefit of the inhabitants of the Metropolis. The contents are varied, and are likely to excite much interest among the humbler classes of students. Mr. HARRISON TOWNSEND has in his building realised the intentions of the donor.



STAINED GLASS IN ENGLAND SINCE THE  
GOTHIC REVIVAL.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays  
among French Cathedrals," &c.A BRIEF REVIEW OF ECCLESIOLOGICAL  
PROGRESS, 1855 TO 1875.

(Continued from page 11.)

FROM the adornment of the altar with sculptured and painted imagery, we pass by an easy transition to a brief consideration of its apparelling and that of the ministers thereat.\* The revival of ecclesiastical needlework's true principles was entrusted in the first instance to a small band of ladies, among whom may be named the Misses Blencowe and Gresley and Miss Street, whose accomplished brother, himself no mean authority on the subject, if we are to judge from a most learned and interesting paper on Mediæval embroidery read by him before the Durham Architectural Society in 1863, directed their essays in the art. Latterly the preparation and embroidery of altar frontals, hangings and priestly vestments have been pursued by those "church-furnishing" houses which owe their existence to more than one eminent architect; by ladies in their own homes; and in the numerous conventual houses in which the Anglo-Catholic Church is nowadays fully as rich as the Roman. At the outset the needles of the Ladies' Ecclesiastical Embroidery Society were chiefly confined to altar frontals, among the earliest specimens of its handiwork being the antependia in Ely, Peterborough and Hereford Cathedrals, the crimson one still in use at St. Paul's at Whitsuntide and upon the Festivals of Martyrs, and designed by Mr. Bodley, while others were worked for St. Gregory's, Norwich; St. Ethelburga's, Bishopsgate; Chelonger Church, Herefordshire; Wantage Church, Berkshire; Bisley Church, Gloucestershire; St. John's, Leenside, Nottingham; All Saints, Boyne Hill; West Torrington Church, Lincolnshire, and many others—it being found difficult, from paucity of workers, to keep pace with the demand.

With the development of Ritualism before the sixties were far advanced, needlework began to find its expression in alms-bags, banners and stoles; in the vestment par excellence for the service of the altar, the chasuble; and in that stateliest of all ecclesiastical habiliments, the cope. The chasuble, probably from its sacrificial character, fell into desuetude during the Elizabethan period, but the use of the cope seems to have continued until the Puritan ascendancy. At Durham Cathedral in 1635 the service, according to Brereton's account (published by the Chetham Society) was performed with unusual solemnity. He says:—"The minster is kept as neatly as any in England. Therein is a stately pair of organs which look both into the church and chancel; a stately altar-stone, all of fine marble, standing upon a frame of marble columns. When the Communion is here administered, which is by the bishop himself, there is laid upon the altar a stately cloth of gold. The bishop useth the new red embroidered cope, which is wrought full of stars, like one I have seen used in St. Denis, in France. There are here two other rich copes, all of which are shaped like unto long cloaks reaching down to the ground, and which have round capes." This is one of numerous references to the use of copes in the seventeenth century. When something like order was brought back to our cathedrals and churches at the Restoration, Bishop Cosin, who was set over the diocese of Durham, determined, as far as lay in his power, to revive the ancient glories of that noble church, and, probably in grateful recollection of that prelate, the services at Durham were carried out in the laxest times of the eighteenth and nineteenth centuries with more than ordinary decorum. The vestments now preserved in the cathedral library at Durham were worn till they were so worn out as to be unfit for use, and appear to have been given up solely

on this ground—unless, indeed, a story given in the *Quarterly Review* for 1825 be true (as there is no doubt it is). The writer of the article, questioning the verger in attendance relative to the copes and their disuse, received the following reply:—"It happened in my time; did you ever hear of Dr. Warburton, sir?—A very hot man he was, sir. We never could please him putting on his robes. The stiff high collar used to ruffle his full-bottomed wig; till one day he threw the robe off in a great passion, and said he never would wear it again, and he never did; and the other gentlemen soon left off theirs too." This was in 1759.

Of late years the proper insignia of the episcopal office—the cope, mitre and pastoral staff—have been resumed by a large proportion of the English bishops. At St. Paul's Cathedral it is now the custom on the great Festivals of the Church for the dean and canons residentiary to appear in the handsome copes worn by them at Her late Majesty's Diamond Jubilee service, the minor canon, whose duty it is to celebrate the Holy Communion, being similarly vested. Perhaps this may be taken as a preliminary step towards the introduction of the proper Eucharistic vestments at St. Paul's—the chasuble for the celebrant, the dalmatic and tunicle for the assistant ministers. The cope is a most stately vestment, but more appropriate for choir offices and for processions than the altar service, from its voluminousness when performing the manual acts.

When the ceremonial revival in the Church of England first began, sixty years ago, the attention of the clergy had not been specially directed to the old English "uses," consequently the Latin sequence of colours—white, red, green, violet and black\*—was all but universally adopted for the altar frontals in churches where, ecclesiological principles having taken root, sets proper for the various seasons of the ecclesiastical year were provided. Of late years a more extended knowledge of English archaeology, combined with æsthetic good taste, has caused the vestments of the altar and its ministrants in an increasing number of churches to be in accordance, as far as can be accurately ascertained, with the rites of Sarum, which in pre-Reformation times is supposed by ritualists—not the "ritualists" of vulgar everyday slang, be it noted—to have been pretty generally followed all over the South of England. But it seems difficult to draw any hard and fast line, seeing that in the appropriation of colours to particular feasts a large amount of *proprium sanctorum* was enjoyed by almost every English diocese.

What is called the "Sarum Use" prescribed red as the colour for altar frontals and vestments for Sunday during a greater part of the year, and it is not unreasonable to suppose that the almost universal employment of that colour for the altar-cloth in post-Reformation times, and even now in churches where a change is made only in Advent and Lent, is a survival of this custom.

\* WHITE, as significant of joy, thanksgiving, peace and purity, is the colour for Christmas to the octave of the Epiphany, Maundy Thursday, Easter to the octave of Ascension Day, Trinity Sunday, Corpus Christi (Thursday after Trinity Sunday), St. John Baptist's Day, Transfiguration of Our Lord (August 6), Feast of the Holy Name (August 7), St. Michael and All Angels, All Saints Day, and for all festivals of the Blessed Virgin Mary, apostles, confessors and virgins who were not martyrs; it is also the colour for the Feast of Dedication, for Harvest Thanksgiving, Confirmation, Solemnisation of Holy Matrimony, Burial of Infants and Young Persons, and Ordinations. VIOLET, the colour denoting seasons of penitence and of holy meditation, is used during Advent, from Septuagesima to the Wednesday in Holy Week, on Rogation Days (the Monday, Tuesday and Wednesday before Ascension Day), Ember Days (the Wednesday, Friday and Saturday after the first Sunday in Lent, after Whitsun Day, after Holy Cross Day (September 14), and after St. Lucy (December 13), on Holy Innocents Day (December 28), on the vigils of certain of the red-letter feasts and at the Burial of the Dead. RED, signifying the power of the Holy Ghost and the blood of those who laid down their lives for Our Lord and His Church, appears upon our altars and in the vestments of our ministers at Whitsuntide, St. Stephen, Invention of the Cross (May 3), Exaltation of the Cross (September 14), and upon festivals of apostles, evangelists and other holy men and women who were martyrs. GREEN forms the colour for a very large portion of the ecclesiastical year when no particular event is commemorated, i.e. from the day after Trinity Sunday to Advent; it is also used from the octave of the Epiphany to Septuagesima. The selection of this colour seems to have been dictated by the idea that when we have nothing to guide us we fall back upon nature. BLACK is used on one day only in the year—Good Friday.

\* It is not so very long ago that the appointments of the sanctuary of an English capitol church were immeasurably inferior to those of many a newly-erected district one. It is pleasant, however, to be able to state that all this is now changed, and that the most sacred portion of our cathedrals, almost without exception, is now a pattern for, instead of what it once was, a disgrace to the diocese.



To decide between the rival excellences of the Latin and Sarum sequences of colour and other ritual "uses" does not come within the scope of these papers. The former, from its greater simplicity and expressiveness, seems to be preferred by the major portion of English church-goers at the present day, while the more esoteric character of the latter commends it to students of art and archæology.

One of the earliest of the clergy to revive the use of the chasuble (c. 1850) was the late Rev. Thomas Chamberlain,

vicar of St. Thomas the Martyr, Oxford, to which benefice he was appointed in 1844. But an earlier instance of the resuscitation of that vestment, after a desuetude of three hundred years, is recorded in the *Parish Choir* of 1848, in an article describing the dedication festival at a country church. "To my surprise," says the writer of the article, "the officiating ministers were vested with habits prescribed by the rubric, which are the same as directed by Edward VI.'s first Book of Common Prayer, viz. 'white albes plain,' over which the



HIGH ALTAR AND REREDOS IN THE CHAPEL OF THE SISTERS HOUSE OF MERCY AT CLEWER.

(Henry Woodyer, Architect. Thos. Nicholls, Sculptor.)

The above has been selected as affording a good illustration of an English church altar and its appurtenances at the present day. From the needle of the inmates of this Conventual House much of the beautiful work which adorns the sanctuaries of our churches has emanated.



celebrant wore a white silk 'vestment,' and each of his associates a 'tunic.' During the later fifties the Eucharistic vestments were adopted at St. George's-in-the-East by the rector, Rev. Bryan King, their revival, together with sundry other points of ritual which nowadays are taken as matters of course in every well-ordered English church, contributing towards those shameful riots which were allowed by those who had the power to check them to continue for successive Sundays in 1859 and 1860.

With the fuller development of the ritual movement during the earlier sixties the use of the vestments was revived by several incumbents in London and the country, notably by Mr. Mackonochie at St. Alban's, Holborn; by Mr. Stuart at St. Mary Magdalene's, Munster Square; by Mr. Le Geyt at St. Matthias, Stoke Newington; by Mr. Rodwell at St. Ethelburga's, Bishopsgate; by Mr. Upton Richards at All Saints, Margaret Street; by Mr. Bradley Abbot at Christ Church, Clapham; by Mr. Lowder at St. Peter's, London Docks; by Mr. Bennett at St. John the Baptist's, Frome; by Mr. Macleod at St. John's, Harlow; and by Mr. Beanlands at St. Michael's, Brighton. It is not a little strange that at St. Barnabas, Pimlico—the pioneer church of the Anglican Revival—the Eucharistic vestments should have been adopted only within comparatively recent years.\*

The passing of the Public Worship Regulation Act in 1875 and other circumstances militated considerably against the wide-spread use of the chasuble in administering the Holy Communion, but under the tolerant sway of the present Archbishop of Canterbury—especially when filling the see of London—and other liberal-minded prelates, the revival of the distinctive Eucharistic dress has become wide-spread.† With it there has arisen a desire to return to the English Mediaeval form of the chasuble as seen on brasses and ancient painted glass. The shape should be that of the *Vesica Piscis*. It should hang down before and behind in long points, and be gathered up in a few graceful folds over the arms. Rich and pliant materials are requisite for the making of the chasuble; the orphreys assuming the Y shape from the shoulders, being, in cases where money can be expended upon them, worked by hand with appropriate devices or subjects; while under less favoured auspices appliqué work or plain velvet with a monogram at the meeting of the arms may be used with equally good effect. In some churches where circumstances preclude the introduction of vestments made of coloured materials plain linen ones are worn, with just a pattern in coloured stitch. Such a set of vestments was in use for some time at St. Matthias, Stoke Newington.

#### ADVERTISING DISFIGUREMENT AND LOCAL CONTROL.

THE following memorial from the National Society for Checking the Abuses of Public Advertising has been addressed to the President of the Local Government Board:—

"We desire respectfully to represent the expediency of legislation by which municipal authorities would be empowered to frame and enforce regulations for the control of advertising display in public places.

"In 1899 the Corporation of Edinburgh obtained by a private Act powers for this purpose. Since then many other municipal bodies which were promoting bills have inserted provisions, following more or less closely the lines of the Edinburgh scheme.

"The case of Dover is peculiarly interesting as an illustration of the absolute need of restrictive power. An American firm have erected, in positions which make them visible against the face of the cliffs, two huge boards, which, in the judgment of most observers, destroy the beauty of a scene of which every Englishman is proud. The firm in question, though requested by the Town Council, and by a 'deputation representing the London bill-posting interest,' refused to remove the erections.

"There is a general feeling that the absence of any restraint upon the power of individuals to assail the eyes of persons using public thoroughfares causes a grievous loss of comfort and of pleasure to the community.

"We respectfully urge that municipal bodies should have

general authority to frame suitable by-laws, and that they ought not to be put to the expense of promoting special private legislation for the purpose. We would, therefore, ask that the Government should either give facilities for the consideration of the Bill prepared by the Society for Checking the Abuses of Public Advertising, or should themselves introduce a measure dealing with the subject."

Among the 150 signatories to the memorial are:—The Archbishop of Canterbury, the Bishop of Winchester, the Bishop of Ely, the Bishop of Rochester, the Bishop of Peterborough, Dr. Chawner, Vice-Chancellor of the University of Cambridge; Dr. Fowler, Vice-Chancellor of the University of Oxford; Sir William R. Anson, M.P., Sir Michael Foster, M.P., the Master of Trinity College, Cambridge; the Headmaster of Eton, the Duke of Somerset, the Duke of Westminster, the Duke of Bedford, the Duke of Northumberland, the Marquis of Dufferin and Ava, Lord Stanhope, Lord Stamford, Sir John Stirling Maxwell, M.P., Mr. W. S. Caine, M.P., the Right Hon. W. E. H. Lecky, M.P., Mr. John Burns, M.P., L.C.C., Mr. Thos. Burt, M.P., the Lord Mayor of London, Mr. A. M. Torrance, chairman London County Council; Lord Monkswell, Sir Colin Scott Moncrieff, Sir Robert Hunter, Mr. Lionel Cust, Mr. Sidney Colvin, Sir Reginald Palgrave, Sir E. Maunde Thompson, Dr. E. Ray Lankester, Sir Charles Elliott, Sir John Watney, Mr. Alfred P. Graves, Sir Edward Fry, Lord Davey, Mr. Montague Crackanthorpe, K.C., Mr. W. P. Beale, K.C., Sir Frederick Pollock, Professor Foxwell, Lord Avebury, Lord Kelvin, Sir W. H. Preece, Sir W. MacCormac, Mr. and Mrs. Humphry Ward, Mr. Robert Bridges, Mr. George Meredith, Sir Edward J. Poynter, president of the Royal Academy; Mr. G. F. Watts, R.A., Mr. Alfred Waterhouse, R.A., Mr. T. G. Jackson, R.A., Mr. J. A. Fuller Maitland, Mr. Henry Arthur Jones, Mr. E. D. J. Wilson and Mr. T. C. Horsfall.

The reply of the Local Government Board was as follows:—

"Local Government Board, Whitehall, S.W.: June 18, 1901. Sir,—I am directed by the Local Government Board to state that your letter of the 27th ult., addressed to Mr. Balfour, together with the memorial referred to therein in favour of legislation for the purpose of enabling local authorities to make by-laws for the control of advertisements in public places, has been transmitted to the President. In reply I am directed to inform you that no promise can be given that the Government will initiate legislation on the subject. The subject, however, appears to be worthy of attention, and if in a future session a Bill is introduced into Parliament by a private member on behalf of the Society, the Government will carefully consider its provisions and will watch its progress with interest.—I am, Sir, &c., W. E. KNOLLYS, assistant secretary."

Mr. Richardson Evans, the honorary secretary, remarks on this correspondence:—

"Since the memorial was prepared the proprietors of the commodity advertised at Dover have courteously sought an opportunity of assuring us that, in deference to public feeling, they offered to remove the boards on condition that the Town Council compensated them for the bare cost of erection, and that they would before this have withdrawn them if they had any assurance that the site would not be used for others of a similar character. We have reason to hope that the clauses giving the Dover Town Council the necessary powers in such cases will not be opposed in the private bill committee of the House of Commons. They have already been approved by the Peers.

"In the separate recommendations by Lord Balfour of Burleigh attached to the final report of the Royal Commission on Local Taxation the Secretary for Scotland urges that 'large powers of taxation as well as other powers for the control of advertisements should be conferred on municipalities as a right properly belonging to the guardians of the beauty and dignity of thoroughfares and public places.' We regard this expression of opinion from so high an authority as most encouraging.

"Some of the business organisations which will be affected by the legislation we advocate have imputed to us intentions which we desire to disclaim. Let me repeat that we aim at no censorship on grounds of taste; at no prohibition of any particular type of bill or sheet. The only interference we contemplate on the part of municipalities or county councils with the display of posters or ordinary wall announcements would be a refusal to allow the use of hoardings or other erections on such a scale or in such positions as would be an unjustifiable impairment of the local amenities.

"We should expect that the municipal bodies, while still content to act only in deference to the well-ascertained views of the residents in the places affected, would take cognisance of many abuses which do not come under the head of 'advertising' in the stricter sense of the term. Sky signs, field boards, huge letters on house fronts, roofs and chimneys would claim attention so far as they may be of a nature which average local opinion, as constitutionally expressed in the council, condemns.

"The factors in determining the use made of statutory

\* They were introduced at Christmas 1879.

† According to a return published in 1896, the number of churches in which the Eucharistic vestments were worn in that year was 1,632. It has since been greatly exceeded.



powers would in brief be the character of the immediate locality as regards natural beauty, architectural interest, the sensibilities and the pursuits of those who would be subject to the display."

### EDUCATION IN ARCHITECTURE.

FOR discussion at the late Convention of the Architectural League of America, the committee on education propounded the following series of questions, each separate question being assigned to the special consideration of two or more clubs, and the conclusions reached by these clubs have been printed in the *American Architect*.

The discussion was opened by a paper in which Mr. C. Howard Walker considers the entire series of questions.

#### The Questions.

- 1a. What should be expected of a graduate from an architectural school when he begins office-work?
- b. What should the schools leave for the offices to teach?
2. Is it advisable that the architectural student devote the time necessary to obtain a so-called classical education as a foundation for refined culture and taste, or can the same refinement be gained by studies more closely allied to architecture?
- 3a. How much mathematical and engineering training should an architect have?
- b. Should design and construction be separated so as to train specialists in each of these lines?
4. Should school study of architectural design be limited to monumental problems?
- 5a. Should architectural design and study of historic styles follow and be based upon a knowledge of pure design?
- b. How can pure design be best studied?
6. To what extent and by what methods should an architect acquire a knowledge of the art industries allied to architecture?

#### The Discussion.

C. Howard Walker: There are two old Oriental proverbs of which I am rather fond. One is, "The strength of the pot begins in the clay." The other, "To the man with shoes all the world is covered with leather."

My answers are based somewhat on those proverbs.

(a) The object of a school is to produce architects or to train them. The training they receive as draughtsmen in a school is only an incidental part, therefore much the most important part of a graduate's attainments is not called upon for a very considerable time after he has entered an office, and may not be called upon until he starts for himself in his profession. The expectations for attainment from the office when he enters are slight and can be roughly stated as follows:—Good draughtsmanship, *i.e.* neatness, speed and knowledge of how to lay out  $\frac{1}{8}$ -inch,  $\frac{1}{4}$ -inch and  $\frac{3}{4}$ -inch scale-drawings. Knowledge of combinations of material and construction, and how to represent them, especially how materials should be assembled and their points of junction. Ability to use constructive formulas from books. Knowledge of the orders of architecture and especially a realising sense that these orders are so organised that fundamental changes in them produce architectural disease.

(b) Tradition of the office. The adaptation of ways and means. Eternal vigilance with both the contractor and the client. A high standard of integrity. This last might be begun in the schools.

2. Note my first proverb. It depends upon the individual, since some men can never obtain refinement and others cannot be prevented from obtaining it. The classical education is so closely interwoven with many of the studies allied to architecture that either leads to the other. They cannot be divorced. It is merely a question of the relation of time to be devoted to each, and that depends upon the man himself. In a general way I should say that an architectural student in the schools needs more direct teaching from instructors on the studies allied to architecture, and would depend for his classics on his knowledge of how to use books. If the question implies a knowledge of Latin and Greek, they are not necessary.

(3a) Enough to prevent him from originating absurd combinations of materials, and to enable him to comprehend where strains and stresses will occur, at what points to anticipate weakness, and when to economise strength under present conditions. No matter how thoroughly trained as a civil engineer an architect may be, few, if any, have enough constant calculations to make to trust their conclusions as anything more than approximate, and it is almost a duty to have their work gone over by a specialist.

(b) That comes naturally. The man falls into either class by predilection. Both classes should be trained.

(4) No. But the principal stress should be laid on monumental problems. Monumental design gives much that tends to restrain and better ordinary hack-work, while hack-work

gives absolutely nothing valuable to monumental work, unless it be an accommodation of ways and means. First-rate monumental work is as needful of conditions as is any other, but is devoid of the exaggeration of pettinesses. Teaching in hack-work is merely the encouragement of common sense, which should on general principles be taken for granted, however lacking a large proportion of the students may be in it. I suppose this question is aimed at the teaching of small-house designing, &c., and should say that very little of it was necessary in the schools. The office supplies it.

(5a) I see no reason why "pure" design, by which I understand the study of proportioning construction, solids and voids, devoid of ornament and dependent upon constructive requirements and materials, should not be carried on together. Every style was naked before it was clothed, and the transitions are instructive. The student who is brought up on a knowledge of disposition of masses needs as much training in beautifying those masses as the student who has a knowledge of style needs in adapting the styles. It is somewhat as if Sandow tried to make his own clothes, or a fop tried to make himself look like Sandow. Certainly, the constructive organism is the more important; but with students, analytical, subtle study of proportions is a late achievement, not an early one, and while the first year in school may have teaching in simple constructive proportions, little of value can be expected in the results, and if a knowledge of the styles and appreciation of the delights of cultured, *soigné*, accomplished work by the best men of all times is beld back from the student, he is lacking stimulus, encouragement and much of the joy of architecture. I see no reason why the two things cannot be taught together to the benefit of both.

(b) By comparison of problems the determining qualities of pure design affect both the reason and the eye. The reason, inasmuch as they must appear stable and must not violate the laws of gravity, and consequently must have symmetry. The eye, as they must be agreeable to it. Each person can judge as to how far the reason is satisfied, but there will be a vast difference of opinion in regard to the visual merit. A discrimination in this respect can only be cultivated by constant comparisons which can be obtained through problems. As architecture deals with solids, I am not at all sure that models would not be of great value, for while accomplished architects comprehend, or think they do, what the effect of masses will be as indicated on plans and elevations, the student is completely at sea on the subject. It is the most difficult thing to get him to think in the third dimension.

6. This hints at the old idea that crops up now and then, that an architectural student should be a competent bricklayer, should wipe plumbing joints, lay matched floors, forge joint-bolts, &c., in order to know how they should be done. If he wants to, let him. The kind of man who wants to do either has a deal of time on his hands or will never get beyond those details. Business is carried on (no matter how many lapses there may be) on the fundamental principle that good work and honesty are necessary for success—if it were not, there would be no good work—and the architect who spends a large part of his energies in making himself a searching committee for minor defects is bound to be in hot water all the time and get no better result, nor as good, as the one who insists upon the employment of men of reputation and insists that his specifications be followed. The harping critic immediately asks, "How does he know his specifications are followed?" He knows by the training he gets in a good office, by his constant connection with good work, and by his knowledge that any firm of reputation cannot afford to do bad work. No amount of time devoted to craftsmanship of his own hands will give him any more than an occasional advantage over the student who has devoted himself to the greater things in his profession, and this last student will whip him hands down in many other things. I notice the question says "art industries." Perhaps I have misconstrued it. It mentions decoration in all materials, and if wood and stone carving, &c., are implied, the more he can learn about these the better; the schools should teach something in regard to them, and if he is an artist he cannot keep his hands away from them, schools or no schools.

Mr. Brueggeman (for the St. Louis Architectural Club):—

The two questions, "What should be expected of a graduate of an architectural school when he begins office-work?" "What should schools leave for offices to teach?" to which an answer is attempted in the following paper, seem to hinge so much the one on the other as to make it impossible to answer the one without the other.

It is obvious that when we have outlined, as we shall try to do presently, what we expect a young graduate to be capable of on beginning office work, at the same time we must indicate what we do not expect him to be capable of until we have taught him.

It is evident that we cannot expect from a graduate, any more than from any other person, what he has not been taught, or, more strictly, what he has not learned; therefore we are in a manner compelled to bring into the subject what the teaching



of a graduate should have been during his college course. We assume as being conceded on all sides, and therefore as being outside the range of this discussion, that every architect should have a foundation of a liberal general education, whether he be a graduate of an architectural school or no. So we shall proceed to technical matters.

We believe it to be impossible to make courses in architectural schools, in the time that is generally devoted and may reasonably be expected to be devoted to them, comprehensive enough to turn out graduates proficient at draughting in all its branches, mechanical and artistic; at the same time proficient in the knowledge of architecture, its history, its design, and the arts indissolubly connected with it, and at the same time proficient in architectural engineering and all the practical constructional detail that is but imperfectly mastered and is being constantly revised during years of active professional work. It is to be deduced from this that if we intend the student to know something of all these things we do not, and cannot reasonably expect him to have such familiarity with them on entering an office as to go on in the practice of them with all the smoothness that is desirable in actual work.

We may assume it possible to have an architectural school with three courses embracing the three heads just previously outlined. A graduate from any one of these departments who had wisely chosen that most suited to his temperament and to his abilities might reasonably be expected to come into an architect's office able to give points all round in his special line of knowledge; to have gone beyond grounding and theory; in short, to have all the working smoothness of a practitioner, and to be a valuable man capable of earning a considerable salary, but he would not have as yet the education necessary for the making of an architect.

At the present date the graduate from an architectural school looks forward to being what is known as an "all round" architect, therefore we expect him not to have had a specialised course, but to have been grounded in all branches of architectural training. In this grounding it is possible to give more weight to one department than another, and this seems to be the kernel of the question before us. The question then is, What branches may be given less time to, in order that more attention may be paid to others? It seems to us that too much attention cannot be given to such departments as are not likely to be thoroughly and correctly looked after in the experience that comes to the graduate after he enters on office work.

Of architectural history the student is likely to get nothing in the office, of architectural design he will get some, and in time a great deal, but it will be given in the most unsystematic manner; we believe, therefore, that in those two branches the student should be thoroughly grounded in the school. In office-designing he sees the thing done, but most usually without a reason being offered; in the school he should be taught how to discover the reason, how to apply the principles governing design, so as to be able to work out for himself the general scheme, for in the office his mind is only too likely to be contracted to that small portion of the work that falls to his share.

Mechanical draughting is likely to form a large part of his immediate experience in the office, and that he will and must become proficient in in a very short time, so that in the school no special effort need be made in that direction. Freehand drawing, on the other hand, must be largely developed outside of office work. We expect a student from a school to be so grounded in this as to have all his natural ability well developed. Modelling, of course, should be part of his training to that end. The student who has not spent considerable time in thus educating the hand, has, at the same time, not had his eye educated for the appreciation of form and proportion. He sees without accuracy and too often fails to see at all. In the office there is but little time for this training, so the graduate should be expected to be proficient here on beginning work.

In considering what should be expected of the graduate in the way of construction and constructional detail, it is necessary to be rather nice in making a statement. There are certain lines of architectural construction which have gone quite over to the specialist—the architectural engineer. The steel skeleton for the high building, the steel truss and some of the more complicated forms of built columns and girders lie properly with him.

We still have a grip on wood trusses, girders, posts, &c., and on all forms of construction in stone and brick, and we should expect the graduate to have explored the theory of construction and to have knowledge of the strength and possibilities of these materials as well as of steel and iron in their simple constructional shapes. When it comes to the detail of construction a very general knowledge only should be expected. The student has been trained to understand general principles which will enable him quickly to follow the office practice in detail making. It would be idle for an architect to expect a graduate to be educated up to his special idea of the correct form of window-box or wood gutter. So he expects him to come with his mind open in that respect.

It is impossible to give answers to the questions under consideration that cover the ground from all points of view. In the large office one thing is looked for, and in the small office something quite different. The graduate who enters an office should be expected to know something about the class of work likely to be done there. In the large office a more general knowledge should suffice; in the small office he should have given more thought to work such as frame houses, but right here comes up a point we wish strongly to insist upon; to a great degree architects and draughtsmen are of one of two classes—the first, designers with a general knowledge of construction; the second, constructionists and practical men with a general knowledge of design.

The architectural student early in his college course must discover to which class he leans, and take up with most care the studies in that class. Having done so up to the time of graduation, he must then look for a position where one of his class is desired. Then we believe that what should be expected of him is something very likely to be fully realised.

Professor White (this paper was prepared by graduates of the University of Illinois):—

"Should design and construction be separated so as to train specialists in each of these lines?"

"Should design and construction be separated so as to train specialists in each of these lines?" is a question on which I have often talked with the younger draughtsmen, and with each year's added experience come more and more to the conclusion that they should receive equal consideration in a college training.

Rarely, if ever, is a student capable of selecting his specialty. More frequently the outside world realises the strong points of a young man sooner than he himself.

When he has completed his college course and entered the world to take up his life's work he will be compelled to accept whatever work he can find in an office, and the first few years will be somewhat of an experiment until he has acquired at least a little practical experience. Circumstances often determine which line of work he will first be called upon to do, and if he is equally well trained in both design and construction he will be able to work intelligently until the opportunity presents itself for him to demonstrate to which line of work he is best adapted.

More frequently the employer discovers these facts before the young man does.

I often hear the point raised that design should receive the most attention in school, inasmuch as the construction which the average architect comes in contact with can be acquired in an office with a certain amount of outside study and observation, and that design is rarely ever taught in an office, as an architect generally settles on the points of design before it gets into the hands of the draughtsmen, and what then remains to be done is to put in shape the working drawings which, in a greater part is construction, and in this an architect is more capable of instructing his draughtsmen.

If a young man has no other ambition than to always be a draughtsman, there might be some excuse for his studying along special lines, although it would be much more difficult for him to advance in his early experience; but if he has ambition to become a practising architect it is very necessary that he have an all-round college training, in order to settle the many questions which come up in an ordinary practice.

It has been said, and rightfully said, that if the enthusiastic youths who have returned from Paris had paid a trifle more attention to construction their designs would be on a much higher plane than some of the recent fads in which construction is almost completely ignored.

A good design should express the purpose of the building and conform to the practical requirements of its needs, and if it fails to express a simple and rational construction it fails of its purpose as a design. I do not wish to imply that the designers should be able to master every part of the many difficult problems in construction, but I am convinced in my own mind that as far as a college training goes, it should be along a broad line tending more to train a young man to think for himself than to specialise.

Mr. William Rae (for the Toronto Architectural Eighteen Club):—

"How much mathematical and engineering training should an architect have?"

"Should design and construction be separated so as to train specialists in each of these lines?"

(a) An architect should have as much mathematical and engineering training as will enable him to solve, by means of formulas derived from the experimental research of scientific experts, every problem the erection of a modern building may involve in the safe and economical use of the materials of its construction, including steel construction, heating, lighting, ventilation and sanitation.

In considering this question we have borne in mind the difference between education and merely a knowledge of the expedients of modern practice, for these expedients vary so



much in different localities, and change so from time to time, so many men devising their own and ever learning fresh ones, that we think no rule may be laid down concerning them.

The use of formulas and tables thus derived we think one of the most justifiable expedients of modern practice.

The architect's work is the harmonious association of all the crafts, which harmony can only be considered complete when the possibilities of each craft in relation to the whole are perfectly developed, and to do this a knowledge of the nature and functions of every material used is necessary.

(b) Design and construction should not be separated so as to train specialists in each of these lines, because a specialist is one who, in addition to the ordinary knowledge of his craft, acquires a special knowledge of one line, not one who has acquired a knowledge of one line only of the general knowledge of his craft.

Design in architecture is surely, as seen in the study of the highest design, the human figure, constructing beautifully. Certainly the most intellectual part of the æsthetic satisfaction derived from the contemplation of the human figure comes from the perception of the harmonious grace of its constructional requirements.

Could we imagine a figure built up of compression-members covered with tension-members and concealed beneath a coat of ornament?

What we understand by architectural design has to be based upon the use of some material; to what material shall we limit it? Stone and wood only? We do not know what the material of the future may be; there may be no stone or wood. Times change, and we must change with them.

If to build with steel construction is engineering only, then to cover this construction with an architecturally ornamental plaster is decoration only.

Though the expedients of modern practice may involve the use of specialists, we must consider it as an expedient only. The architect is the opposite of a specialist.

Julius F. Harder (for the Architectural League of New York):—

"Should school study of architectural design be limited to monumental problems?"

"Should architectural design and the study of historic styles follow and be based upon a knowledge of pure design?"

"How can pure design be best studied?"

No reason can exist why general study of any art or science should be restricted to any branch or division of it, and, more particularly, not to an unusual and ideal one. Nor is this the case, so far as we know, anywhere in any school. The remedy, if there be any necessary, would be, that instead of architectural design being limited to monumental problems, it is advisable to limit the school of architecture design in monumental problems in so far as it causes a sacrifice of time and attention necessary to the acquirement of information, not so pleasantly monumental, but absolutely imperative to professional practice.

The "historic styles" should be studied as solutions of the problems which were presented by them in their time. It is a fact that too much stress is laid upon this matter. It is of very secondary importance. It is the most serious blunder of the schools that the "historic styles" are impressed as of primary importance. The schools are the only influence in the architectural life of to-day which seek to keep these ghosts imbued with artificial life.

Were America free from influence of foreign schools, the conviction is forced home to us, that by this time its people would have made more progress in substantial architecture. All in all, the results might not have been better, but upon the other hand they could not have been worse or more enslaving and retarding in effect.

This is proved by the universal progress which is recorded in all departments in which "schools" have not existed, and consequently have not interfered. The shortcomings, however, are not those of architecture or of archæology, nor is this an argument against schools, but the art of education itself is only in a formative state and but recently has itself become progressive and self-reformatory.

We would much prefer to go to the root of the whole matter and discuss the queries:—"Of what does architectural education consist? How can it best be imparted to the student?" The root answer to both would be:—"Hereditary disposition on the part of the student, his physical and mental fitness, sympathetic environment." Here we have the school, the system of imparting knowledge, the methods of acquisition, the subject, the materials and the object all combined. The school, the student and the course are but details growing out of this general proposition. The profession of education reaching out to inform itself as to its own functions, looking for light that it may behold the fruition of its own ends, asks itself first of all:—"Of what does any kind of education consist? How can the various kinds be imparted to the various individualities of students?"

The problem of architectural-school education applies

equally, although with less force perhaps, to other educational departments. In the sciences and in law, for instance, definite and absolute quantities and propositions are dealt with, whereas in architectural art we may only say of what it has consisted in the past, and admit with more or less reluctance that the materials, the methods and the forms and organisation of modern life make the imitation of the real art of the past but the mockery of the present. We testify to lack of knowledge and inspiration, to wrong analysis, to an education which is worse than none at all, by dogmatic insistence that the triumphs of the past must contain the solution of the new problems of to-day. It is all very well to make demands upon the schools. The school itself must have opportunity for healthful life, its own disposition, its own environment. The hereditary disposition of the American school must be the spirit of American institutions and American inventiveness and progressiveness. Its environment must be one free from influences beyond its own, of spectres and of shadows. Its equipment must consist of an understanding that there are real modern problems of architectural necessity to be met with real modern materials as evolved by modern knowledge.

Finally. In order that an art school may create its own atmosphere, fulfil its purpose, contain in itself an inspiration and an incentive to work and study, all the various art branches of the colleges and universities of the country should be detached from other branches of study and be amalgamated in one American art school, thus gaining in scale, volume, influence and effect through concentration and through singleness of purpose.

Answering the final question, then, under these conditions only "can pure design be best studied." Given now a buoyant and vigorous American student body, under the tutelage of independent and progressive men, and who shall say what are the restrictions set upon the American architectural art of the future?

Respectfully submitted,

The Architectural League of New York, by committee.

W. E. STONE,  
F. S. LAMB,  
J. F. HARDER.

Mr. Watterson (for the Cleveland Architectural Club):—

"Should school study of architectural design be limited to monumental problems?"

If this question means that the student's time should be divided between constructive work and monumental problems, it is one thing, and if it means that his time should be divided between "the theory of design" and monumental problems, it is quite another. The prime object of all education is to fit the student to cope with the problems of his profession in a masterful way. The prime object of an architectural training is to fit the student to be a successful architect in all that the word implies, but it is not at all to the point that he shall become an expert engineer. "At the same time it should be remembered that it is the intent of architecture to beautify structural forms. Consequently, a knowledge of structural forms cannot be ignored."

Modern construction calls for an unusual condition in design and makes it possible for the untrained mind to do seemingly impossible things, things which the trained mind would utilise to develop proper legitimate design. Mr. Marshall says in an article on the "Education of an Architect," which appeared in the *Record*:—

"It is evident, then, that we must teach our architectural student most emphatically to work in structural forms, but it seems to me equally true that in the education of the architect we should follow the developments of the past, i.e. that we should endeavour to teach the youth the principles of beauty and how to apply them to structural forms which are already settled and commonplace to the race as a race of builders. It were well, as I have said before, to make the education of the architect as wide as possible in every direction, for the broader the man the more effective will be his work so long as his dominant artistic impulse is left full play; but there seems no reason to insist upon the attainment of knowledge of highly technical engineering methods which are useful only in the solution of new structural problems, although it would, of course, be desirable, if possible, for the architect to gain the acquaintance of such methods. Of course, he should know thoroughly the underlying principles of engineering method, the way in which the strength of materials and foundation values are developed, and the most practical forms of construction in stone and brick, wood and iron, especial attention being given to the nature of arch-thrusts, and he should be able to work out the less-complicated problems in each case, but beyond this, all that he needs to know are the general forms within which he may work economically."

Now, on the other hand, it is a choice between monumental problems or the study of the "theory of design," and it would seem that, inferentially, the training in monumental work would so familiarise the mind of the student with the principles of good design that he could easily meet the requirements of any other composition.



It has been said that "the student is fortunate if his school-training gives him even a beginning of a sense of appreciation of what constitutes good taste." It is essential that the architect, to do good work, must be thoroughly grounded in the rudiments of design, and the student should be taught his design as the child is taught his alphabet. He should learn to use his mouldings, his surfaces, and his openings as a child is taught to use his letters in the formation of words, and words in the construction of sentences. If monumental problems embrace a greater number of the principles of design than other problems which are given to the student, then instruction should be limited to the monumental, but it would seem that the mind which had been taught to skilfully handle a composition which embodied the heavier principles, might easily express itself in any style, the principles being the same, the difference being in the manner of expression.

It is the duty of instruction to place high value upon the spirit of design, and it is for those who have in hand the education of the younger generation of architects to determine what method is best. The student should be taught to think inductively that his individuality may be expressed in his work. Just the best method to accomplish this end depends largely upon the attitude of the student, but it would seem that the mind trained upon monumental work and filled with the traditions of the best historic work would put into his problems an interpretation which generally would be correct.

Naturally, from the diversity of human ability, all students trained under the latter system may not become successful practitioners or draughtsmen, but with proper administration in the hands of capable instructors this system should produce many successes and few failures.

G. B. Page (for the T-Square Club) :—

"Is it advisable that the architectural student devote the time necessary to obtain a so-called classical education as a foundation for refined culture and taste, or can the same refinement be gained by studies more closely allied to architecture?"

"Should architectural design be based on a knowledge of pure design?"

"How can pure design be best studied?"

Assuming that is to be meant by a "classical education" the regular arts course of the Universities, it is advisable, because a classical education forms a good foundation to build upon in after life; advisable, however, only if a post-graduate course in some recognised school of architecture is to follow. The refined culture and taste so gained can hardly be obtained by other means.

Pure design being the logical solution of a given problem, it must follow that the architectural styles of the past are of their day and generation only. They may be studied as stepping-stones to the development of modern architecture, though no contemporaneous problem can be solved without meeting modern requirements in a modern way.

Pure designs can best be studied by an unbiassed consideration of all the diverse conditions entering into a problem; thus the dominant conditions will then govern the character and expression of the design.

Mr. J. W. Case (for the Detroit Architectural Club):—

"What should be expected of a graduate from an architectural school when he begins office-work?"

"What should the schools leave for the office to teach?"

On entering an office after pursuing a course of study in an architectural school, the student should be prepared to execute simple office work under the direction of an older man, so that he will be of immediate use and value in an architect's office. Besides this he should understand all the general principles of all branches of an architect's practice, so that he may quickly learn the office methods of applying this fundamental knowledge.

The school should teach general principles; the office should teach the technical application of these general principles.

In a four years' course of architecture there can be no time for specialties. The time is all too short to cover the general knowledge required in all the different branches of an architect's practice.

The student should not find that an excessive amount of his school-time has been taken up in studying monumental problems, whereas in his entire future practice he may never have a monumental problem to solve.

He should not find that an excessive amount of his time has been occupied by historical research, taking in consideration of those principles which would enable him to design architectural forms suited to his own surroundings, and making of him an archaeologist, capable of reproducing historical forms, but unable to design new forms suited to his own atmosphere, material and indigenous conditions.

He should not find that an excessive amount of his time has been occupied in perfecting methods of making pictures, which his defective knowledge of constructional forms renders him incapable of constructing.

He should not find that he has given so much time to the

study of applied mechanics and its application to architectural engineering, that he is deficient in artistic qualities.

When a student enters an office, he very often finds that his study has been biased by one or another of the above points of view, and also that he has not made an adequate study of the arts and crafts, or, in other words, that he does not know anything about the artistic uses of building materials.

The superior knowledge of the artistic possibilities of building materials marks the greatest epochs in architectural history. It is the basic principle, the vital and essential quality of Grecian and Gothic architecture.

The artistic chisel, feeling the firm and homogeneous pentic marble, brought forth those subtle curving forms and refinement of proportions which constitute the greatness of Grecian architecture.

The character of building material forced the architect to invent the arch, and the vault and buttress, and atmospheric conditions produced Gothic masses silhouetted against the sky.

The Japanese carver studies the grain of his wood, and from its twistings evolves the creatures of his imagination.

What does the American architect know of the artistic possibilities of building material or wish to know?

The student who is expected to understand all the fundamental principles of an architect's future practice will study the subject from three general points of view. As an artist, he will study drawing in charcoal, pencil, pen, brush with colour, modelling in clay, terra-cotta, cement, metal-castings, carving in stone and wood. Designing, both applied colour and form, and imbued coloured material, stained glass, wrought-iron, intarsia, &c. Ornament, historical and creative, based on native flora and fauna.

Architectural design, not only monumental problems, but artistic solutions of practical problems.

History of art, architecture, sculpture and painting as the development of principles.

Building materials, development of their artistic possibilities.

As a construction, the student will understand the general principles of building materials; of wood, masonry and steel constructions and their superintendence.

Laboratory work should supplement the abstract consideration of building materials. The student should pursue courses of shopwork in carpentry, masonry, metal, and spend considerable time in watching building operations.

It might be advised, before allowing an architect to practice, to require him to pass a certain amount of time as clerk of works; the gain to himself, to his client and to the future of American architecture would be enormous.

As a business man, the student should study specifications, contracts and civil law relating to building contracts and operations.

The school should teach all the fundamental principles which will control the architect in his practice.

The office should teach the practical methods of applying these fundamental principles.

The time of the student should not be taken up in perfecting the practical application of any of these studies of rendering; too much time is taken up in learning to make perfectly graded washes.

Beautifully-rendered drawings are an important factor in competitions, but are properly the work of a specialist.

The study of metal construction should embody principles and methods, and leave abstruse mathematical calculation to the specialist. The application of applied mechanics is the work of a specialist. Post-graduate courses should be arranged to meet the requirements of specialists. The school must form and direct the artistic tendencies of the student, and to that end the study of classical problems in architectural design is advisable, but the study of design should not be restricted to ideal classic or monumental subjects.

A majority or more of the students of architectural schools will devote their entire efforts in their practice to solving the requirements of ordinary commercial and domestic problems, and will never have an opportunity to design a monumental structure; students, therefore, should be instructed in the fundamental principles of the problems on which their entire future life will be passed.

They should understand the desirable arrangements and the conditions to be avoided in designing houses, commercial structures, churches, municipal buildings, schools, theatres, libraries, &c.

Their instruction should show them how to satisfy the practical conditions of ordinary problems in an æsthetic manner.

How can the solution of these practical problems be left for the office to teach? for it is generally conceded that the office solution of these problems is unsatisfactory.

For this end, the student must know building materials, how to use them practically and, especially, how to develop their æsthetic possibilities. He should understand and sympathise with the arts and crafts and receive instruction in modelling,



carving, stained glass, wrought-iron, &c., not to the extent of manual dexterity, but to gain a knowledge of æsthetic possibilities in using materials.

The most essential requirement of an architectural education is cultivation of the artistic creative faculty.

The creative faculty, the art instinct, the artistic imagination is the most valuable and most essential quality that the architect can have or acquire; it is the essential element in all great art. To awaken and develop this faculty is the greatest opportunity of the architectural school.

### LIVERPOOL CATHEDRAL.

A MEETING of the executive committee of the Liverpool Cathedral scheme was held on Monday. Sir William B. Forwood presided. It was reported that the contributions up to date amounted to 143,219*l.* 17*s.* 4*d.* The committee received a deputation consisting of Professor Simpson, Mr. Willink and Mr. Deacon, representing the Liverpool Architectural Society, who attended at the invitation of the cathedral committee to express the views of that Society with regard to the selection of an architect and the utilisation of the St. James's Mount site. Lord Derby has issued the following appeal for funds towards the carrying out of the scheme:—As chairman of the committee appointed at a public meeting held on June 17 in the Town Hall, Liverpool, to carry into effect the recommendation of the Bishop's committee as to the building of a cathedral, I make this appeal for your assistance. The promises of financial support which we have already received have been truly encouraging. The building and equipment of a cathedral is, however, a serious undertaking, and we cannot hope, nor indeed desire, that it should be accomplished by the means of contributions from a small number of persons, whatever their importance or wealth. The work would be deprived, indeed, of much of its value and interest were the cathedral to be the offering only of the few. It is to belong to all, and it must be built by all. Those who contribute, in however small degree, according to their means, should be able to feel that they can claim a personal interest in the cathedral work not inferior to that of contributors who have been able to give much. The question of the site has been definitely settled, so far as rests with the committee, by the adoption of the recommendation of the Bishop's committee in favour of St. James's Mount, and the City Council are being approached with a view to the purchase of this land. I address myself, therefore, with confidence to all connected with the diocese of Liverpool, and trust that they will unite with us in pressing forward the accomplishment of this good work.



### Ecole des Beaux-Arts.

SIR,—There is surely some error in your editorial in this week's *Architect* on the subject of M. Tony Garnier and the Académie des Beaux-Arts when you say, "He competed for the Prix de Rome and sent in drawings of a tabularium."

M. Tony Garnier won the Prix de Rome with a most able design in 1899, M. Sirot being second and M. Senès third. The subject, as given in the programme which I have by me, was for "Un Hôtel pour le Siège Central d'une Banque d'Etat." The winning of this prize carries with it certain conditions, just in similar manner as does the "Soane" with us, namely, the study of "antiquarianism," and if M. Garnier has devoted any of the time of his residence in Rome (at his country's expense) in any study or work other than the kind he was expected to do, I fail to see why we should quarrel with the Institute for reprimanding him.

I cannot help feeling sorry when I notice the evident desire on the part of English writers to belittle the French system of architectural training. Do they really know what it is, and what it has been the means of producing, or is it another proof of our chronic insularity? There is other Renaissance in the world besides the English, and at times we forget the fact. Our work would not be hurt did we sometimes flavour it with as much of the "Five Orders and the rules for mechanical proportion" as is to be found in the work of our French contemporaries.—Yours truly,

12 St. George's Crescent, Liverpool:

July 12, 1901.

JAS. H. COOK.

The London County Council has decided to send its tramway manager and also its electrical engineer to America, to find out the latest improvements and the best system of providing electric traction.

### GENERAL.

Mr. Val Prinsep, R.A., has undertaken to supervise the design of a brass tablet proposed to be placed in Battle Church as a memorial to the members of the Sussex Yeomanry who have died in South Africa.

His Majesty the King has been graciously pleased to confirm by Royal warrant the appointment of Messrs. Chubb & Son's Lock and Safe Company, Ltd., as lock and safe makers to His Majesty, thus continuing the Royal appointments which have been held by Messrs. Chubb since the year 1841 from H.R.H. the late Prince Albert, H.M. the late Queen Victoria, and H.R.H. the Prince of Wales.

The Chief Secretary to the Lord Lieutenant of Ireland has stated that the law officers of England and Ireland have met in consultation and advised the Treasury on the questions involved in the case of the Irish gold ornaments. The matter is now under the consideration of the Treasury.

It is Reported that in the course of the restoration work in the palace of the Duke of Massa-Carrara, there have been discovered two magnificent frescoes by Raphael. These frescoes fill two large spaces of the wall on which they have been disclosed.

The Church House, Westminster, has been enlarged at a cost of over 20,000*l.* There is a large library and a permanent hall for the House of Laymen, besides several other rooms.

The Westminster City Council have decided to undertake the widening of the Strand near Beaufort Buildings on the terms proposed by the County Council, who will contribute a sum of 50,000*l.* towards the cost. Further improvements are contemplated by the committee. The widening of Piccadilly near Hyde Park Corner will shortly be commenced.

The Stratford Town Council propose to spend a sum of 60,000*l.* on a new set of public baths. They will be on a grand scale, and will rank among the finest in the kingdom. The large bath will accommodate 500 bathers and 500 spectators. A site has been obtained in Romford Road.

Mr. Asquith has consented to open the exhibition of Chinese art at the Whitechapel Gallery on July 24. The attendance at the opening picture exhibition in the spring was so encouraging (205,000 in six weeks) that Canon Barnett and the trustees have decided to hold a series of exhibitions illustrating the arts and industries of various nations in the intervals between the picture exhibitions. The Chinese exhibition will be the first of these, and it will remain open until the beginning of September.

M. Batigny, architect at Lille, has been appointed correspondent in the section of Architecture of the Académie des Beaux-Arts in succession to the late M. Révoil.

The Statue of King Alfred by Mr. Hamo Thornycroft is to stand on a pedestal formed of two blocks of Cornish granite, each weighing about 80 tons, with a concrete platform beneath them.

M. Charles Normand, president of the Society of the Friends of Parisian Monuments, has called attention to the lamentable state of the Jewish cemetery of Prague, "one of the most precious monuments in the world," and to the danger menacing this famous piece of ground. He appeals to scholars and artists of every creed, as well as to Israelites everywhere, to save it from destruction.

Messrs. Farrow & Jackson, Ltd., have been appointed makers of cellar fittings to His Majesty the King, the like appointment having been held by them for many years to Her late Majesty Queen Victoria and also to His Majesty when Prince of Wales.

Belton Abbey, in Yorkshire, has been considerably spoiled by visitors, a fine piece of sculpture of much value having been removed last Sunday.

The British Museum has acquired by purchase the important collection of Gaulish and Merovingian antiquities formed by M. Léon Morel, of Rheims. Everything in the collection, from the Stone Age to the Merovingian period, was found in France.

Princess Henry of Battenberg, as Governor of the Isle of Wight, with a view to removing the misapprehension which has been caused by protests against certain innovations at Carisbrooke Castle and allegations of vandalism, has directed the publication of a memorandum. It states that all repairs and alterations at the castle are authorised by the Commissioners of Works, and no arrangements connected with the management of the castle or the grounds are made without the consent of, or for the purpose of carrying out suggestions made by the Royal Governor.

Mr. C. S. Morris, divisional surveyor to the West Riding of Yorkshire, has been appointed county surveyor of Northamptonshire at a salary of 350*l.* a year. There were 167 applications.

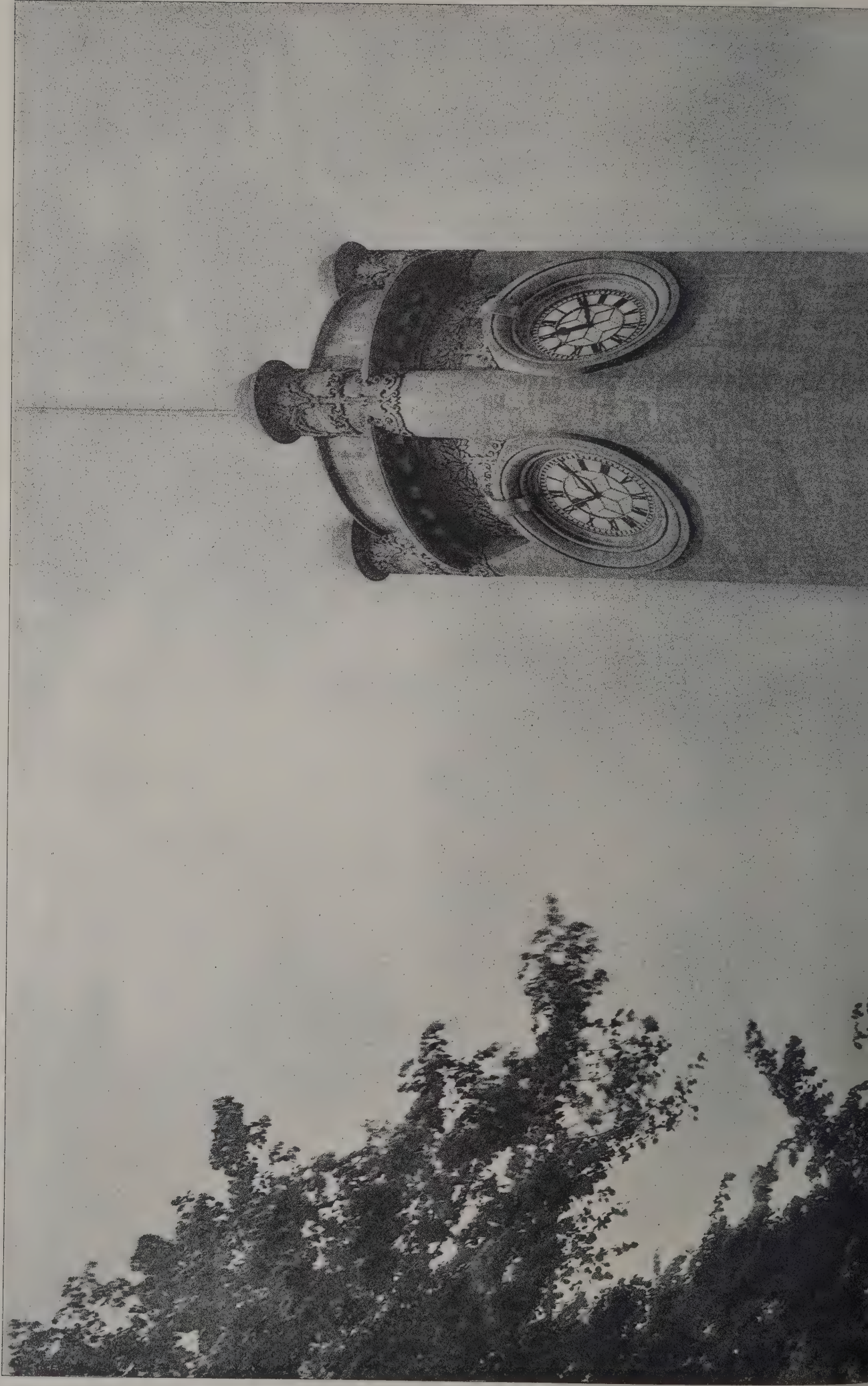
Mr. Edgar C. Thrupp announces that he has opened an office at 39 Victoria Street, S.W. where he proposes to practise as consulting engineer.







The Architect. July 19<sup>th</sup> 1901.







PHOTOGRAPHED BY S. B. BOLAS & CO. 66, OXFORD STREET, W.

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THE HORNIMAN FREE MUSEUM.  
EXTERIOR, FROM CORNER OF ELLIOTT BANK.  
C. HARRISON TOWNSEND, F.R.I.B.A., Architect.





PHOTOGRAPHED BY S. D. BOLAS & CO 68, OXFORD STREET, W.

THE HORNIMAN  
ARCADE BETWEEN THE IOF  
C. HARRISON TONSE



g 19<sup>th</sup> 1901.



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MUSEUM.  
AND SOUTH GALLERIES.  
I.B.A., Architect.













PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.

THE HORNIMALL  
SOUTHERN  
C. HARRISON TOWNEND



July 19<sup>th</sup> 1901.



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MUSEUM.  
Y.  
B.A., Architect.











The Architect, July 19<sup>th</sup> 1901.







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CATHEDRAL SERIES, No. 343.—CHICHESTER: VIEW FROM NORTH-EAST.







# THE Architect and Contract Reporter

## EDITORIAL NOTICES.

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

## TENDERS, ETC.

*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

## ANSWERS TO CORRESPONDENTS.

H. N. B.—It seems to us after careful consideration that you cannot legally claim more than the scale charges of the R.I.B.A. unless you have a special agreement giving you such power and stipulating the fees you can charge.

## COMPETITIONS OPEN.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

GUERNSEY.—Plans are invited for a primary school to be built at St. Peter Port, to accommodate 750 children, boys, girls and infants. Rev. G. E. Lee, rector, St. Peter Port.

MANCHESTER.—July 31.—Competitive drawings are invited for a fire station, a police station and other buildings, to be erected on land abutting upon London Road, Fairfield Street, Commerce Street and Whitworth Street, at a total cost not exceeding 85,000*l.* Premiums of 300*l.*, 200*l.* and 100*l.* Lithographed plan of site and copy of conditions may be obtained on application to the City Treasurer, Town Hall, Manchester.

PENZANCE.—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentle-

men. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

SHEFFIELD.—Aug. 31.—Plans and estimates are invited for the alteration of Eccleshall Church. The Rev. T. Houghton Eccleshall Vicarage, Sheffield.

TRURO.—July 20.—Applications are invited from competent engineers of special experience in works of interception and disposal of sewage, with a view to the preparation of a scheme for the disposal of the sewage of the city. Mr. Robert Dobell, town clerk, Truro.

## CONTRACTS OPEN.

ANDOVER.—For erection of three cottages and other works at New Street, Andover, Hants. Plans and specifications can be seen on application at 5 East Street, Andover.

ARGENTINE REPUBLIC.—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

BATLEY.—July 22.—For alterations and painting, &c., to refreshment-room at the Princess Alice coffee tavern, Wilton Street. Mr. B. Watson, architect, Station Road, Batley.

BECKENHAM.—July 22.—For erection of a brick transformer station, 10 feet by 8 feet in size internally, in Durham Avenue, South Hill Park, Beckenham, the construction of foundations for a 15-ton weighbridge and the erection of an office, 10 feet by 8 feet, at the electric-lighting station, Arthur Road. Mr. John A. Angell, surveyor.

BEVERLEY.—July 31.—For repairs to the White Horse inn, Hengate. Mr. F. G. Hobson, clerk to St. Mary's Churchwardens, Newbegin, Beverley.

BIDEFORD.—July 25.—For erection of a school for girls and infants on the Geneva Place site. Messrs. R. T. Hookway & Son, architects, 12 Bridgeland Street, Bideford.

BIDEFORD.—July 25.—For alterations and additions to Rock House. Messrs. R. T. Hookway & Son, architects, 12 Bridgeland Street, Bideford.

BIRKENHEAD.—Aug. 3.—For erection of Board offices, &c., in Birkenhead. Mr. E. Kirby, architect, 5 Cook Street, Liverpool.

BLACKBURN.—July 22.—For extension of the electricity works, Jubilee Street. Mr. A. S. Giles, borough electrical engineer, Jubilee Street, Blackburn.

BURY.—July 30.—For extension of the engine and boiler-houses and other works at the electricity works, Rochdale Road, Bury, Lancs. Mr. Arthur W. Bradley, borough surveyor, Bury.

CATERHAM.—July 22.—For alterations and additions to the laundry at Caterham Asylum. Mr. T. Duncombe Mann, clerk, Asylums Board, Embankment.

CANNOCK.—July 30.—For erection of an infirmary at the workhouse at Cannock. Mr. Ashton Veall, architect, 84 Darlington Street, Wolverhampton.

CHAILEY.—Aug. 1.—For erection of an isolation hospital, caretaker's house and other works at Chailey, Sussex. Mr. Henry Card, 10 North Street, Lewes.

CHESTER.—Aug. 1.—For erection of a male epileptic ward for 50 patients, and a nurses' home, at the Parkside Asylum, Macclesfield. Mr. H. Beswick, county architect, Newgate Street, Chester.

CROYDON.—July 22.—For extending the flues and boiler settings at the Corporation electric-light station, Factory Lane. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

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**DARLINGTON.**—For extending palisading and wall of churchyard of St. Cuthbert's Church. Messrs. Clark & Moscrop, architects, Darlington.

**DARTFORD.**—July 22.—For new sanitary and lavatory fittings and alterations to certain doors at the pavilion, and cleaning, distempering and painting work at the female attendants' home at Darenth Asylum, Dartford, Kent. Mr. T. Duncombe Mann, clerk to the Metropolitan Asylums Board, Embankment, E.C.

**DIDCOT.**—July 23.—For erection of a store-house, office, &c., at Didcot station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, W.

**DUDLEY.**—July 22.—For erection of underground conveniences in Stone Street. Mr. John Gammage, borough surveyor, Town Hall, Dudley.

**FALMOUTH.**—July 27.—For erection of public sanitary conveniences in Kimberley Park. Mr. John H. Genn, town clerk, Municipal Buildings, Falmouth.

**FINCHAM.**—For erection of a Primitive Methodist school-room. Mr. T. H. Barker, Fincham.

**GRENDON.**—July 22.—For construction of latrines and other sanitary work at the school, Grendon Underwood. Mr. Fred Taylor, architect, 26 Temple Street, Aylesbury.

**HASSOCKS.**—For new drainage, latrine, &c., at Hassocks schools. Mr. Clayton Botham, architect, 128 Queen's Road, Brighton.

**HEMSWORTH.**—For erection of working-men's club at Hemsworth, near Wakefield. Mr. Walter E. Richardson, architect, Rothwell, Leeds.

**HEMSWORTH.**—For additions to the isolation hospital adjoining Brierley Common, consisting of new scarlet fever ward, porter's lodge, stabling, &c. Mr. Thomas Holliday Richardson, architect, Hemsworth, near Wakefield.

**HEREFORD.**—Aug. 1.—For erection of twenty-one cottages at the junction of St. Owen Street, Green Street and Mill Street. Mr. John Parker, city surveyor, Mansion House, Hereford.

**HULL.**—July 22.—For alterations and additions to three shops in Carlisle Street. Mr. John Watson, quantity surveyor, Cogan Chambers, Bowlalley Lane.

**HULL.**—July 25.—For erection of stables, loose-boxes, cart-sheds and offices in connection with coal depôts near Paragon

station, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

**IRELAND.**—July 22.—For erection of a residence for the sisters of mercy at the South Charitable Infirmary and County Hospital, Cork. Mr. James F. McMullen, architect, 30 South Mall, Cork.

**IRELAND.**—July 22.—For reconstruction of Ballyclare Unitarian church. Mr. James Ferguson, architect, 13 Union Street, Belfast.

**IRELAND.**—July 23.—For erection of a labourer's cottage and fencing plot at Ardee. Mr. Louis Tourley, engineer, 17 Laurence Street, Drogheda.

**IRELAND.**—July 24.—For seating new church at Gortin. Mr. E. J. Toye, architect, Strand, Londonderry.

**KEIGHLEY.**—July 22.—For erection of offices, showroom and workshops in Cook Lane. The Chairman of the Gas Committee, Gas Offices, Low Bridge.

**KINGSBURY.**—July 24.—For erection of schoolroom, offices and alterations to present buildings at the schools at The Hyde, N.W. Messrs. Hudson & Hunt, 40 Upper Baker Street, W.

**KING'S LYNN.**—Aug. 3.—For alterations and additions to the Naval Reserve public-house, St. Ann Street, Lynn. Mr. Herb. Tilson, architect, Railway Road, King's Lynn.

**KIRKBY LONSDALE.**—July 24.—For erection of two dwelling houses in Bective Road. Mr. John Hutton, architect, Kendal.

**LEAVESDEN.**—July 27.—For erection of a mortuary at Leavesden Asylum, near Watford. Mr. T. Duncombe Mann, clerk to the Metropolitan Asylums Board, Embankment, E.C.

**LEICESTER.**—July 25.—For erection of a five-storey goods warehouse, Sussex Street, Leicester, for the Midland Railway Company. Mr. Alexis E. Charles, secretary, Derby.

**LEICESTER.**—July 27.—For construction of removable gymnasium floor at the Bath Lane baths. Mr. Geo. E. Mawbey, borough surveyor, Town Hall, Leicester.

**LIVERPOOL.**—July 23.—For construction of a goods yard, roofing, offices, &c., and alterations to existing buildings at Wapping, Liverpool, for the Lancashire and Yorkshire Railway Co. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

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LONDON.—July 25.—For alterations at 43 The Gardens, Peckham Rye, S.E. Messrs. Newman & Newman, 31 Tooley Street, S E

LOWESTOFT.—July 29.—For erection of additional buildings at the police-station. Mr. H. Miller, county surveyor, 16 Museum Street, Ipswich.

MACCLESFIELD.—Aug. 1.—For erection of a male epileptic ward for fifty patients, and nurses' home, at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—July 23.—For extension of Victoria station, Manchester (contract No 2), comprising station roof, platforms, fish yard, &c, and the removal of the old Cheetham Hill Road bridge, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

NEWPORT.—Aug. 5.—For erection of a library, technical institute, &c., at Newport, Isle of Wight. Mr. F. Newman, county surveyor, St. Thomas Street, Ryde, Isle of Wight.

NEW WORTLEY.—For plumbing, plastering, painting and slating of twelve houses and shops in Tong Road. Mr. Maude, builder, Tong Road, New Wortley.

NUNEATON.—July 22.—For erection of stables and buildings for a refuse destructor at the sewage works, Nuneaton. Mr. J. S. Pickering, surveyor, Nuneaton.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

PITT HILL (DURHAM).—July 23.—For alteration of premises, for the Beamish and West Pelton Club, Limited. Mr. M. N. Foster, architect, Stanley, R.S.O.

PLYMOUTH.—July 23.—For erection of fire and police station at Laira. Mr. James Paton, borough engineer.

POPLAR.—July 24.—For erection of a medical officer's residence and officers' quarters at the workhouse, High Street. Messrs. J. & S. F. Clarkson, architects, 136 High Street Poplar, E.

RAUNDS.—July 22.—For erection of shoe factory. Messrs. Adams Bros., boot manufacturers, Raunds, Northants.

REDDING.—For erection of a public school at Redding. Mr. Alexander Gauld, architect, Vicar Street, Falkirk.

SALISBURY.—July 26.—For erection of a covered way from the Salisbury infirmary to the new nurses' house. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

SANDRIDGE.—July 27.—For additions to the schoolhouse at Bernard's Heath, St. Albans. Mr. H. E. Hansell, architect, Station Buildings, St. Albans.

SCOTLAND.—For erection of the new public library, Stirling. Messrs. Lessels & Taylor, architects, 7A Young Street, Edinburgh.

SCOTLAND.—July 20.—For alterations on Clackriach and Old Maud Estate, Aberdeen. Messrs. Davidson & Garden, architects, 12 Dee Street, Aberdeen.

SCOTLAND.—July 23.—For construction of a brick culvert and other works at Gibshill, Greenock. Mr. C. MacCulloch, town clerk, Greenock.

SCOTLAND.—July 24.—For erection of a lodge and waiting-rooms at Ruchill Park. Mr. A. B. Macdonald, city engineer, Office of Public Works, City Chambers, Glasgow.

SCOTLAND.—July 27.—For erection of a teacher's house at Drumlithie, Glenberrie. Mr. George Gregory, architect, Stonehaven, Kincardine.

SCOTLAND.—July 29.—For construction of part of the sub-structure of the extension of Glasgow Central Station. Mr. J. Blackbun, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

SCOTLAND.—July 29.—For improvements at Bervie. Mr. Andrew, burgh treasurer, Bervie.

SHARPNES.—July 24.—For erection of the new Union church, schoolroom and classrooms. The Rev. W. Bailey Sea View, Sharpness.

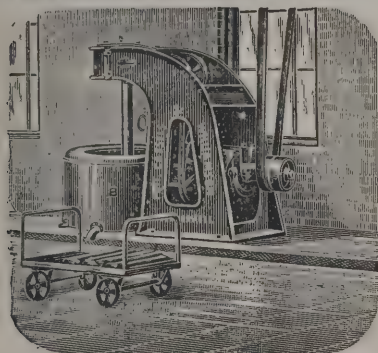
SHEFFIELD.—July 22.—For erection of sand-house, brass-foundry, stores, offices, oil store, &c., adjoining the car-sheds, Tinsley, Sheffield, for the tramways committee. Mr. C. F. Wike, city surveyor, Town Hall, Sheffield.

SHEFFIELD.—July 23.—For erection of a school and offices at Bradway. Mr. Joseph Norton, architect, Alliance Chambers George Street, Sheffield.

SOUTH BRENT.—July 26.—For erection of four dwelling-houses and shops. Mr. Edward Richards, architect, Tormoham Manor Office, 7 Strand, Torquay.

SOUTH KENSINGTON.—Aug. 14.—For erection of the super-structure of the Royal College of Science, South Kensington.

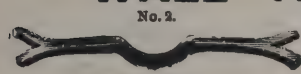
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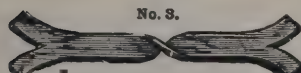
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ST. ALBANS.—For painting and repairs to the outside of the Hatfield Board school. Messrs. Clarkson, Brickett Road, St. Albans.

STOCKPORT.—July 23.—For erection of six workmen's cottages at the sewage purification works, Cheadle Heath. Mr. John Atkinson, borough surveyor, St. Petersgate, Stockport.

SUNDERLAND.—Aug. 2.—For erection of electric tramcar sheds, Hylton Road. Messrs. Barnes & Coates, architects, 41 Fawcett Street, Sunderland.

SWANSCOMBE.—July 26.—For erection of a meeting-room, minister's vestry, kitchen and offices in connection with the proposed Strict Baptist chapel at Swanscombe, Kent. Mr. W. H. Salmon, architect and secretary, 15 Dover Road, Northfleet.

THIRSK.—July 21.—For extension of the York City and County Banking Company's premises. Mr. T. E. Marshall, architect, Harrogate.

WALES.—For conversion of the match factory, Llandaff, to stables for 120 horses, omnibus shed, &c. Mr. John Glenn, engineer, 11 Queen Victoria Street, London, E.C.

WALES.—For erection of a house at Penygraig. Plans and specifications may be seen at the offices of the Naval Colliery Company (1897), Limited, Penygraig.

WALES.—July 22.—For erecting new boundary-walls, forming playgrounds, &c., at the Gilfach Fargoe school. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—July 22.—For reslating, reseating and other works at the Noddfa Baptist chapel, Abersychan. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WALES.—July 22.—For erection of an hotel, stabling and boundary walling on the Six Bells Road, Abertillery, Mon. Mr. F. R. Bates, architect, 26 Westgate Chambers, Newport.

WALES.—July 23.—For erection of three cabmen's shelters in Queen Street, North Road and Westgate Street, Cardiff. Mr. W. Harpur, borough engineer, Cardiff.

WALES.—July 23.—For alterations and additions to the station buildings and the erection of platform coverings at Pembroke Dock, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, W.

WALES.—July 25.—For erection of a vicarage house near Neath. Mr. Geo. E. Halliday, architect, 14 High Street, Cardiff.

WALES.—July 25.—For erection of a dwelling-house, &c., at New Road, Llanelly. Mr. Thomas Arnold, Castle Buildings, Llanelly.

WALES.—July 27.—For erection of a police court at Ton, Rhondda Valley. Messrs. Griffiths & Jones, architects, Tony-pandy.

WALES.—July 29.—For taking-down the present farmhouse and erection of a new house, with outbuildings, stabling and other conveniences at Bowlers' Barn Farm, near Abergavenny; and for erection of an additional boiler-house and chimney shaft, 112 feet high, at the Monmouthshire asylum, erection of new stores, sheds and yard for masons, &c., and the conversion of the present stores into pathological rooms. Mr. B. J. Francis, architect, Abergavenny.

WALES.—Aug. 6.—For erection of 100 houses at Pen-y-darren, Merthyr, in connection with a scheme under the Housing of the Working Classes Act, 1890. Mr. John Vaughan, clerk, Town Hall, Merthyr.

WALES.—Aug. 7.—For erection of new Board schools at Ely, near Cardiff, for boys, girls and infants. Mr. Edgar Down, architect, 31 High Street, Cardiff.

WELLINGTON.—July 25.—For rebuilding Plat Lane bridge or culvert, at Ellerdine Heath. Mr. Jones, Edgbaston House, Walker Street, Wellington.

WEST HAM.—July 23.—For construction of an underground sanitary convenience, Broadway, Stratford, E. Particulars at the Borough Engineer's Office, Town Hall, West Ham.

YORK.—July 25.—For erection of lodge and discharging block at York Fever Hospital. Mr. Alfred Creer, city engineer, Guildhall, York.

EFFORTS are being made to induce the London County Council to include in its schemes for the regeneration of London the sweeping away of the Italian quarters behind the Italian Church, Hatton Garden, owing to the insanitary and dilapidated condition of the whole district. This agitation is supported by the Holborn Borough Council and many of the leading clergy.

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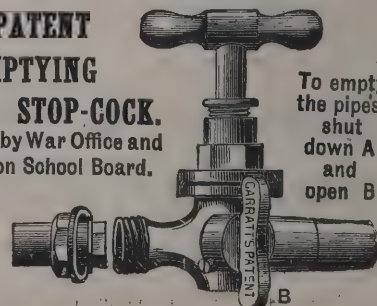
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| Mirrlees, Watson & Yaryan . . . . .                                                                                  | 2,068  | 0 | 0 |
| Klein Engineering Co. . . . .                                                                                        | 2,065  | 0 | 0 |
| ALLEN & SON, Bedford, Koppel tower £305, condensing plant, Edwards pump, Baker separator £1,750 (accepted) . . . . . | 2,055  | 0 | 0 |
| Pulsometer Engineering Co., condensing plant only . . . . .                                                          | 1,744  | 0 | 0 |
| A. Koppel . . . . .                                                                                                  | 1,385  | 0 | 0 |
| Doherty & Donat, tower only . . . . .                                                                                | 490    | 0 | 0 |

**BARNSELEY.**

For erection of three dwelling-houses in Longcar Lane. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

*Accepted tenders.*

|                                |      |    |   |
|--------------------------------|------|----|---|
| G. Haigh, builder . . . . .    | £830 | 0  | 0 |
| Turton Bros., joiner . . . . . | 295  | 0  | 0 |
| B. Denison, plumber . . . . .  | 121  | 10 | 0 |
| C. Dryden, plasterer . . . . . | 95   | 0  | 0 |
| W. Scholey, slater . . . . .   | 67   | 1  | 6 |
| W. Smith, painter . . . . .    | 15   | 0  | 0 |

**BISHOP'S STORTFORD.**

For repairing the engines and pumps at the sewage pumping station and at the waterworks. Mr. R. S. SCOTT, surveyor.

|                                            |      |    |   |
|--------------------------------------------|------|----|---|
| T. Horn & Sons . . . . .                   | £387 | 2  | 0 |
| H. Lewis & Sons . . . . .                  | 266  | 2  | 5 |
| Hunter & English . . . . .                 | 245  | 0  | 0 |
| G. Hopkins & Sons . . . . .                | 210  | 17 | 6 |
| J. W. Potter & Co. . . . .                 | 206  | 15 | 0 |
| W. Matthews & Co. . . . .                  | 192  | 14 | 0 |
| Pratchitt Bros. . . . .                    | 178  | 0  | 0 |
| A. Dodman & Co. . . . .                    | 169  | 0  | 0 |
| J. Lampitt & Co. . . . .                   | 142  | 0  | 0 |
| A. Robinson . . . . .                      | 139  | 0  | 0 |
| T. WALKER, Tewkesbury (accepted) . . . . . | 110  | 0  | 0 |

**BEDLINGTON.**

For construction of 328 yards of 12-inch sanitary pipes at Stakeford, with necessary manholes, &c., and construction of about 70 lineal yards of timber piling near the Ridley Arms at Cambois. Mr. CUTHBERT BROWN, surveyor.

|                                             |      |    |   |
|---------------------------------------------|------|----|---|
| J. Robson . . . . .                         | £162 | 12 | 6 |
| W. Garnett . . . . .                        | 153  | 13 | 0 |
| J. Thomson . . . . .                        | 139  | 0  | 0 |
| J. & R. Johnson . . . . .                   | 123  | 18 | 9 |
| W. E. SHELTON, Dunston (accepted) . . . . . | 119  | 2  | 4 |

**BOLDON.**

For painting the exterior of 14 dwelling-houses.

|                                               |     |    |   |
|-----------------------------------------------|-----|----|---|
| W. Pickering . . . . .                        | £60 | 14 | 6 |
| R. Robertson . . . . .                        | 45  | 10 | 0 |
| H. Marshall . . . . .                         | 31  | 10 | 0 |
| R. W. ALLEN, East Boldon (accepted) . . . . . | 30  | 0  | 0 |

**BURNLEY.**

For erection of a dwelling-house and shop at Walk Mill, Cliviger, near Burnley.

*Accepted tenders.*

|                                                                       |      |    |   |
|-----------------------------------------------------------------------|------|----|---|
| T. Pickup & Bill, 103 Hollingreave Road, mason . . . . .              | £320 | 0  | 0 |
| Ingham & Hesleden, Calder Vale Saw-mills, Cornholme, joiner . . . . . | 98   | 0  | 0 |
| W. Gill, Mary Street, plumber . . . . .                               | 24   | 2  | 6 |
| O. Whitaker, Manchester Road, slater . . . . .                        | 22   | 4  | 0 |
| Proctor & Crossley, Yorkshire Street, plasterer . . . . .             | 18   | 0  | 0 |
| O. Whitaker, concreter . . . . .                                      | 17   | 15 | 0 |

**CLEETHORPES.**

For erection of an eight-stall stable, granary, stores, offices, cart-shed, steam-roller house, &c. Mr. EGBERT RUSHTON, surveyor.

*Stables, &c.*

|                                              |      |   |   |
|----------------------------------------------|------|---|---|
| Waterman, Grimsby . . . . .                  | £816 | 3 | 9 |
| C. Lewis, Grimsby . . . . .                  | 760  | 0 | 0 |
| WADE, LTD., Cleethorpes (accepted) . . . . . | 712  | 6 | 6 |

*Steam-roller house.*

|                                 |     |    |   |
|---------------------------------|-----|----|---|
| Waterman . . . . .              | 259 | 13 | 9 |
| C. Lewis . . . . .              | 240 | 0  | 0 |
| WADE, LTD. (accepted) . . . . . | 193 | 4  | 0 |

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**CARLISLE.**

For erection of new and alterations to existing buildings, chimney shaft, tar tank and new men's room, meter-house, exhauster-house, shed over purifiers and foundations for purifiers and oil tank.

J. LAING, Melbourne Street (*accepted*) . . . £3,665 0 0

**DUDLEY.**

For sewerage works in the Netherton and Woodside districts, comprising about 17 miles of sewers from 9-inch to 18-inch diameter, manholes, lampholes, &c. Mr. JOHN GAMMAGE, borough engineer.

Mackay . . . £21,945 0 0  
McCarthy . . . 21,927 0 0  
Holloway . . . 21,266 0 0  
Owens . . . 21,100 0 0  
Hughes . . . 20,301 0 0  
S. SAUNDERS, Earl's Court, London (*accepted*) 18,818 0 0

For supplying and fixing wrought-iron solid unclimbable fencing, with entrance gates, at the new cemetery, Stourbridge Road, Dudley. Mr. JOHN GAMMAGE, borough surveyor.

Adshead & Smellie . . . £1,119 7 6  
Hayward & Sons . . . 873 17 6  
Hill & Smith . . . 760 9 0  
Bayliss, Jones & Bayliss . . . 749 15 0  
DUDLEY ART METAL CO, Dudley (*accepted*) 748 8 0

**EGREMONT.**

For erection of tower to St. Mary's Church, Egremont, Cumberland. Messrs. OLIVER & DODGSHUN, architects, Carlisle.

J. SMITH, Egremont (*accepted*) . . . £1,151 0 0

**EXMOUTH.**

For erection of a house at Littleham. Mr. ERNEST E. ELLIS, architect, Exmouth.

A. Hayman . . . £427 17 0  
R. C. Cooper . . . 371 10 0  
H. Dart . . . 369 0 0  
J. J. Lacey . . . 336 0 0  
W. H. PERRY, Exmouth (*accepted*) . . . 330 0 0

**EXETER.**

For erection of a roof (about 104 feet by 48 feet) over a portion of the Old Quay Foundry and Engine Works, Commercial Road. Mr. J. ARCHIBALD LUCAS, architect, Guildhall Chambers, High Street, Exeter.

C. Heath . . . £308 0 0  
Stephens & Sons . . . 284 0 0  
E. Mudge . . . 278 0 0  
Mingo & Boone . . . 272 0 0  
Popman & Sons . . . 245 10 0  
Oliver . . . 241 14 0  
Bunclark & Stephens . . . 220 0 0  
Westcott, Austin & White . . . 213 0 0  
HAM & PASSMORE, Sidwell Street (*accepted*) . . . 199 10 0

**GLOUCESTER.**

For erection of four cottages and messroom at the docks. Mr. WALTER B. WOOD, architect, 12 Queen Street, Gloucester.

J. Leat . . . £2,556 5 11  
A. King & Son . . . 2,478 0 0  
W. Byard . . . 2,410 0 0  
W. Jones . . . 2,300 0 0  
Freeman & Jones . . . 2,266 0 0  
Gurney Bros. . . . 2,203 0 0  
A. J. Dolman . . . 2,189 0 0

**HARROGATE.**

For erection of a Kursaal, for the Corporation. Mr. ROBT. J. BEALE, architect, Broadway House, Westminster. Quantities supplied.

*Excavator, bricklayer and mason.*

Raworth & Allen . . . £16,673 0 0  
H. Abbot . . . 16,300 0 0  
Nicholson & Sons . . . 15,486 0 0  
GRAHAM & SONS, Huddersfield (*accepted*) . . . 14,313 0 0

*Plumber and glazier.*

Higginbotham & Sons . . . 2,200 0 0  
J. H. Shouksmith . . . 2,100 0 0  
H. Braithwaite . . . 2,078 0 0  
J. Lindley . . . 2,045 0 0  
Raworth & Allen . . . 2,040 0 0  
G. Thompson . . . 2,000 0 0  
T. Armitage . . . 1,995 0 0  
C. FOSTER (*accepted*) . . . 1,971 0 0  
H. Lindley . . . 1,885 0 0

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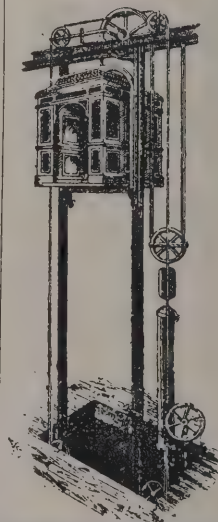
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Carpenter and joiner.

|                            |        |   |   |
|----------------------------|--------|---|---|
| F. Pattinson               | £7,529 | 0 | 0 |
| T. Linskill                | 7,300  | 0 | 0 |
| Nicholson & Sons           | 6,577  | 0 | 0 |
| J. Taylor                  | 6,490  | 0 | 0 |
| J. W. Rudd                 | 6,139  | 0 | 0 |
| RAWORTH & ALLEN (accepted) | 5,623  | 0 | 0 |
| W. Isherwood (withdrawn)   | 5,188  | 0 | 0 |

Slater.

|                               |     |    |   |
|-------------------------------|-----|----|---|
| Raworth & Allen               | 485 | 0  | 0 |
| J. W. Baynes                  | 482 | 0  | 0 |
| J. Shepherd                   | 475 | 0  | 0 |
| T. Raynor                     | 472 | 1  | 0 |
| W. ATKINSON, Leeds (accepted) | 369 | 18 | 0 |

Plasterer.

|                                |       |    |   |
|--------------------------------|-------|----|---|
| Johnson & Sons                 | 1,597 | 11 | 2 |
| A. & S. Wheeler                | 1,456 | 0  | 0 |
| Raworth & Allen                | 1,430 | 0  | 0 |
| FORTUNE & CALVERLEY (accepted) | 1,410 | 0  | 0 |

Painter.

|                            |     |   |   |
|----------------------------|-----|---|---|
| Jessop & Cosgrove          | 415 | 0 | 0 |
| Raworth & Allen            | 395 | 0 | 0 |
| Sparrow & Son              | 394 | 0 | 0 |
| Broadbank & Sons           | 380 | 0 | 0 |
| R. Petty                   | 360 | 0 | 0 |
| D. E. Hutton               | 359 | 0 | 0 |
| Higginbotham & Sons        | 350 | 0 | 0 |
| NODDINGS & SONS (accepted) | 280 | 0 | 0 |

Whole tenders.

|                 |        |   |   |
|-----------------|--------|---|---|
| G. Warren       | 32,959 | 0 | 0 |
| Raworth & Allen | 26,522 | 0 | 0 |

HAMPTON.

For re-erection of the Windmill beer-house, Hampton, for Messrs. Charrington & Co. Mr. EDWARD MONSON, architect, Acton Vale, W., and 22 Buckingham Street, Adelphi, W.C.

|                                       |        |   |   |
|---------------------------------------|--------|---|---|
| Godson & Sons                         | £2,200 | 0 | 0 |
| Lascelles & Co.                       | 2,059  | 0 | 0 |
| Antil & Co.                           | 2,000  | 0 | 0 |
| J. Christie                           | 1,978  | 0 | 0 |
| J. J. Collings                        | 1,841  | 0 | 0 |
| W. BLACKBURN, Chiswick, W. (accepted) | 1,798  | 0 | 0 |

HEBBURN.

For making-up Edmund Street, Lyon Street, Dunston Street, Bygate Street, Argyle Street, Makendon Street, Canning Street, Till Street, Beaumont Street, St. Oswald's Road, Back Canning Street, Back Edmund Street, Back St. Oswald's Road and other streets. Mr. J. B. RENTON, surveyor.

|                                              |        |    |   |
|----------------------------------------------|--------|----|---|
| M. D. Young                                  | £2,582 | 13 | 3 |
| T. CALLAGHAN, Staple Road, Jarrow (accepted) | 2,326  | 4  | 6 |

For cementing, &c, in Collingwood Street, Howe Street, Frobisher Street and Blendburn Street. Mr. J. B. RENTON, surveyor.

|                                      |     |    |   |
|--------------------------------------|-----|----|---|
| M. D. Young                          | £97 | 10 | 0 |
| T. Callaghan                         | 83  | 4  | 6 |
| J. RULE & Co., Sunderland (accepted) | 79  | 10 | 0 |

HENDON.

For wiring new Council offices.

|                                       |      |   |   |
|---------------------------------------|------|---|---|
| COLEY ELECTRIC WORKS, LTD, Cheapside, |      |   |   |
| E.C. (accepted)                       | £186 | 1 | 0 |

IRELAND.

For improvements to the laundry drainage, water supply and infirmary of the workhouse, Navan. Mr. A. SCOTT, architect.

|                                 |      |   |   |
|---------------------------------|------|---|---|
| F. GOGARTY, Drogheda (accepted) | £846 | 0 | 0 |
|---------------------------------|------|---|---|

KEIGHLEY.

For erection of stores in Bradford Road. Messrs. JOHN HAGGAS & SONS, architects, North Street, Keighley.

Accepted tenders.

|                                                               |  |  |  |
|---------------------------------------------------------------|--|--|--|
| T. Moore, Alice Street, Keighley, mason.                      |  |  |  |
| W. Thornton, Keighley and Bingley, slater.                    |  |  |  |
| C. Hird, Enfield Street, Keighley, plasterer.                 |  |  |  |
| Crabtree & Wallace, Queen Street, Keighley, plumber.          |  |  |  |
| Total, £971 14s. 4d., exclusive of joiner and painter's work. |  |  |  |

LEEDS.

For supplying and erecting about 370 lineal yards of wrought-iron or mild-steel unclimbable and circular-topped fencing on Woodhouse Moor.

|                                              |     |   |   |
|----------------------------------------------|-----|---|---|
| E. J. RAYBOULD & Co., Marsh Side, Workington |     |   |   |
| (accepted)                                   | £99 | 9 | 4 |

For raising the wood boundary fence at the city hospital, Manston.

|                                            |      |    |   |
|--------------------------------------------|------|----|---|
| W. H. RODGERS, Stoney Rock Lane (accepted) | £142 | 14 | 4 |
|--------------------------------------------|------|----|---|

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## LEEDS—continued.

For painting at the Knostrop sewage works.

T. WILSON, Institution Street (*accepted*) . . . £71 2 6

For painting and decorating the bandstands at the various recreation-grounds.

*Accepted tenders.*

J. T. Pollard &amp; Son, East Parade, Armley and Stanningley Parks, £47; Hunslet Moor and East End Parks, £47 17s. 6d.

F. Jackson &amp; Co., Park Row, Chapeltown and Burley Parks, £53; Roundhay Park, £34 10s.

For concreting required in the erection of a bird market at Kirkgate Market.

A. & T. WHEATER, Hunslet Road (*accepted*) . . . £135 13 0

For erection of wooden offices and tea-rooms over the retail fish shops at Kirkgate Market.

J. TAYLOR, LTD., Railway Works, Guiseley (*accepted*) . . . £273 3 9

For painting work at the Manston Hall and hospital and at the Beckett Street Hospital.

*Accepted tenders.*

J. Robinson, Wellington Street, Manston Hospital, £258 10s., Beckett Street Hospital, £137 3s. 9d.

For cleaning-down, painting and decorating the corridors, courts and various rooms in the Town Hall.

G. HALL, Woodhouse Lane (*accepted*) . . . £830 0 0

For construction of two entrances to the East End Park, including wrought-iron entrance gates and railings, stone or iron gate pillars and dwarf stone walling.

D. POWNER, Hartley Hill (*accepted*) . . . £600 0 0

## LITTLEHAMPTON.

For construction of a covered reservoir in Batworth Park, and for erection of engine and boiler-house, engineer's cottage, chimney shaft, fencing, &amp;c., at Warningcamp. Mr. H. HOWARD, engineer.

Linfield &amp; Son . . . £8,975 0 0

A. Burrell . . . 8,366 10 0

Snewin Bros. . . . . 8,327 0 0

Peerless, Dennis &amp; Co. . . . . 8,149 0 0

W. Wallis . . . . . 7,989 0 0

A. E. NUNN, Kent (*accepted*) . . . . . 7,863 2 0

## LONDON.

For erection of shops and flats to be known as Uxbridge Mansions, Nos. 156 and 158 Uxbridge Road, W., for Mr. Charles Tarrant. Mr. ALFRED H. HART, architect, 9 Staple Inn, Holborn, W.C.

Lyford . . . . . £4,333 0 0

Williams . . . . . 4,291 0 0

Hastings &amp; Ladley . . . . . 4,160 0 0

Subey &amp; Sons . . . . . 4,041 0 0

Chessum . . . . . 3,952 0 0

WEIBKING & SONS (*accepted*) . . . . . 3,549 0 0

For rebuilding premises in Tottenham Court Road. Mr. ALFRED CONDER, architect, Palace Chambers, Westminster. Quantities by Mr. E. J. PAINE, 11 Great James Street, W.C.

T. D. Steed &amp; Son . . . . . £3,997 0 0

J. Grover &amp; Son . . . . . 3,966 0 0

J. McCormick &amp; Sons . . . . . 3,828 0 0

R. H. &amp; R. Roberts . . . . . 3,659 0 0

E. Toms . . . . . 3,597 0 0

B. E. Nightingale . . . . . 3,559 0 0

J. Stimpson &amp; Co. . . . . 3,550 0 0

W. Akers &amp; Co. . . . . 3,408 0 0

H. YOUNG (*accepted*) . . . . . 3,168 0 0

For erection of seven houses, Barmouth Road. Mr. HERBERT BIGNOLD, architect, 242 Lavender Hill, S.W.

F. JENKINS (*accepted*) . . . . . £3,700 0 0

For alterations, 369 Wandsworth Road. Mr. H. BIGNOLD, architect.

W. HEATHER (*accepted*) . . . . . £420 0 0

## MERTON (SURREY).

For additions to the Rutlish science school, Merton, Surrey. Mr. H. G. QUARTERMAIN, architect. Quantities by Messrs. J. LEANING &amp; SONS.

Bulld &amp; Co. . . . . £4,382 0 0

Holliday &amp; Greenwood . . . . . 4,277 0 0

Killby &amp; Gayford . . . . . 4,256 0 0

F. Gough &amp; Co. . . . . 4,254 0 0

Wall &amp; Co. . . . . 4,200 0 0

Garrett &amp; Sons . . . . . 4,178 0 0

Lorden &amp; Sons . . . . . 3,944 0 0

J. Smith &amp; Sons . . . . . 3,939 0 0

Parsons &amp; Townsend . . . . . 3,750 0 0

J. Burges &amp; Sons . . . . . 3,625 0 0

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and is a pleasing  
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Solicited.

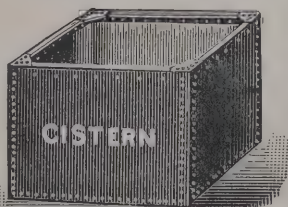
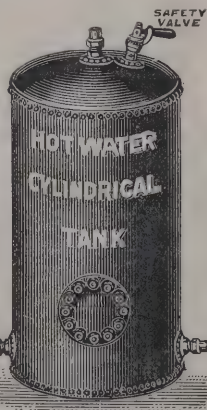
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NEW MALDEN.

For construction of the first portion of the roads and sewers on the New Malden Station estate, for Colonel G. A. Petter. Mr. JAMES NEALE, F.S.A., architect and surveyor, 10 Bloomsbury Square, W.C.

|                |         |    |   |
|----------------|---------|----|---|
| Rawlings & Son | £11,549 | 0  | 0 |
| W. H. Wheeler  | 11,391  | 0  | 0 |
| S. Kavanagh*   | 10,664  | 14 | 0 |

\* Withdrawn. Channelling omitted.

NORWICH.

For painting (externally), colouring and whitewashing, papering and limewhiting the various Board schools, for the Norwich School Board.

*External Painting—Angel Road School.*

|                                                     |     |    |   |
|-----------------------------------------------------|-----|----|---|
| Watson & Kirby                                      | £63 | 10 | 0 |
| J. ANDERSON & SON, Heigham Road, Norwich (accepted) | 51  | 0  | 0 |

*Avenue Road School.*

|                              |    |    |   |
|------------------------------|----|----|---|
| Watson & Kirby               | 59 | 10 | 0 |
| J. ANDERSON & SON (accepted) | 42 | 0  | 0 |

*Bull Close Road School.*

|                                             |    |    |   |
|---------------------------------------------|----|----|---|
| T. Horth                                    | 26 | 15 | 0 |
| Watson & Kirby                              | 24 | 0  | 0 |
| G. MARSHALL, Heath Road, Norwich (accepted) | 15 | 15 | 0 |

*Quay Side School.*

|                                 |    |    |   |
|---------------------------------|----|----|---|
| Watson & Kirby                  | 37 | 10 | 0 |
| S. H. WILEY, Norwich (accepted) | 30 | 0  | 0 |

*St. Paul's School.*

|                        |    |    |   |
|------------------------|----|----|---|
| Watson & Kirby         | 15 | 10 | 0 |
| J. W. Abbs             | 10 | 15 | 0 |
| S. H. Wiley (accepted) | 10 | 0  | 0 |

*Thorpe Hamlet School.*

|                        |    |    |   |
|------------------------|----|----|---|
| J. W. King             | 57 | 2  | 9 |
| T. Horth               | 53 | 10 | 0 |
| Watson & Kirby         | 52 | 0  | 0 |
| S. H. Wiley            | 38 | 0  | 0 |
| G. MARSHALL (accepted) | 34 | 15 | 0 |

*Bull Close Road School.*

|                                                |    |    |   |
|------------------------------------------------|----|----|---|
| BODY & SON, Orchard Street, Norwich (accepted) | 45 | 10 | 0 |
| W. G. Crotch                                   | 42 | 12 | 0 |

NORWICH—continued.

*Internal painting, &c.—Angel Road School.*

|                                            |     |    |   |
|--------------------------------------------|-----|----|---|
| A. Browne                                  | £44 | 10 | 0 |
| W. G. Crotch                               | 44  | 0  | 0 |
| T. GILL, Rupert Street, Norwich (accepted) | 42  | 15 | 0 |

*Avenue Road School.*

|                    |    |    |   |
|--------------------|----|----|---|
| W. G. Crotch       | 88 | 10 | 0 |
| Scarles Bros.      | 88 | 0  | 0 |
| A. Browne          | 83 | 15 | 0 |
| T. GILL (accepted) | 80 | 8  | 0 |

*Heigham Street Schools.*

|                                             |    |    |   |
|---------------------------------------------|----|----|---|
| W. G. Crotch                                | 67 | 15 | 0 |
| A. BROWNE, Onley Street, Norwich (accepted) | 66 | 10 | 0 |

*Quay Side Schools.*

|                                                 |    |    |   |
|-------------------------------------------------|----|----|---|
| A. Browne                                       | 76 | 15 | 0 |
| W. G. CROTCH, Magdalen Road, Norwich (accepted) | 75 | 0  | 0 |

*St. Paul's School.*

|                                              |    |    |   |
|----------------------------------------------|----|----|---|
| A. Browne                                    | 23 | 10 | 0 |
| W. G. Crotch                                 | 19 | 19 | 0 |
| Body & Son                                   | 18 | 10 | 0 |
| J. W. ABBS, Aylsham Road, Norwich (accepted) | 17 | 10 | 0 |

*Thorpe Hamlet School.*

|                         |    |    |   |
|-------------------------|----|----|---|
| J. W. King              | 58 | 13 | 0 |
| A. Browne               | 47 | 15 | 0 |
| W. G. CROTCH (accepted) | 45 | 0  | 0 |

*Caretaker's houses.*

|                       |    |    |   |
|-----------------------|----|----|---|
| A. Browne             | 25 | 0  | 0 |
| Scarles Bros.         | 23 | 10 | 0 |
| BODY & SON (accepted) | 17 | 0  | 0 |

*Offices.*

|                       |    |    |   |
|-----------------------|----|----|---|
| Scarles Bros.         | 37 | 10 | 0 |
| A. Browne             | 35 | 2  | 6 |
| J. W. ABBS (accepted) | 22 | 15 | 0 |

**PUDSEY.**

For construction of five precipitation tanks, &c., at Hough Side outfall works. Mr. JOS. JONES, surveyor.

|                                            |        |   |   |
|--------------------------------------------|--------|---|---|
| ROSS, WILKS & CRABTREE, Shipley (accepted) | £2,612 | 0 | 0 |
|--------------------------------------------|--------|---|---|

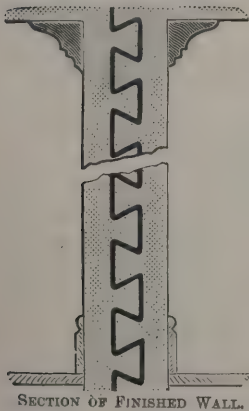
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## ONGAR.

For drainage of Chipping Ongar, including Marden Ash, in the parish of High Ongar, Essex. Mr. W. N. JARVIS, surveyor, Council House, Ongar.

|                                            |        |    |   |
|--------------------------------------------|--------|----|---|
| G. Osenton                                 | £3,577 | 0  | 0 |
| R. Lemon                                   | 3,531  | 11 | 8 |
| T. Adams                                   | 3,356  | 0  | 0 |
| Gill & West                                | 3,275  | 8  | 2 |
| S. Saunders                                | 3,200  | 0  | 0 |
| G. Wilson                                  | 2,988  | 0  | 0 |
| G. Bell                                    | 2,883  | 0  | 0 |
| F. J. Coxhead                              | 2,737  | 0  | 0 |
| H. Benthams & Co.                          | 2,649  | 0  | 0 |
| J. Jackson                                 | 2,639  | 8  | 4 |
| THOMPSON & WILKINSON, Upminster (accepted) | 2,335  | 3  | 7 |

## ROCHDALE.

For constructing an electrical lift at the new workhouse infirmary.

A. SMITH & STEVENS, London (accepted).

For widening Spotland Bridge. Mr. S. S. PLATT, borough surveyor.

T. ASHWORTH & SONS, Norden, near Rochdale (accepted).

For steelwork, consisting of steel-plate girders, rolled-steel joists and arched plating (about 20 tons in all), required in connection with the widening of Spotland bridge. Mr. S. S. PLATT, borough surveyor.

E. WOOD, Ocean Ironworks, Ordsall Lane, Salford (accepted).

## SCOTLAND.

For extension of boiler-house at the electricity works.

## Accepted tenders.

Pratt Bros., Ballantyne Road, Leith, joiner (schedule includes plumber and glazier's work) £307 11 6

A. Mather & Son, Orwell Works, Dalry Road, Edinburgh, ironwork . . . . . 269 16 0

J. Shaw, Bowling Green Street, Leith, mason . . . . . 245 0 0

A. Ogilvy, 63 Duke Street, Leith, slater . . . . . 38 18 5

For rebuilding Beltenmont bridge, Kirkpatrick Fleming. Mr. ALBERT V. HART, surveyor, Dumfries.

R. WATRET & SON, Quarrelwood, Dumfries (accepted) . . . . . £149 0 0

## SCOTLAND—continued.

For additions to steading of offices, and the erection of two cottar houses at the Home Farm of Muirtown, Belhelvie. Messrs. WALKER & DUNCAN, architects, 3 Golden Square, Aberdeen.

## Accepted tenders.

G. Rae, Balmedie, Aberdeenshire, carpenter . . . £607 0 0

Paterson & Marshal, Adny, mason . . . . . 441 0 0

S. Christie, jun., Dyce, slater . . . . . 189 9 0

R. Moir, Villafield, Inverurie, plasterer . . . . . 26 15 0

## SEAFORD.

For completion of the extension to sea of the sewage outfall. Mr. B. A. MILLER, surveyor, 3 Clinton Place, Seaford, Sussex.

H. A. Chambers]. . . . . £850 0 0

B. COOKE & CO., Westminster, S.W. (accepted) 820 0 0

## SOUTHAMPTON.

For new system of drainage and sewage works at the workhouse, West End. Messrs. W. H. MITCHELL, SON & GUTTERIDGE, architects, 9 Portland Street, Southampton.

S. Saunders . . . . . £2,200 0

Witt Bros., Bitterne . . . . . 2,150 0

Grounds & Newton . . . . . 2,130 0

Roles & Son . . . . . 1,975 0

Jenkins & Sons . . . . . 1,945 0

COSTON & CO., Millbrook Road, Southampton (accepted) . . . . . 1,895 0 0

## THRELKELD.

For erection of the Threlkeld public room, Cumberland.

## Accepted tenders.

R. & T. Hall, mason . . . . . £230 10 0

Milburn & Son, joiner . . . . . 152 0 0

G. H. Dunbobbins, plumber . . . . . 17 5 0

J. R. Railton, painter, &c. . . . . 15 14 6

## TIPTON.

For internal renovation of Burnt Tree and Great Bridge schools, for the Tipton School Board.

A. J. HENSMAN, West Bromwich, for both schools (accepted) . . . . . £78 6 0

# HAM HILL STONE. DOULTING STONE.

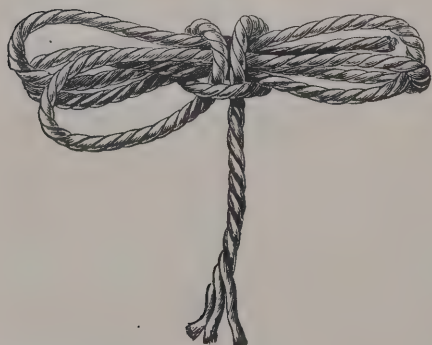
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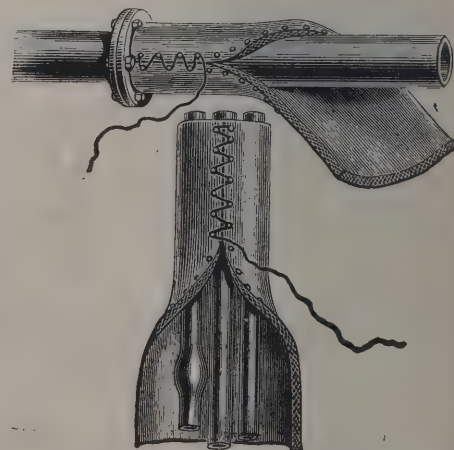
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WALES.

For erection of a detached villa residence, Penydarren Park, Merthyr. Mr. E. A. JOHNSON, architect, Abergavenny.  
W. H. INGLESON, Merthyr (*accepted*) . . . £1,495 0 0  
For erection of a cottage hospital and dispensary, Abergavenny. Mr. E. A. JOHNSON, architect, Abergavenny.  
J. G. THOMAS & SONS, Abergavenny (*accepted*) £1,925 0 0

For erection of a school for 500 children, with out-offices, boundaries, playgrounds and caretaker's house, at Waunllwydd, near Ebbw Vale, Mon. Mr. R. L. ROBERTS, architect, Victoria Chambers, Abercarn.  
J. Lewis . . . £7,790 0 0  
Williams & Rogers . . . 6,220 0 0  
P. Gaylard . . . 6,150 0 0  
Meyrick Bros. . . 5,997 16 0  
Davies Bros. . . 5,990 15 0  
J. Morgan . . . 5,565 0 0  
D. LEWIS, Aberbeeg (*accepted*) . . . 5,516 0 0

WARKWORTH.

For erection of house and stable at Beal Bank, Warkworth, Northumberland.  
R. & G. BROWN, Amble (*accepted*) . . . £1,279 16 5

WESTCLIFFE-ON-SEA.

For erection of a villa residence on The Leas, Westcliffe-on-Sea, Essex. Messrs GREENHALGH & BROCKBANK, architects, Bank Chambers, Southend.  
S. E. Moss . . . £1,560 0 0  
J. Shelbourne & Co. . . 1,418 0 0  
A. Woodiwiss . . . 1,414 4 8  
Davis & Leaney . . . 1,360 0 0  
F. Dupont & Co. . . 1,295 0 0  
F. & E. Davey . . . 1,267 0 0  
J. Band . . . 1,234 0 0  
W. Stubbs . . . 1,232 0 0  
W. E. Davey, Southend \*. . . 1,181 0 0  
\* Recommended for acceptance.

WEST HAM.

For making-up the following streets, for the West Ham Borough Council:—Corporation Street, Eve Road (part), Napier Road (part), Ranelagh Road (part), Chaplin Road (part), Meath Road, Harcourt Road, Holbrook Road, Willis Road, Bull Road, Morley Road. Mr. JOHN G. MORLEY, borough engineer.  
Wilson, Border & Co. . . . £12,003 4 6  
J. Jackson . . . 11,913 10 0  
Griffiths & Co., Ltd. . . . 11,797 19 10  
D. T. Jackson . . . 11,640 7 11  
T. Adams . . . 11,299 9 4  
BENTHAM & Co (*accepted*) . . . 11,237 19 4

For erection of a fire brigade station, firemen's quarters and underground sanitary conveniences, Barking Road, Canning Town. Mr. JOHN G. MORLEY, borough engineer.  
A  
Horlock & Sons . . . £22,800 0 0 £300 0 0  
Foster Bros. . . 19,990 0 0 1,340 0 0  
Shillitoe & Sons . . . 19,225 0 0 1,000 0 0  
Thomas & Edge . . . 18,562 0 0 1,400 0 0  
Lawrence & Son . . . 18,320 0 0 1,350 0 0  
Leslie & Co. . . 17,954 0 0 1,253 0 0  
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For laying stoneware sewers, with manholes, inspection chambers and outfall works in Mursley, Bucks. Messrs. JOHN TAYLOR, SONS & SANTO CRIMP, engineers, 27 Great George Street, Westminster.  
S. Saunders . . . £1,695 0 0  
G. Osenton . . . 1,282 0 0  
J. & T. Binns . . . 1,131 12 6  
J. Jackson . . . 1,127 0 0  
A. & A. Streeter . . . 952 12 1  
Siddons & Freeman . . . 849 0 0  
H. Y. GREEN & Co., Walton Street, Aylesbury (*accepted*) . . . 845 5 6

ROOF FIRES



This engraving is based on an illustration of the roof of

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during the recent fire, and shows the application of the

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Electric Pressure Augmenter,

not provided in this case, but fitted at Hatfield House, for the Protection of a Roof, the part of a house the most dangerous in assisting the spread of a fire.

MERRYWEATHER'S LIFT SPRINKLERS are being fitted up at Grosvenor Hotel, London, similar to the installation adopted by Whitehall Court.

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## WORKSOP.

For erection of infirmary buildings on Kilton Hill site. Mr. HERBERT C. SCAPING, architect, Court Chambers, Grimsby.

|                                               |         |    |   |
|-----------------------------------------------|---------|----|---|
| T. Roper . . . . .                            | £19,949 | 10 | 0 |
| J. G. Cooling . . . . .                       | 17,880  | 14 | 6 |
| G. Brown & Son . . . . .                      | 17,400  | 0  | 0 |
| G. Longden & Son . . . . .                    | 17,020  | 12 | 6 |
| W. Hall . . . . .                             | 16,980  | 0  | 0 |
| H. Vickers . . . . .                          | 16,900  | 0  | 0 |
| Cahill & Leverton . . . . .                   | 16,494  | 0  | 0 |
| R. Stewart . . . . .                          | 16,130  | 0  | 0 |
| M. Grantham . . . . .                         | 16,100  | 0  | 0 |
| G. G. Middleton . . . . .                     | 15,950  | 0  | 0 |
| J. Cooper & Son, Ltd. . . . .                 | 15,616  | 0  | 0 |
| D. Gill & Son . . . . .                       | 15,577  | 0  | 0 |
| J. H. Vickers, Ltd. . . . .                   | 15,490  | 0  | 0 |
| A. B. CLARKE, Nottingham (accepted) . . . . . | 14,500  | 0  | 0 |

*Received too late for Classification.*

## SCOTLAND.

For erection of the new fever hospital for Stirling, Bridge of Allan, Dunblane, Doune and Callander Tenders accepted subject to the approval of the Local Government Board.

|                                             |        |    |   |
|---------------------------------------------|--------|----|---|
| Reynolds & M'Que, Stirling, mason . . . . . | £4,930 | 0  | 0 |
| W. M'Dougall & Sons, joiner . . . . .       | 2,520  | 0  | 0 |
| A. Frater, plumber . . . . .                | 2,057  | 0  | 0 |
| A. Walls, plasterer . . . . .               | 1,661  | 18 | 0 |
| Thomas Blair, slater . . . . .              | 714    | 16 | 4 |

Total, £ 1,883 14s. 4d.

## KODAK, LIMITED.

THIS company has just opened at 40 West Strand a new gallery very artistically arranged and decorated, in which they are showing a fine and very interesting collection of war pictures, sepia tinted enlargements by the bromide process from negatives taken by their various kodaks. Clearness of definition in a very high degree characterises all these pictures, which convey a thoroughly realistic idea, artistically treated, of various episodes in the war, and form a series of illustrated historical notes which will gain enhanced value with the lapse of time.

## ELECTRIC NOTES.

THE dedication of the new organ and electric installation at Dudley parish church took place on the 11th inst. In the installation of the electric light the illumination of the altar has received special treatment, and electric lights are placed behind the east window for displaying its exceptional beauty by night.

At a special meeting of Nairn Town Council notice was received from the Electric Supply Corporation, Ltd., intimating their intention of applying for a provisional order under the electric-lighting Acts for statutory powers within the burgh of Nairn. The Council unanimously agreed to consider this question of electric lighting early, and in the event of agreeing to introduce electric lighting they thought it would be more satisfactory to carry out the works themselves.

THE plans and specifications of a scheme for the electric lighting of Aston, Birmingham, will be ready to submit to the next meeting of the District Council. The provisional order was secured two years ago. The generating station will be at Chester Road, on the ground now occupied by the highways depot, for which another site has been secured. It is understood that the whole of the thoroughfares will be lighted, and the cost of the necessary buildings, mains, &c., is estimated to run into six figures.

AN important inquiry, which lasted between six and seven hours, was held at the Urban District Council offices, Surbiton Hill, on Tuesday, relative to the Council's application to the Local Government Board for sanction to borrow 50,000l. for purposes of electric lighting. The inspector was Colonel William R. Slacke, late of the Royal Engineers. Evidence was given on behalf of the scheme by several witnesses, and considerable opposition was raised to the whole scheme, it being contended that the electric light was not needed, and that the agreement with the company was really a transfer of the Council's powers. The inspector said if this were so the Council would have to go to the Board of Trade.

PREPARATIONS for the erection of the new electrical construction works for Messrs. Siemens & Co. at Stafford were commenced last week. Between thirty and forty workmen have been engaged in making excavations at the Queensville end of the site, and steps are being taken to clean out and extend the pool, which presumably will be utilised as a reservoir. It is on this part of the site that the railway sidings will be constructed, and the contract for the work, amounting to 1,300l., has been let to Mr. C. J. Nevitt, contractor, of

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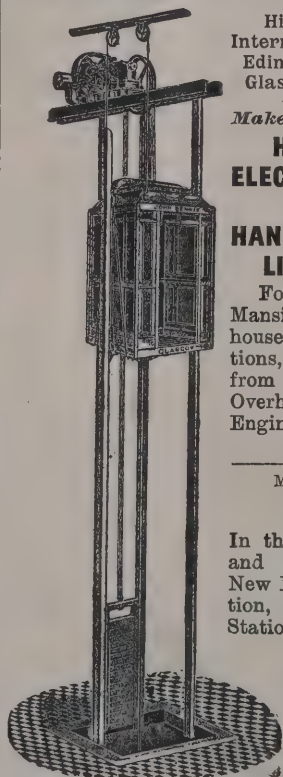
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Hotel, Perth Sta-  
tion and Hotel,  
the New Club,  
Glasgow; Court  
Houses, Glasgow,  
&c., &c.

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HYDRAULIC & GENERAL ENGINEER,  
Star Engine Works,

Moncur St., GLASGOW.

Manchester Agent—DUNCAN RITCHIE, 10 New Brown  
Street, Manchester.

## C. &amp; A. MUSKER

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## CRANES.

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DINNER LIFTS,

ETC.



Stafford. The main siding will follow the line of the Lichfield Road, passing between the road and The Hough residence, and taking a curve towards the London and North-Western main line, with a branch leading to another portion of the proposed works.

A LOCAL Government Board inquiry has been held at Barrow in respect to an application by the Corporation to borrow the sum of 12,340*l* for the extension of the electric-lighting system to Vickerstown and Walney Island. There was no opposition. It was stated that 500 new houses had been completed at Vickerstown, and plans for 350 more had been passed, whilst Messrs. Vickers, Sons & Maxim are also going to build about 400 more. It had been decided to light the streets of Vickerstown with electricity, using 22 arc lights and approximately 100 incandescent lamps. Messrs. Vickers, Sons & Maxim had entered into an agreement with the Corporation in which they guaranteed that the revenue arising from the supply of electricity to the houses would mean not less than 1,000*l*. per annum for five years. This guarantee was exclusive of street lighting, the revenue from which would be about 600*l*. The supply of electricity to Barrow was only commenced in 1899, when there were 43 consumers, and now there are 192, and exclusive of Vickerstown there are 945 lamps awaiting connection.

COLONEL A. G. DURNFORD, R.E., an inspector of the Local Government Board, held an inquiry at Bath on the 27th ult. into the application of the Council to borrow 4,000*l*. for the purpose of extending the electric-light works. The property to be purchased adjoins the generation station, and the total area is 1,562 square yards. The application was made in consequence of increased trade, the city electrical engineer stating that the number of 8 candle-power lamps in use had increased from 17,802 at the end of 1898, to 31,360 to the end of May this year. The present area of the works is totally inadequate, and the new property will be used for extending the plant. Subsequently the inspector heard an application for powers to borrow 1,200*l*. for the purpose of street improvements.

THE Heriot-Watt College, Edinburgh, through Professor Bailey and Mr. A. S. Chalmers, one of its students, has just taken an important part in introducing to the very heart of Central Africa a supply of electric plant for lighting and power such as few civilised regions possess. Before Dr. Robert Laws passed through London recently with reinforcements for the Livingstonia Mission he arranged for this installation,

which is being prepared at a cost of 4,000*l*. partly in this country and partly in Switzerland. At present kerosene alone supplies light to the great industrial college and Scottish mission stations around the head of Lake Nyassa. The freight raises the cost of a half-crown's worth of the paraffin oil to thirty shillings. The light thus supplied to the native students and purchased by the Europeans at present represents the interest of 4,000*l*. This sum Mr. James Stevenson, of Glasgow, and others are supplying to send out Mr. A. S. Chalmers in a month or two with the electric plant. There is a fine water power on the high uplands above Florence Bay to generate electricity enough to supply 600 lamps of 6 candle-power each and to give power for motors to drive a brickmaking machine, a flour mill, a pneumatic hammer, an iron-turning lathe, wood-working machines and the printing press. Such is the scarcity of labour even at this source of its supply that all industrial progress might be arrested but for labour saving machines of the most advanced type. This electric installation and a supply of pure water, through steel pipes from Glasgow, costing a similar sum, presented by friends, promise to place Livingstonia Institution in North Rhodesia at the head of all industrial civilising agencies among the dark races of our Empire.

### BUILDING AND BUILDERS.

THE trustees of the Bethel Methodist New Connexion chapel, Failsworth, have decided to proceed with the erection of a new chapel on the site of the present one.

THE foundation-stones of an extension of the Sunday school premises at the Holywell Cross Primitive Methodist chapel, Chesterfield, were laid on the 10th inst. The new premises are to be attached to the existing building, providing ample classroom accommodation and an enlargement of the assembly-room. The cost of erecting and furnishing this building will be about 1,600*l*., exclusive of the cost of the site.

THE Nile reservoir works will probably be completed six months earlier than was thought possible when Sir John Aird entered into his contract with the Egyptian Government. During the present season 352,000 cubic yards of masonry have been constructed, and 32,600 tons of cement, all shipped from England, have been used in building up the dams at Assuan and Assiut; and it may be added that continuous employment has since last November been given to nearly

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16,000 operatives, 90 per cent. of whom are Egyptians, the remainder being mainly British and Italians.

THE railway committee of the Paris Municipal Council has pronounced in favour of an application for leave to construct an underground railway from Montmartre to Montparnasse. The railway would have to pass under the Seine just below the Pont de la Concorde, and its depth underground would be from 26 to 120 feet. Under the Seine there would be two iron tubes of 17 feet diameter. The traction would be electric, the length would be four miles and the cost is estimated at 35,000,000 francs.

THE ancient church of St. Monan's, N.B., is undergoing careful restoration under the supervision of Mr. McGregor Campbell, of Glasgow. In every detail the antique character of the building is to be observed. A new roof of Caithness slates and ridge is being put on, granolithic in place of the old cement is laid on the tower, and a new session house will be built. An effort is also being made to protect the walls from damp, and when digging a trench the other day the men found the building stood on solid whinstone rock.

IT is expected that the new naval hospital which is being erected by contract at the north-east portion of the Royal Naval Barracks at Keyham will be ready for use in the early part of next year. It is intended for patients belonging to the naval dépôt at Devonport, and will not only be a great convenience as far as the medical work of the dépôt is concerned, but will afford a certain amount of relief to the present naval hospital at the western port, which is situated at Stonehouse. The new building at Keyham will provide accommodation for at least forty patients.

THE foundation-stone was laid on Monday of a chapel which is being erected at King's Norton to replace a wood and iron structure which has hitherto had to suffice for the Wesleyan mission established there some seven years since. Designed by Mr. Ewen Harper in the Tudor-Gothic style of architecture, with a handsome tower and spire, the chapel will be an ornament to the district. It is to be built of red brick with York stone dressings, and will consist of a nave and aisles divided by enriched granite columns. Immediate provision is to be made for 480 kneelings, and the plans permit of further accommodation being secured when necessary by the addition of transepts and a chancel. The main entrance is to face Middleton Hall Road, and the porch consists of a moulded stone archway with pinnacles and pediment. There is a second entrance from the front, in the tower, by which access

is gained to the gallery. The builders are Messrs. Harley & Son, of Smethwick.

A COMBINED effort is being made by the operative slaters throughout Yorkshire to obtain new rules applicable to the whole of the county, and an increase of wages. In Leeds at the present time the rate of pay is 9d. per hour, but in some other towns it is only 8½d., and the men ask that they should be paid at the rate of 9½d. per hour throughout Yorkshire. No alteration is suggested with regard to the working hours, which are fifty per week. The masters will meet in Leeds this week to consider the question. A private meeting of the Master Slaters' Association has been held, and from information then obtained it was decided to meet the officials of the Operative Slaters' Society to-morrow. The position is reported to be very acute. Certain proposals have been made by the masters for the men's consideration, and if these are not accepted there is great probability of a strike, which will affect the whole of the Yorkshire slaters.

THE annual general meeting of the South-Western Building Trades Employers' Federation was held at the Royal Hotel, Cardiff, on the 27th ult., under the presidency of Alderman H. J. Spiller, of Taunton. The secretary (Mr. A. E. Latham, of Bristol) read a most satisfactory half-yearly report. The meeting was asked to join with the executive in heartily congratulating Mr. A. Krauss, of Bristol, on his election to the presidency of the National Federation of Building Trade Employers of Great Britain and Ireland. The report stated that negotiations had been carried on with representatives of various South Wales Building Associations, and that these had resulted in the formation of a South Wales Building Trades Employers' Association, which would be worked in conjunction with the South-Western Federation. The Swansea strike was referred to, but as the matters in dispute were referred to arbitration the question was not discussed.

THE memorial-stone has been laid of a new fire-station to be erected by the Council in West End Lane, West Hampstead. It is to be built on land near the junction of West End Lane with Mill Lane and fronting the old village green of West End. It is in the centre of a district which a few years ago was nearly all open fields, but which is rapidly becoming covered with houses, and which is estimated in a few years' time to have a population of at least 200,000. The site cost 1,756l. 9s. 10d., and has an area of 16,000 square feet. The cost of the building will be about 11,373l. The plans contain several new features, such as the provision of an increased

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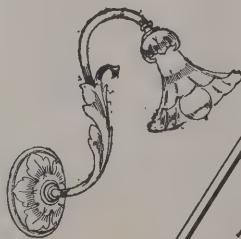
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## ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: VIEW FROM NORTH-EAST.

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number of sets of quarters for the firemen and their families. Four of the sets of quarters will take the form of separate cottages, each with its own garden, at the rear of the station proper. The whole of the premises will be lighted with electricity. In performing the ceremony of laying the stone, Mr. Gilbert explained that this new station formed part of a scheme decided upon by the Council for providing additional stations in various parts of the Metropolis, including West Hampstead, East Greenwich, Lee, South Battersea and High-bury.

SANCTION for the borrowing of the increased estimated amount for the conversion of St. Nicholas House, Scarborough, into new municipal offices has been received from the Local Government Board, and the work will now be proceeded with. It may be remembered that some two years ago the Corporation purchased the St. Nicholas House and gardens for 33,500*l*. The gardens having been converted into a public park, with terraced walks and shady nooks, were formally opened in August last by the then Lord Mayor of London (uncle to Mr. G. Lord Beeforth, J.P., an ex-mayor of Scarborough, and a greatly esteemed resident at the present time), but with regard to St. Nicholas House itself the Council decided to convert it into municipal buildings, so that all the Corporation offices could be combined under one roof. In 1899 estimates were prepared, and it was then thought that the cost of the conversion would be 14,000*l*., the sanction of the Local Government Board for the borrowing of this amount being obtained. When, however, the priced bills of quantities were prepared, it was discovered that the cost, instead of being 14,000*l*., would be nearer 20,000*l*., which gave rise to considerable opposition and delay. All difficulties have now, however, been overcome.

A MEETING of the heritors of the parish of Fyvie, Aberdeen, was held in the church on the 1st inst. to consider an application by Mr. A. J. Forbes-Leith to make structural alterations on the parish church at his own expense. The proposed alterations will be of rather an extensive and distinctly beauti-

fying character, and will provide an organ chamber and additional sitting accommodation. The parish church of Fyvie was built in 1808. It was renovated and decorated a few years ago, a stained-glass window being placed on each side of the pulpit—one window representing St. Paul preaching at Athens and the other illustrating the incident of the Brazen Serpent. The fittings of the church include a richly-carved communion table, a handsome pulpit and a tasteful font, all of dark polished oak. The organ is said to be one of the largest and handsomest in the country. There are a number of interesting mural tablets in the church, which also possesses some very old and perfectly unique communion plate.

THE foundation-stone laying of the London Baptist Association church and schools, Muswell Hill, N., took place on Wednesday, July 3. The seating accommodation of the church is for 900 persons. The ceiling is vaulted in wood-work. A bold tower terminated with a spirelet forms a prominent feature in front. The buildings are faced with red brick with Bath stone and Costessey dressings. The style of architecture adopted is Late Decorated Gothic. Messrs Mattock Bros.' (Wood Green, N.) tender of 6,408*l*. 16*s*. has been accepted for the work. The architects' estimate was 6,740*l*. The design was selected in a recent competition limited to six architects, the alternative designs by the same authors, "Greek Cross" and "Twentieth Century," being placed respectively first and second. The architects of selected design ("Greek Cross") are Messrs. George Baines, F.R.I.B.A., and Reginald P. Baines, 5 Clement's Inn, Strand, W.C.

## TRADE NOTES.

A LARGE clock has just been erected in St. Andrew's Church, Stockwell, which shows time on four dials and strikes the hours. The clock is generally to the designs of Lord Grimthorpe, and made by John Smith & Sons, Midland Clock Works, Derby.

MESSRS. HOBBS, HART & CO., LTD., are introducing under the name of "New Century Latches" some improvements in their well-known and already excellent night-latches. These locks contain all the elements of security without the complicated adjustments needed for fixing, common to most small-keyed locks. They are extremely neat in appearance, and are, moreover, distinctly moderate in price.

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## VARIETIES

THE public slaughter-house, erected by the Town Council of the burgh of Denny and Dunipace, N.B., at a cost of 1,200*l.*, was opened on Tuesday afternoon. The architects (Messrs M'Luckie & Walker, of Stirling) presented the provost with a silver key.

LORD ESHER has informed the Secretary of the Society of Architects that the executive committee of the Queen Victoria Memorial see no reason to depart from their original decision, taken after careful and due deliberation, to confine the competition to five architects.

A NEW Kursaal which has been erected on the pier at Eastbourne from designs by Mr. Noel Ridley, was opened on the 15th inst. The new structure, together with the other improvements carried out simultaneously, has cost about 26,000*l.* The pavilion is built on the cantilever principle, so that there are no pillars to obstruct the view of the audience.

THE London County Council have expressed their willingness to effect the much-needed widening of Hampstead Road conditionally upon receiving a contribution from the St. Pancras Borough Council. The subject was before the latter Council on Wednesday last, when it was agreed to contribute to the extent of one-eighth of the cost. Now it rests entirely with the London County Council to take the necessary steps to immediately remove this dangerous obstruction of one of our busiest thoroughfares.

THE proposed new crematorium for London promises to be an extremely handsome building. It is to be erected at Finchley, about four miles from the Marble Arch, and will be the property of the company owning a similar building at Woking which has now reached the limit of its capacity. A feature of the new building is to be a fine cloister extending round the grounds to serve instead of a wall or fence. This is to be used for the storing of urns and the placing of memorial tablets.

THE Court of Assistants of the Worshipful Company of Makers of Playing Cards have awarded the prizes in the recent competition for the best design for the backs of playing cards in connection with this company; 323 designs were sent into the competition, and the prizes were awarded as follows:—The "H. D. Phillips" prize of 10*l.* 10*s.* to Mr. George D Drummond, Clifton Road, South Norwood; second prize of 5*l.* 5*s.* to Mr. H. W. Hardy, Featherstone Buildings, Holborn; third

prize of 3*l.* 3*s.* to Mr. E. F. Proctor, Brondlands Terrace, Clapham Common, and fourth prize to Mr. E. E. Middleton, Ellington Road, Aston, Birmingham. The designs of five competitors were highly commended.

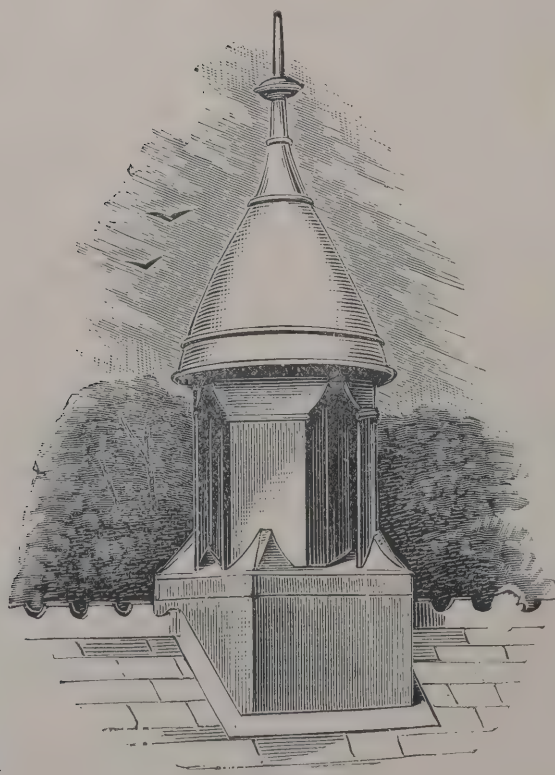
WE have received from the Thornton-Pickard Manufacturing Company, Ltd., to the excellence of whose cameras and photographic appliances we have had several occasions to refer, their "Album of Prize Pictures," selected from subjects sent in for their 1900 competition. This album is large folio size, and contains twenty full-page reproductions of the subjects in question, which have been sent in from all parts and which fully maintain the high excellence which has characterised them in previous years. The company announce their 1901 competition, in which 105*l.* will be distributed as follows:—35*l.* will be given in prizes for the best sets of four instantaneous photographs of subjects of general interest. 35*l.* will be given in prizes for the best sets of four instantaneous photographs of quickly moving objects. 35*l.* will be given in prizes for the best sets of four photographs of any subjects of general interest either "instantaneous" or "time exposures."

AT a meeting of the Withington Urban District Council Mr. J. Swarbrick, chairman of the drainage committee, reported progress in regard to the new drainage scheme. Contracts in connection with the works were signed for a total amount of 100,439*l.* The total cost of the scheme is estimated at 150,000*l.* Mr. Swarbrick said that a hundred men were already employed on the construction of bacterial filters, and it was hoped that these filters would do much to improve the present very offensive condition of the brook.

MR. MAITLAND, coroner, held an inquest on the 11th inst. at the infirmary, Dewsbury, touching the death of Percy Begg, who had died from injuries received at the works of Messrs. Tennant & Rodley, Ossett. He had occasion to go to an upper storey, the flooring of which is composed of perforated iron plates, supported on girders of the same metal, when one of the latter snapped, and he fell to the floor below, and iron plates with him, and sustained terrible and fatal injuries. An examination showed that the girder which gave way had a serious flaw in it.

JUST after the conclusion of Divine service in Rochester Cathedral on Tuesday evening the crown flew off a water tap connected with the supply pipe to the hydraulic engine used for furnishing wind to the grand organ, with the result that a powerful jet of water burst forth. Nobody present knew how to turn the water off at the main, consequently the steps leading

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from the choir to the chancel were converted into a cascade, which flooded the whole length of the nave to a depth of several inches. The water had to be baled out.

THE funds for the memorial of the late Dean of Peterborough have come in so satisfactorily that the cathedral restoration committee have given an order for the work of completing the restoration of the west front to be proceeded with forthwith. This includes the repair of the great central arch and gable, the two turrets flanking the same, and also the pointing pinnacles of the bell tower. It is hoped, therefore, that the scaffolding which has for more than four years disfigured the beauty of the grand old edifice will soon be removed.

THE Press Association announces that the wives of the Lords-Lieutenants in Scotland are being invited to raise county subscriptions for an Anglican cathedral at Cape Town as a memorial of those who fell in the war. Mr. Monro Ferguson, M.P., in view of this appeal, has now written to the moderators of the two Church Assemblies in Scotland to express the objection entertained by himself and other members of Parliament—Scottish and English—to the proposal. The members hold that it is undesirable to promote a sectarian and denominational institution as an Imperial memorial, especially as the Anglican community in South Africa is much smaller and less congenial to both residents and emigrants than the Dutch Reformed Church or other denominations to which the bulk of Scottish colonists more naturally turn. Mr. Monro Ferguson holds that the sacrifices made by the whole empire, irrespective of denominational differences, should not be commemorated by a sectarian memorial.

AT the last meeting of the Middlesbrough Corporation ferry committee, Ald. McLauchlan, in reply to a question, said the Shields Bridge Bill passed the House of Lords, but was thrown out by the House of Commons. He did not think that should prevent them going on with their scheme for a transporter bridge over the Tees at Middlesbrough. They were differently situated from the promoters at Shields. There it was a private enterprise, and they had the Tyne Commissioners, who owned the ferries, the shipping interest and nearly everybody against it. On the Tees the Middlesbrough Corporation owned the ferry, and by adopting a transporter bridge and giving up the ferry they would make considerably more and it would be handier for everybody. Mr. Gadsby had informed him that he thought they could build a transporter bridge between Middlesbrough and Port Clarence for 40,000*l*, and he

thought they should have Mr. Gadsby over to interview them and report on the matter.

THE members of the Hawick Archæological Society, to the number of between 70 and 80, held their annual excursion last week, when they visited Yetholm, Ford Castle and Flodden Field. Proceeding by rail to Kelso, they drove to Yetholm, where they visited the king and queen of the gipsies, who received them very graciously. They live in a small but neat cottage, on which is inscribed "The Palace." The company then drove to Ford Castle and inspected the beautiful pictures, also the room in which King James slept on the eve of the battle of Flodden. Subsequently Flodden's fatal field was visited, the company afterwards dining at Cornhill, and driving back to Kelso, where they took train for Hawick.

FOR the convenience of holiday-makers on the Continent cheap tickets will be issued by the Great Eastern Railway Company to Brussels available for eight days *viâ* Harwich and Antwerp. Passengers leaving London in the evening reach Brussels next morning. Tickets at cheap fares will be issued by the Antwerp route to Berne from the 24th to the 27th instant. For visiting The Hague, Amsterdam and other parts of Holland, the Rhine, North and South Germany, and Bâle for Switzerland, special facilities are offered *viâ* the Great Eastern Railway Company's Royal British Mail Harwich-Hook of Holland route, through carriages being run to Amsterdam, Berlin, Cologne and Bâle, also restaurant-car on the North and South German express trains to and from the Hook of Holland. The General Steam Navigation Company's fast passenger steamers will leave Harwich for Hamburg on July 31 and August 3, returning August 4 and 7.

#### THE LATE EDINBURGH BURGH ENGINEER.

THE burgh engineer of Edinburgh, Mr. John Cooper, died at his residence, 15 Cumin Place, Edinburgh, on the 9th inst. He was a native of Culross. He had a good education at Dollar Academy, served his apprenticeship as a joiner, and was employed in that capacity when he went first to Edinburgh with Messrs. Beattie, Fountainbridge. He became an assistant in the burgh engineer's office in 1872, and since that time he has been in the continuous employment of the Edinburgh Corporation. His general intelligence, industry and great capacity for work, combined with a study which he made in civil engineering, enabled him to rise by successive stages to

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the position of first assistant in that department of the city's affairs, and, on the death of Mr. Fraser in 1882, he was elected to the position of burgh engineer. Since then the duties of that office have grown enormously. The staff has been increased during Mr. Cooper's period of office from six or seven men to something like sixty. Shortly after his appointment the duties of master of works—an office which had become vacant by death—were added to those of the burgh engineer. Mr Cooper's capacity for work was enormous, and it is not too much to say that he often attempted more than his strength was capable of. In his day not a few important sewage schemes were initiated and carried through, including those of the Powburn, West Merchiston, the Queen's Park and Craigentenny, and latterly he threw himself with great heartiness into the schemes passed by the Town Council for the housing of the working classes, and was responsible for the building of houses of this kind at Tron Square, High School Wynd, West Port, Potterrow, and elsewhere. He was architect for the destructor at Powderhall, and after that he planned and carried through the Dewar Place and M'Donald Road electric-light stations. When the horse tramways were taken over by the city he was appointed engineer to look after the property, and ultimately, when it was decided to introduce the cable, the appointment was changed to joint-engineer with Mr. Colam of the tramway system, the latter being responsible for the mechanical part and Mr. Cooper for the roadways. This entailed an immense amount of worry and work on the burgh engineer, and with his ever-increasing duties in his own special department, it was scarcely to be wondered at that his health gave way under the strain. The deceased was fifty-seven years of age.

### DUSTLESS AND SANITARY COMPRESSED AIR CLEANING.

A NOVEL and useful invention to do house-cleaning mechanically, thus dispensing with the old methods now in vogue, was practically shown and tested at the Empire Theatre, Leicester Square, on Tuesday last, when a section of the carpet in the lounge of the theatre was renovated without removing the carpet from the floor. The process was simplicity itself. A smart white-uniformed operator was quickly pushing along the floor a mysterious-looking contrivance—a metal box with a balloon-shaped white linen cover, bulging with air, and trailing

after it a long sinuous tube, connecting the box with an air-compressing apparatus hidden away in the lower regions. That was all, and as the metal box was rapidly pushed over the carpet surface the cleaning was effected as if by magic. The machine, which is an American invention, as are so many labour-saving appliances, is by no means restricted to the cleansing of floors; upholstery, hangings and walls are equally effectively treated by it. The saving of time and disturbance is immense, and the unwelcome advent of the spring-cleaning season may be awaited with equanimity by the most irritable paterfamilias.

The invention consists of an apparatus, comprising a rectangular box about 12 inches wide, with a hollow handle through which the compressed air is supplied. It is pushed over the carpet by an operator, and is the receptacle in which all the dust is collected. The receptacle or renovator is connected to a source of air supply by means of a rubber tube, which conveys the air under pressure. The machine that compresses the air is electrically driven, and when used in theatres, hotels and flats, it is located in a convenient place in the basement, and the air is conveyed by means of a flexible tubing to where the operators work on any of the floors of the building. For residences where no electrical connections are available a waggon is used which contains a gasoline driven air compressor, and this is transported to and from the residences by its own mechanical power or by horses. The renovator, using compressed air at 75 lbs. pressure per square inch as a force to dislodge the dust and other impurities from the fabrics to be cleaned, gathers all the dust that the carpet contains, and that which naturally accumulates between the carpet and the floor. A great advantage that the compressed-air method possesses over the old one is that the carpets can be disinfected at the same time they are renovated. This is accomplished by means of a disinfecting fluid being fed or passed mechanically in proper proportions into the compressed-air receiver, there commingled and blown entirely through the fabrics and into the crevices of the room. It is stated that one man can clean from ten to twelve rooms in one day, including the ceilings, walls, carpets, curtains, draperies, bedding, woodwork and upholstered furniture. Grease spots and other stains are removed without injuring the nap or fabric of the carpet. Libraries and book-shelves are cleaned without disturbance, and the dust is gathered, and after the cleansing is completed the whole can be disinfected by the same process.

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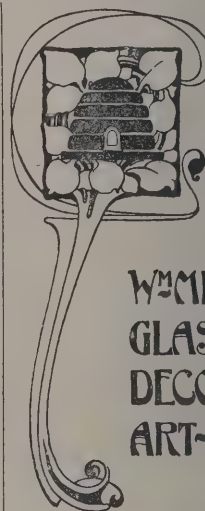
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## WATERWORKS OF GIBRALTAR.

AMONG the papers which were on the programme of the recent convention of the American Waterworks Association was one by Professor W. P. Mason, of Troy, N.Y., on the waterworks of Gibraltar. He was unable to present this paper, but has furnished the *Engineering Record* with the following notes concerning it. So carefully are the military secrets of the fortress guarded that even the individual officers of the post are not fully informed as to the nature of the defences outside the section where their duties lie. To such an extent is this carried that the engineer officer designing the works for the new water supply stated that he could not go up the west face of the rock until his pass had been signed in England.

The bold-faced rock of Gibraltar so familiar in pictures faces the land and not the sea; the east side is also very precipitous, while the west slope, although decidedly steep, permits of enough fairly level ground to be found at its base to furnish room for the "city," with its surrounding walls and 20,000 people. The garrison numbers 6,000. The real defences of the place are invisible to the stranger, who cannot locate a single piece of modern artillery unless he chances to be present during a gun drill, when he quickly becomes aware that the cannon are very many and very large.

Gibraltar is not limited to a single source of water supply. For flushing, street sprinkling and the like a brackish water is used, which is obtained from wells sunk in the flats north of the rock and near the neutral grounds. The supply so secured is about 25 per cent. sea-water in winter and about three times that amount in summer, owing to the variation in seasonal rainfall. It is pumped into a tank from which it is distributed by gravity, and is sold at about 5 cents per 120 U.S. gallons.

On the west slope there is a distilling plant for furnishing a potable supply from sea-water. The apparatus is well protected and ready for an emergency, but is not ordinarily in use.

The principal supply is from the rainfall on about 16 acres near the top of the west face of the rock, which has been carefully cemented at a cost of about 30 c. per square yard. The water falling on this area, about 33½ inches annually, passes through a rough strainer of polarite and sand, and is thence pumped into underground storage reservoirs, four in number at present. Each is 201 feet long, 51 feet high, 22 feet wide at the top and 18 feet wide at the bottom. The sides are stepped off by 4-inch ledges every 7 feet, measured vertically. The

sides, bottoms and ends are concreted and plastered with four coats of equal parts of cement and fine limestone. Security against an enemy's shell-fire is not the only advantage of this form of storage, for the absolute darkness which prevails inhibits the growth of aquatic vegetation, and the temperature of the water is maintained constantly at 50 degs. The exact location of these reservoirs a civilian is not permitted to know.

Designs have been completed and work is now in hand for a much larger storage system, to consist of a tunnel driven through the entire rock from side to side, excepting, of course, the unexcavated ends. Exact information concerning the work cannot be secured, but in a general way it is known that the tunnel will be about 400 feet above sea level, 2,000 feet long and 1,311 square feet in sectional area. It is expected to cost 750,000 dols. The catchment area must necessarily be increased largely to provide enough water to fill this new reservoir.

Many of the citizens of Gibraltar store in private cisterns such rain-water as they are able to catch on their roofs; there are nearly 700 of these cisterns. In default of such a supply they purchase water from the Government at the rate of 2 cents per 12 U.S. gallons for rain-water and 4 cents for distilled sea-water.

## WATER IN CONCRETE.

In a recent number of the "Journal of the Western Society of Engineers," Mr. J. Hirtz describes some experiments made for a railway company to ascertain whether any advantage was gained by using concrete mixed rather dry. Authorities on concrete have differed very much on this point, some as the result of laboratory experiments having recommended that the water added should be kept down to the lowest possible amount, while others prefer an excess of water. Actual practice has also differed, for inquiries showed that out of thirty-five prominent railway engineers ten preferred a dry mixture, five a moderately dry one, sixteen a moderately wet mixture, and four a wet mixture. In the experiments referred to the concrete consisted in each case of 1 part of Portland cement, 2 parts of sand and 5 parts of stone. This was mixed by a Ransome mixture and moulded into two 3 feet cubes. In the one case the water added was 82 per cent. of the volume of the dry concrete, and, as a consequence, the mixture was so wet that it was difficult to handle. In the other case the water added was 44 per cent. of the volume of the dry mixture, and

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heavy tamping was necessary to consolidate the concrete. This tamping was done on each 6-inch layer. After thirty days it appeared that the wet concrete weighed 9.7 per cent. more than its fellow; it had, further, a much better surface, and on being broken proved of much higher quality, the interior being a solid and compact mass, with the surface of fracture passing through the limestone and granite pebbles of the aggregate. The broken surface of the dry concrete block, on the other hand, showed numerous voids and pores, and a much larger percentage of pieces of stone and pebble "pulled out" in place of breaking. It is obvious from this that plenty of water should be added to the mixture in order to produce the best concrete.

### THE IRON AND STEEL INSTITUTE.

THE autumn meeting of the Iron and Steel Institute of Great Britain will this year be held in Glasgow, from September 3 to 6 inclusive, concurrently with the International Engineering Congress, Section V. of which represents the metallurgical industry. The meetings for the reading of papers will take place in the University Buildings, which are in immediate proximity to the Exhibition. On Tuesday, September 3, the president, Mr. William Whitwell, will deliver a brief address, after which, and on the morning of the following day, a series of papers will be read and discussed. These are no fewer than twelve in number, amongst them being one on the iron and steel industries of the West of Scotland, prepared by a committee of the West of Scotland Iron and Steel Institute, and another being a report on the nomenclature of metallurgy prepared by a committee of the Iron and Steel Institute. The chemical and physical aspects of the metallurgy of iron and steel will be represented by three papers, whilst the practical and manufacturing sides are to be discussed in seven others. Apart from the congress, a programme of excursions to works and of social functions has been arranged by the local reception committee. Thus, after the morning sitting on Tuesday, there will be a luncheon in St. Andrew's Hall at the invitation of that committee. In the afternoon there will be excursions to various local iron and steel works and a visit to the Exhibition. In the evening there will be a conversation by invitation of the Lord Provost and Corporation of Glasgow. On Wednesday the arrangements of the previous day will be repeated, varied in the evening by a banquet to the members of the Institute in St. Andrew's Hall by invitation of the local

reception committee. Thursday will be devoted to excursions to iron and steel works in outlying districts, and in the evening there will be a ball in St. Andrew's Hall. Friday will be wholly given to an excursion on the Clyde in the *Columba*, by invitation of the local reception committee. Ladies will, for the most part, be invited to the social functions, including the Clyde trip.

### THE CEMENT INDUSTRY OF THE UNITED STATES.

THE cement industry in the United States, writes Mr. Bell British commercial agent in the United States, does not appear to be receiving from British manufacturers the amount of attention it deserves.

Although the manufacturers of Portland and other cements are rapidly increasing, there is still a considerable quantity imported. The increase of output of American made cement is barely doing more than keeping pace with the increase in demand, consequently the imports do not show the decrease that might be expected. So many new factories are being built that in time the increase in supply will exceed the yearly increase in demand, and the amount imported will decrease in proportion. It will, however, be many years before the importation of cement falls off entirely. There has been for long a great prejudice among contractors and engineers against the home product, but this is fast disappearing. Doubtless in time it will disappear entirely, and the United States will be able to produce sufficient to supply all its home markets, and will then export whatever surplus there may be.

In 1891 only 13.2 per cent. of the cement used in the United States was of American manufacture, while in 1899 this percentage had risen to 73.9. It is a very sore point with the American cement manufacturers that there are still engineers who specify for imported Portland exclusively, notwithstanding the fact that many of the best brands of the home product are establishing a reputation for high quality, and the manufacturers are willing to offer substantial guarantees. The manufacturers maintain that the domestic product is at least equal in quality to the German, and is from 50 cents to 1 dol. cheaper.

During the nine months ended March last, out of 541,701,557 lbs. imported the United Kingdom only supplied about 11 per cent. The previous year the British cement imported amounted to 9.5 per cent. of the total amount, but in 1889 it was more than 15 per cent.

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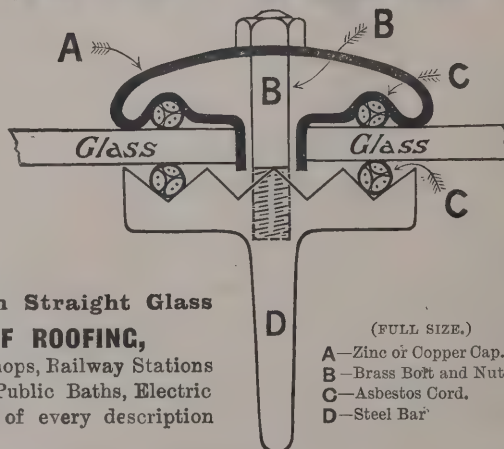
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Of foreign cements the German has the largest sale. During the nine months ended March last Germany supplied 46 per cent. of the total amount imported, in 1900, for the same period, 54 per cent., and in 1899 49 per cent. Belgian cements come next with 34 per cent. in 1901, 30 per cent. in 1900, and 32 per cent. in 1899.

On endeavouring to ascertain the reason why the German and Belgian cements are sold so much more largely than the British product, one finds there is a considerable difference of opinion.

The representative of an important importing house, handling three German brands, two British and one Belgian, kindly gives his opinion as follows:—"The falling-off in the sale of British Portland cement in this country, which took place some five or six years ago, was partly due to the fact that the German cements proved so much more satisfactory as to quality, and Belgian cements of fair quality selling so much cheaper, while British makers were unwilling to make any improvement in the quality of their product. Notwithstanding, there continued to be a limited sale for the British brands, but during the last few years British makers had such a demand for their cement at home and from other foreign parts that it enabled them to obtain a higher price for their cement elsewhere than in the United States, so that they did not care to make any concession to the American trade, and this has led to a further decline in the sale of British cement in this country, which in the Eastern and the Western States is at present very unimportant. On the Pacific coast, where the British makers have the advantage of very low freight rates, their cement is still sold in considerable quantities."

An American cement expert gives his opinion as follows:—"British cement was at one time almost the only Portland cement in our market. German cement rapidly replaced it, however, owing to the superior quality of the German product. No doubt some brands of British cement are now much better than formerly, and probably equal to the best German. However, there is an immense number of German masons in this country who prefer the German product, and will use no other. The Belgian cement gained a foothold in consequence of its low price, and has been preferred to the American Portland on account of being an imported article. It is certainly generally inferior in quality. The low price of American cements has nothing to do with quality, but is due to senseless competition among American manufacturers. Tests made by a multitude

of competent engineers show that the best American cements are superior to all other brands. In my judgment the only reason why any cement is imported is that the American product has until lately been insufficient in quantity, and also that there are many consumers who are willing to pay a higher price for an imported article, regardless of tests."

The editor of the *Cement and Engineering News*, the leading cement trade journal, has kindly given his views of the question. He remarks:—"Our own idea of the subject is that the German cement manufacturers are more thoroughly represented in the United States, and make a greater effort to obtain orders in the interior than do the British manufacturers. German cements are more thoroughly advertised, and when making contracts with cement brokers they have the contract read that said broker shall employ travelling salesmen to secure orders. In our opinion the British cements imported into the United States are fully equal to the German product, as the makers of the poor British grades find no market here. The German cement obtained a strong foothold in the United States owing to their first introducing cements adulterated with 2 per cent. or less of gypsum, which controls the setting of the cement, and for this reason they have maintained their prestige among certain consumers."

These three opinions cover pretty nearly the whole field, and none of them, unfortunately, are favourable to the British manufacturer.

The price of the German cement imported during the nine months ending March averaged a little over 40 c. per cwt. The Belgian averaged nearly 35 c., and that from the United Kingdom about 43½ c. per cwt.

The previous year the German cement averaged 40 c., the Belgian about 33½ c. and the British over 44 c. per cwt.

These figures would indicate that the Belgians are able to do their business on account of the low price of their product notwithstanding its accepted inferiority, while the Germans are underselling the British, it being conceded that there is not much difference in the quality of their best brands.

In 1898 there were 31 works in the United States producing 3,692,284 barrels of Portland cement, valued at 5,970,773 dols., and in 1899 there were 36 works producing 5,652,266 barrels, valued at 8,074,371 dols. That is to say, there was an increase of 53 per cent. in quantity, but only 35 per cent. in value.

The principal States where Portland cement is manufactured are Pennsylvania, New Jersey, New York, Ohio and Michigan.

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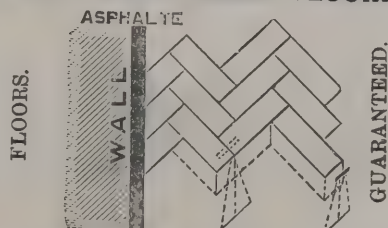
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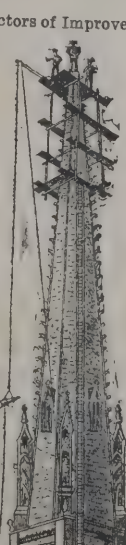
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The Lehigh Valley region in Eastern Pennsylvania and Western New Jersey is the seat of the first successful establishment for the manufacture of Portland cement in this country, and has from the first produced more than the rest of the United States combined. This is due to the occurrence in that district of an immense deposit of clay limestone belonging to the calciferous formation which has nearly the composition of a Portland cement mixture.

There are two works in the district said to be larger than any other works in the world. One is producing 8,000 barrels per day, and is increasing its capacity still further.

There are other localities more favourably situated as regards fuel than the Lehigh Valley, and have abundant supplies of material suitable for making Portland cement, so it is possible the production of the Lehigh region may be surpassed by some other.

There has been an average annual rate of increase in make of about 40 per cent. during the last ten years and an average increase of 55 per cent. during the last four years. This rate cannot continue without bringing disaster to the trade. Were it to do so the annual production in four years would exceed the amount at present made in Germany.

In all new works in this country the rotary kiln is invariably adopted for the manufacture of cement; in fact, over 70 per cent. of the cement made in this country is now burned in rotary kilns. It is found that the quality of the product is at least equal to that made in the older forms of apparatus. It is more economical than burning in the vertical variety of kiln and gives a larger output.

Comparing the results of the different kinds of kilns, it has been found that the Dietzsch kiln turns out from 75 to 80 barrels per day, with a fuel consumption of about 20 per cent. by weight of cement produced; the continuous shaft-kilns produce from 40 to 80 barrels per day, with a consumption of fuel of about 30 or 40 per cent., while the rotary variety will produce from 120 to 160 barrels per day, with a consumption of solid fuel of about 30 per cent. Though the consumption of fuel by the rotary kiln may be higher than some of the other kinds, the cost of labour is considerably less than any of the others. The labour cost per barrel by the rotary kiln is given as from 2½ to 4 cents, while that by the continuous shaft kiln is given as from 12 to 14 cents. This is not the only difference. It requires five shaft kilns to equal the product of two rotaries, and the cost, kiln for kiln, is slightly less in the case of the rotary plant. This should mean probably another 1½ cents, representing the

interest on the greater cost of a shaft kiln plant, in favour of the rotary system. Taking one thing with another there is apparently an economy of several cents per barrel in favour of rotary kilns which is likely to be increased as further improvements are adopted.

In modern American cement plants, as in nearly every other works in the United States, the notable feature is the substitution of fuel and power for labour. Manufacturers understand the necessity of reducing the cost to a minimum. Machinery is substituted wherever possible to eliminate labour. Crude petroleum and natural gas are used when possible for fuel, and the latter is sometimes used to drive the engines. In some of the modern works electric power is used for driving the machinery as well as for lighting purposes. In the best arranged works the rock, from the time it is loaded into trucks in the quarry to the time it is packed as finished cement ready for shipment, is not once moved by hand. The only manual labour employed in the mill proper is that necessary for operating the machinery. The main idea is to make the plant as nearly approaching automatic as possible.

Every known mechanical device for rapidly and efficiently handling the materials is introduced wherever possible. This is often done at considerable cost, and the apparatus is duplicated as far as possible in order to avoid delays should any part become broken. This is considered as of considerable importance in the manufacture of cement where the wear and tear is so great.

In addition to Portland cement, large quantities of natural rock cement are manufactured. This is chiefly made in the States of Indiana and New York. In the year 1899 there were 76 works, producing 9,868,179 barrels, valued at 4,814,771 dols. The total consumption of imported Portland cement during the same year was 2,108,388 barrels, and of the domestic Portland 5,652,266 barrels, bringing the total consumption of all kinds of cement up to 17,628,833 barrels.

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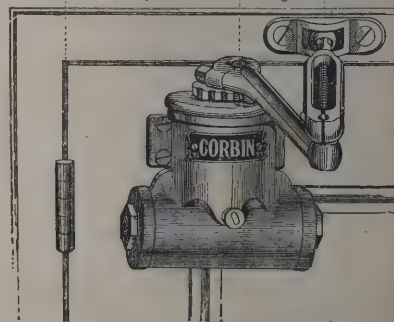
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will be utilised as far as possible, and any new work that may have to be put in will be an exact copy of the old. Everyone who attends church will be glad to learn that the unsightly—and not particularly safe—gallery at the west end of the middle aisle is to be abolished, as are also the pews and awkward “boxes” which now serve as seats for the congregation. In place of the latter proper wooden benches will be erected, and by means of these much more seating accommodation will be available. According to the plans we find the following alterations and improvements are to be made in the east end of the church. The sanctuary is to be raised to its original level, which can be seen by the position of the Abbot's monument. This part of the building will be greatly beautified by the addition of a lofty reredos of stone, whilst instead of being an eyesore, as at present, the bare wall at the back of the altar will be beautifully painted in fresco, and thus make a very handsome east end to the church. The doorways from the sanctuary, which have now been closed since 1410, will be opened and iron-framed doors erected. The vestry for the clergy will be built in the east tower in such a way as to be scarcely visible from without. The floor of the choir will be laid with slabs of black and white marble, and the choir stalls will provide seats for seven men and eleven boys on either side, besides accommodation for four lady choristers in the arches. The space at the east end of the south aisle, which was originally used as a vestry by the parish clergy and monks, will be used as a vestry for the choir. From here doors will lead to the choir stalls and to the south aisle. The pulpit will be moved further to the west of the church. The choir organ will be situated on the south side of the choir, and the organist, who will sit with the choir, will thus be able to control both that instrument and the large organ in the west tower, which will be connected. The present organ was built in 1793, and as may be supposed, the mechanism is anything but perfect. Unless the player is well acquainted with its somewhat eccentric habits, peculiar effects may result. The cost of rebuilding the organ, which will retain some of the pipes and outer case, is estimated at 1,000/. The west end of the church now claims our attention. We have already mentioned that the gallery is to be abolished, and this will necessitate the removal of the organ from its present position further back into the west tower, where it will be placed on a new screen of three arches, somewhat lower than it now stands. The great and beautiful arch in the west tower, now almost blocked from view by the gallery and organ, is to be thrown open, and

a groined roof, the height of the arch, will be made above the organ. This alteration will add nearly 60 feet to the length of the church. The entire floors of the middle, north and south aisles will be lowered a foot, bringing them to their original level. This is shown at the base of the Norman pillars, which will not be touched. To lengthen the south aisle, the present vestry will be done away with. In the north aisle the small door at the east end will be closed, and a side altar erected for use at week-day services. The window in this aisle will be opened, and all tracery, as well as the mullions which exist, will be made use of, whilst the parts that may be missing will be filled with accurately fitted work of a like pattern. As far as the exterior of the building is concerned, the lead will be removed from the roof and recast on the spot. Thus, when reroofing, the old metal can be utilised again. The west tower will be completed in the style it was originally intended. The east tower, beyond a few necessary repairs, will remain untouched. It is anticipated that the alterations will take about three years.

### GERMAN TRADE.

THE British Consul, in his last report on the trade and industry of the Grand Duchy of Baden, writes :—

The rise of German trade and industry has been one of the most astonishing facts of the latter part of the nineteenth century. With gigantic resources and ample capacity for feeding their own population, the United States may perhaps for many years flourish and prosper under a high protective tariff, but whether Germany, that has hitherto been quite unable to feed its already rapidly-increasing people, will be able to successfully imitate and follow the example of America seems more than questionable. The conditions are so very different. On the other hand, it may be said that not even the German protectionists contemplate pushing matters to such an extreme, and that the necessity, or at least the wish, to establish trade treaties with neighbouring countries will of itself fetter all such aims. That no doubt is true, but unfortunately it is also true that in such questions nations and statesmen have no real will of their own. It is as with the armaments that grow ever heavier; every Government would fain stop the increase, but circumstances are prohibitive. There is a certain degree of analogy. Treaties or no treaties, internal conditions in Germany demand higher duties; no German statesman can ignore it, and whether under such impulse a general wave of




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higher protection shall extend throughout Europe or not is a consequence that no Government or nation can control.

One feature that has had some influence in bringing about the present position, and which may continue to affect it, is the system of mortgage in Germany. No other nation in the world has carried it to such development. This natural resource of a country long comparatively poor in capital under ordinary conditions appears perfectly legitimate, and in Germany has been gradually brought to the utmost efficiency. Without its help, indeed, Germany would hardly have risen to its present rank. When a man buys land, or builds a house or a factory, unless rich, he will in most cases seek to liberate his capital again by mortgaging the investment. It is customary to do so, and he enjoys every facility for doing so. No prejudice exists on the point as in the United Kingdom, and not merely private individuals, but landowners, manufacturers and public companies freely avail themselves of such resource. Germany has some thirty-four mortgage banks or institutions whose collective issue of obligations amounted up to June 30, 1900, to 6,496,150,000 marks. The amount of capital invested in mortgages is somewhat difficult to determine. Dr. Felix Hecht estimated the total for the public mortgage institutions of Europe at the close of 1898 at 26,690,000,000 francs, of which Germany's share alone reached 11,600,000,000 francs, while Russia had 6,570,000,000 francs, Austria-Hungary 2,840,000,000 francs, and France only 1,790,000,000 francs. A wealthy country like France has no occasion to burden its land and other real property with debts as poorer countries must do to furnish themselves with capital to develop their resources. The total amount of capital placed in mortgages is, of course, much larger. For Prussia alone it was reckoned in 1892 at 16,500,000,000 francs, and the rapid growth of obligations of the Hypothek banks from about 3,970,000,000 marks at the end of 1893 to 6,298,000,000 marks in 1899 is remarkable.

The latest authority on the subject, Herr Rudolf Eberstadt, puts the present total capital invested in mortgages in Germany at the frightful (erschreckende) sum of no less than 40,000,000,000 marks, or upwards of 2,000,000,000%, to which a critic in the *Frankfurter Zeitung* remarks:—"Considering the very large amount of mortgage obligations held by insurance companies, foundations, trustees, savings banks and the like, and the certainly much larger amount in the hands of private capitalists, the total sum of mortgages in Germany must indeed have risen to gigantic dimensions, even if the statement of

40,000,000,000 marks may not prove somewhat over the mark. The system partly explains the rapid growth of the cities and the springing up of the countless houses and factories, but unfortunately it also favours speculation and extravagance of all kinds, and also the rapidly-increasing cost of living. Eberstadt in referring to the influence of the British money market on German Government securities ascribes their low price partly to the absorption of capital in Germany in speculative and unproductive operations, and apparently considers it a permanent source of depreciation of such first-class securities." Another authority also says:—"Although our Government stocks are quite as safe, their elevation to the same high value as the British and French must under the circumstances remain a pious aspiration."

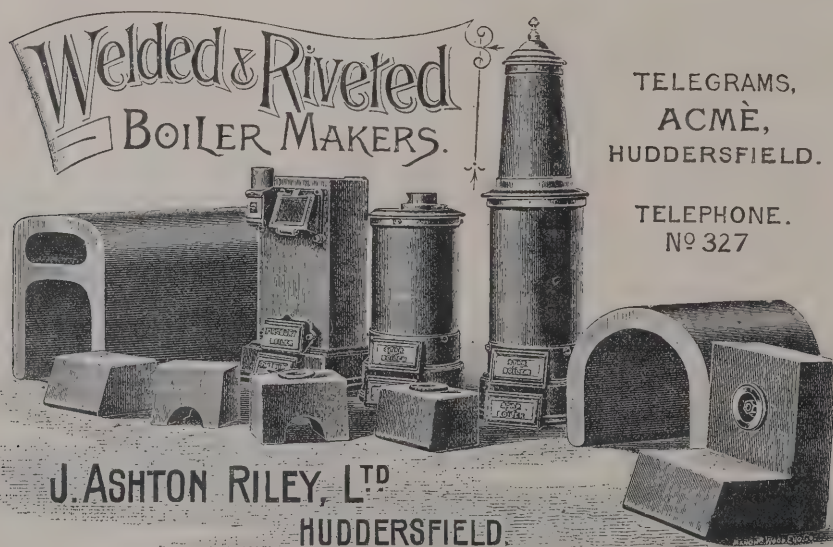
Owing to the dearth of money the best industrial undertakings had to pay  $4\frac{1}{2}$  to 5 per cent. in 1900, the governments, municipalities and mortgage banks 4 per cent. Even the German Imperial Government borrowed money at 4 per cent. The banks, of course, profited by such high rates and for the most part did a fair business. Almost all German stocks, industrial and others, suffered, however, in 1900, and the depreciation involved enormous losses. Even the best securities were not unaffected. This is partly attributed to the legislation on stock exchange business and time bargains, which in seeking to repress gambling and speculation is said to have produced very untoward results and contributed to injure the credit of the country.

The glass factory at Waldhof had a good year's trade, but complains that the demand in the United Kingdom for polished glass has fallen off considerably, and that the high price of coals and want of workmen limits production.

The German Portland cement factories are much affected by the gradual loss of the American market, the United States producers being able to cover almost the entire demand in America. Hitherto Baden factories have been compensated by the large home inquiry, but in 1900 there were not so many public works in hand, and building in general was sharply checked by the high price of money.

The metal industries in the first quarter of the year enjoyed the utmost prosperity, orders pouring in in spite of rising prices, and only towards June did it become fully recognised that the tide had changed, and then things gradually went from bad to worse, till towards the close of the year many branches were almost at a standstill for want of business. In the course of the year prices fell 30 to 40 per cent, and the depreciation of

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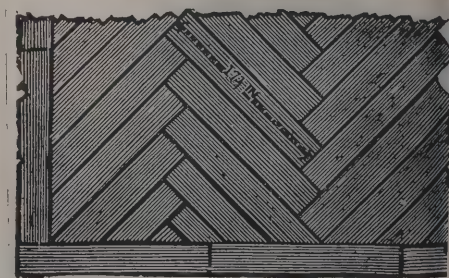
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share capital in numberless mining and industrial concerns was very great. Some of the rolling mills being under contract for years in advance to the Prussian Railway Ministry held their own; makers of agricultural tools and machinery and a few other departments also did well, but they were the exceptions. The electrical industry which a few years ago promised to conquer the world, and which already in 1899 suffered a decline, went back further still in 1900. Orders might be had, but in face of the higher cost of material and the difficulty of obtaining capital, electrical plant does not pay, and even for illuminating it is complained that municipalities charge too high prices. Steam, gas and petroleum have again their turn.

#### GERMAN WORKSHOPS AND WORKMEN.

A CORRESPONDENT connected with one of the great manufacturing firms of this country has sent to the *Times* the following report from one of his foremen who was lately sent by the firm to inspect some of the more recent workshops in Germany. The writer of the report stated verbally "that the men in the shops he visited appeared to be trying to do their best, not, as is often the case here, only what is necessary to pass muster."

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kind, giving a positive reading to a much finer degree than ours. Their methods of producing cutting tools for giving correct form of thread, &c., are excellent, and enable the workmen to proceed on well-defined lines with very great accuracy.

My visit was in every respect educational in point of order, system, accuracy and economy, and the problem which I set myself is the application as far as possible of the various improved methods which I have seen to the greater and more varied productions of our works.

#### ROAD-MAKING IN JOHANNESBURG.

THE difficulties attending the formation of roads and streets in Johannesburg may be judged from the subjoined copy of the report from the acting town engineer:—

The following suggestions are made with the view of reducing the cost of supervision in connection with the making and repairing of roads and streets.

Instead of having a white overseer constantly watching each small gang of natives, I would divide the municipal area into, say, three or four districts, and have one competent overseer to each, whose duty it would be to take charge of all road gangs within his district.

The objection some people might have to this is that the natives would not do much work without an overseer being continually with them. To obviate this difficulty I would pick out a suitable boy from each gang, give him a shilling or two extra and make him responsible for the amount of labour which ought to be done by his gang.

The district overseer should visit each of his road gangs several times a day. When the stone for metalling (which should never be broken on the street) is carted to the required place the natives would simply have to spread the macadam to its correct thickness and curve, as directed by the overseer, so that if the quantity of stone were delivered in proper proportions to the number of natives employed at each place—and I see no reason why this could not be done—there should be no difficulty about the labour. The district overseers should see that all returns of labour and material, as required by the engineer, be handed to the road foreman daily, who will be responsible for the correctness of the same.

There should be a first-class man appointed as road

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foreman, whose duty it will be to receive instructions from the engineer, transmit those instructions to the overseers and see that the work is properly executed; to receive all daily returns and assist the booking clerk with the wages sheets and apportionment of the various works. He would also have charge of any other work on the streets, such as mason's work erected departmentally, cleaning of pits and drains, tar, macadam, &c., and see that any person who has permission to break up the street for laying pipes, &c., leaves the surface of the road or footway in a satisfactory state.

This is a general idea of a system which, after many years' experience both in England and this country, I feel sure would lead to a satisfactory result, and bring the cost of road-making, so far as the supervision is concerned, down to a minimum.

At present there are seven white overseers employed, five with an average of eight natives to each, making and repairing streets, one with seven natives preparing and laying tar macadam, and one with seven natives cleaning pits and drains.

For the present I recommend that only two road overseers be employed for ordinary steel metalling work, who will each have charge of, say, thirty natives, on the principle already explained, instead of eight.

One overseer for tar macadam work, and one overseer for cleaning pits and drains. This would effect an immediate saving of 28% per month on wages for overseers, and taking the amount of labour employed on the roads before the war at the ordinary wages, the reduction would amount to about 25% per month.

In this connection the question of native and coolie labour arose.

It appears that great difficulty is being experienced in getting suitable men to remain in the service of the Council, owing to the fact that they are able to obtain more remunerative employment elsewhere.

We have still under consideration the advisability of importing natives from the coast, and our recommendation in this respect will be submitted at a later date. In the meantime we recommend:—

(a) That the acting town engineer be instructed to effect the changes in the organisation of road-repairing gangs, recommended in his report.

(b) That T. Watters, who left the Transvaal on the outbreak of hostilities, be reinstated in his former position as road inspector, at a salary of 30% per month.

(c) That the Council engage natives and coolies under a monthly contract; one month's notice to leave being given on either side.

(d) That a letter be written to the Commissioner of Police, requesting that natives and coolies' passes be rigorously examined, as at present many desertions take place, and the men cannot be traced.

### THE NEW KURSAAL FOR HARROGATE.

At the Harrogate Town Council meeting, the mayor (Alderman Milner) presiding, Alderman Hudson, chairman of the spa and pleasure-grounds committee, said that the tenders for the new Kursaal had been gone through, and the total cost amounted to 40,106% 18s. The successful contractors were:—Masons, Messrs. Graham & Sons (Huddersfield), 14,313% ; joiners, Messrs. Raworth & Allen (Harrogate), 5,623% ; slater, Mr. Atkinson (Leeds); plasterer, Messrs. Noddings & Sons (Harrogate); plumber, Mr. C. Foster (Harrogate). Messrs. Graham & Sons had amended their tender to include Pateley Bridge stone at an extra cost of about 350%. They intended to push the work on as quickly as possible.

Alderman Simpson asked if any arrangements had been made as to enforcing a penalty if the contractors did not complete their work within the specified time.

The Town Clerk said he had prepared agreements for all trades, which were ready to be signed, so that the work could be commenced in about a week. The penalty he had included was 20% per week after twelve months had expired.

Mr. Beale (the architect, London) said a penalty clause for the larger trades was all right, but it would be rather difficult to arrange one for the smaller contractors.

The matter was left with the mayor (Alderman Milner), the chairman of the committee (Alderman Hudson), the town clerk and the architect for final settlement.

Mr. A. E. Marsh, of Wakefield, was elected clerk of the works at a salary of 3% 10s. per week.

The Town Clerk was instructed to make application to the Local Government Board for sanction to borrow 1,250% for the construction of a sewer in Otley Road, and also for the necessary money for the purchase of Collins Fields, adjoining the Valley Gardens, in Cornwall Road, these having been occupied at a cost of 16,000%, with a view to enlarging the existing pleasure grounds.

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# The Architect.

## THE WEEK.

WHEN the competition for the new Government Offices at Westminster was first announced there was uncertainty whether the architects who prepared the accepted designs would be entrusted with the erection. Afterwards it was decided that the late Mr. YOUNG and Mr. BRYDON were to have charge of the realisation of their own plans. It was also arranged that the former was to receive 23,750*l.* and the latter 26,000*l.* in return for services, the amounts being 5 per cent. on the estimated cost. The War Office will be carried out by a son of Mr. YOUNG. The public offices will be erected from Mr. BRYDON's plans by officers of the Office of Works. The contracts will be entered into under the supervision of Mr. TANNER and Sir JOHN TAYLOR. The First Commissioner says he hopes to effect a considerable saving by the arrangement. The architects' fees for the Victoria and Albert Museum will amount to 25,000*l.*, and for the Royal College of Science to 10,000*l.*

WHILE the Council House of Birmingham endures the name of the architect, HENRY YEOVILLE THOMASON, who died at Kensington on the 16th inst., cannot be forgotten. The building now differs in appearance from its original state, for the art gallery and gas offices were later additions, and were not contemplated when the design was prepared. Birmingham has also grown, and the Council have to deal with many municipal enterprises. The building is, therefore, hardly large enough for its present requirements. But when it was erected it was like a revelation in Birmingham, and suggested what architecture could do for the adornment of the Midland capital. It has exercised a beneficial influence on the people, and if architecture receives more appreciation than formerly, the change must be attributed in a large measure to Mr. THOMASON's work. He had reason to do his best for the town. He belonged to an old Birmingham family, and his grandfather, Sir EDWARD THOMASON, filled the office of High Bailiff. It was in Birmingham also he received his architectural education. Born in 1826 he was still young when he was articled to CHARLES EDGE. Then he became manager of the architectural department of the borough surveyor's office. When he had gained experience he set up as an architect, and his family connections at once enabled him to acquire a larger practice than usually falls to the lot of beginners. He designed the Synagogue in Singers Hill, the Francis Road chapel, the Union Club in Colmore Row, St. Asaph's Church, the offices for the *Birmingham Daily Post*, *Daily Gazette* offices, the main building and two infirmary blocks at Aston Union Workhouse, the Birmingham District and Counties Bank, and the blocks of offices on the east and west sides of this building, the Atlas Buildings and Atlas Electroplating Works, the Homœopathic Hospital, "Lewis's" shop, the first building of the kind in Birmingham (1886), numerous residences in Edgbaston and other places round Birmingham, also many manufactories and warehouses. One of his latest works was the Jaffray Suburban Hospital. In consultations, arbitrations and the like his services were often required. He was gentle and retiring in disposition, and anyone who imagined that a Birmingham architect must be pushing and fond of advertising himself would be disappointed in meeting Mr. YEOVILLE THOMASON. Some years ago he came to London to reside, and only visited Birmingham on special occasions when his varied experience had to be utilised.

THERE is a possibility that the view from Richmond Hill may after all remain undestroyed. It should be regarded as a gift from nature to man, and accordingly be transmitted to posterity with all the qualities with which it was endowed. The respect for property is so powerful in England we suppose it never will be possible for scenery to be considered as part of the national riches, and every individual who happens to have possession will be able to deprive the entire population of one of their boons. Sir WHITTAKER ELLIS was able to ascertain that the Marble Hill Estate could be secured for 70,000*l.*, which under the

circumstances was not an exorbitant sum. The negotiations, however, were broken off before any definite arrangements for the sale of the property could be made. Lord MONKSWELL, as representative of the parks committee of the County Council, has recently taken up the subject. After several conferences with the owners he was able to announce on Tuesday that the London County Council can obtain the Marble Hill Estate, comprising 66 acres and a house, for the sum of 70,000*l.*, but the purchase is to be completed before the end of the year. Although outside the Metropolitan area, there are few ratepayers who would object to the slight addition of the taxation which will be necessary to acquire land which is so indispensable if London is to possess one of the most charming of English scenes.

BUILDING-OWNERS should be warned that if there are law-suits about their property there is great risk in making charges against the architect or builder. Although the amount claimed was only 70*l.* 2*s.* 11*d.*, the case CHEALE *v.* DE PINTO, which was tried at the Hastings County Court, is as much of a warning as if it were heard in the High Court. The plaintiff, a timber merchant, took over the contract for the completion of the building of a house at Bexhill. He executed the work, and the architect had certified it was properly carried out. Counsel for the defendant interposed at the beginning of the case by saying he was instructed that the words "to the satisfaction of the architect" were not in the original deed. That was an allegation of a most serious kind. But evidence was not brought forward to support it. Mr. ALTON, the architect, said the orders for extras were often given in his presence by the defendant, and several witnesses testified that the defendant did give such orders. The defendant said that he told the original builders that he had decided to expend no more than 250*l.*, and no extras were to be recognised unless there was his written authority. Two architects were called to prove that the work was inferior and the measurements did not correspond with the specification. An effort was also made to upset the claim on the ground that the original contractors had filed their petition on March 10, and therefore the assignment of the balance of the contract a month afterwards was invalid. Judge MARTINEAU decided in favour of the plaintiff, saying that practically the whole of the work to be done had been performed. There were a few deviations, but he thought every shilling claimed was due except two guineas in respect of these deviations.

A LARGE sum of money will shortly be available for the erection of workmen's dwellings, which are to be known as the Sutton Model Dwellings. Mr. SUTTON, of Sydenham, a millionaire, who died in May 1900, made a will in 1894 by which he left the greater part of his estate for the purchase of land in London or other populous towns to be used as sites for model dwellings and to erect such dwellings. A clause was also introduced relating to the employment of architects, agents, workmen and others. Afterwards Mr. SUTTON married and revoked the will. Then he made a new will, which confirmed the earlier one and in which, after giving his wife a life annuity of 5,000*l.*, he left the residue of his estate for the purpose of erecting the model dwellings. Some of his relatives brought an action for the purpose of having it declared that the residuary gift contained in his will for the purpose of providing workmen's dwellings was void in whole or in part. It was argued on their behalf that under the older Mortmain Acts the gift of residue was wholly bad; that here there was a gift for a particular charitable purpose indicated by the first and second clauses of the trusts of the residuary gift, which, as they contended, tried to create a charitable trust even under the Act of 1891. It was also argued that the gift, if valid at all, was to be confined to the purchase of five acres only and the cost of erecting dwellings thereon. Judgment was given on Tuesday, when it was declared that the charitable disposition to provide dwellings for the poor at a reduced rent was a good trust and the disposition was valid. The gift of residuary estate was also wholly good. The control of the fund has been left entirely in the hands of trustees who are authorised to make all arrangements for the erection of the buildings.



## CHEVREUL AND THE LAWS OF COLOUR.

BY erecting a statue of CHEVREUL the Parisians have honoured a man who helped to advance the industries of the city. It would be well if a second statue of the centenarian were put up at Lyons, for the silk trade of the southern city derived as much advantage from his teaching as any of the productions of the capital. But in many other parts of France memorials of CHEVREUL should find a place. The investigations of colour were only a part of those which he conducted during his long and laborious career. The list of subjects inscribed on the pedestal of his statue is a lengthy one, for, in addition to his inquiries about colours, it refers to researches in dyeing, soap-making, candle-making, stearine, fatty bodies, organic analysis, &c. In fact, it was to organic chemistry that CHEVREUL was devoted at the time when he was asked to take charge of the dye-works of the Gobelins. It should be remembered that he was born in 1786, and when he lectured on the simultaneous contrast of colours in 1828 he was no boyish phenomenon like LYON PLAYFAIR, who expounded the mysteries of agriculture to farmers and land-owners.

He was brought to the Gobelins on account of the complaints which the weavers were making about the defects of the colouring of the threads with which they were supplied. He found that the dyes employed were as excellent as could be found in France, and he was therefore, after many experiments, compelled to conclude that the want of effect in the tapestries was due to a disregard of the laws of contrast in the arrangements of the colours. It consequently became incumbent on him to give more attention to the scientific aspects of colouring in order that he might formulate rules which would appear to have scientific certainty. CHEVREUL knew that long before his time tapestry was produced in uncivilised countries, and the pieces were as perfect as any that could have been executed in the Government factory. But he could not take it for granted that French designers and weavers would be as sensitive as Easterns to defects of colour, and his laws were therefore substitutes for natural gifts.

It is possible that the strict attention which was given to CHEVREUL's proportionate areas of various colours produced effects that were machine-like, and were wanting in the freedom with which nature applies colour, and which her followers can remotely imitate. The tapestry of Beauvais, which might be described as a variety of Gobelins work, but more applicable to furniture, exemplified his teaching. C. R. LESLIE, R.A., tells us that at the Exhibition of 1851 "in the apartment containing the French tapestries there were no combinations of colour among them that were not tawdry, excepting in those from Beauvais, which were exact copies of Persian carpets, and though the porcelain and other manufacture of china were very scantily represented, yet the superiority of the arrangements of their colour to the greater portion of such displays in the European departments was very remarkable." Yet it could not be said that the Chinese weavers or potters followed any rules formulated by a native CHEVREUL, but they were guided by their own sense of colour and the experience that was derived by following traditions expounded by craftsmen. In a good example of Chinese industrial art, as well as in an oil-painting by a master hand, there are subtleties which are not to be attained by the following of arithmetical recipes by which the extent of every colour is measured.

CHEVREUL's system can be judged from his remarks on the application of colour in buildings. He was able to realise the difference between pictorial and decorative treatment. Whether it was a window, a mural painting, a hanging or a carpet, he insisted that the subject should be presented before the spectator without confusion and as simply as possible. Picture windows in which flatness was not recognised and chiaroscuro effects were attempted, he judged to be out of place. Glass that was absolutely white or colourless, he maintained, should never be used in a coloured window, ground-glass being preferable. It is only in large buildings, according to CHEVREUL, that coloured windows possess all the effect of which they are capable. He regarded them as transparent tapestries, and did not wish to see them clash with the tapestry made in looms which, when placed near stained-glass windows, loses the

harmony of its colouring. But he was not an advocate for the painting of the walls of Gothic churches. In the windows he considered sufficient colour to gratify the eyes of the spectator was provided. More varied effects became distracting. On that account he preferred the roof of Rheims Cathedral when it was seen to be stone vaulting, rather than when it was painted blue and sprinkled with fleurs-de-lis. The proposal of BOISSERIE that the roofs of churches should represent the heavenly vault found no favour with CHEVREUL.

While admiring coloured windows, CHEVREUL was not indifferent to the advantages which sometimes arise from the use of those in which no stained or painted glass is introduced. The storied windows richly light are bad neighbours, and cause confusion in any other coloured materials which come near them, but with white glass it is possible to have mosaics, mural paintings, coloured sculpture, rich marbles and much else which is beautiful to the eye. There is, however, the risk that with several such objects a church would become a museum rather than a house for prayer and meditation. On the whole, therefore, as purpose should be respected, CHEVREUL gave preference to the old Gothic churches of France rather than to Renaissance buildings.

It is hardly necessary to say that he was an admirer of the colouring adopted by the Egyptians in their buildings. One consequence of BONAPARTE's invasion was the revelation of their chromatic experiments. LANCRET, who was one of the official writers of the Republic, had prophesied that one day it would be found that Egyptian colouring was like much else in art, subjected to inflexible rules. CHAMPOLLION had also said that he would undertake to convince anyone who was sceptical of the skill of the Egyptians as painters in less than a quarter of an hour if he could bring him into the Temple of Ipsamboul. The hieroglyphics, according to CHEVREUL, were coloured in order that they might be easily read, and the colours were various so that they might harmonise with other coloured figures. He believed the Greek temples were, on the contrary, coloured because pleasure was afforded in that way rather than from a desire to render different parts of a temple more distinct. The principal lines, such as the fillets of the architrave and those of the cornice, were red; the mutules blue, and their guttæ white; the triglyphs blue, their channels black, and their guttæ white, and the more extended parts of the frieze and the cornice, as well as the architrave, were of light yellow. The rules which CHEVREUL gives were, however, not universally obeyed, for as well as may be judged from the remains of the temples different schemes of colour were tolerated.

He studied the subject for so many years, it was only in keeping with his character that at the age of ninety-eight CHEVREUL should send a paper to the Institut de France, of which he had long been a member, on "Sight in connection with the Contrasts of Colours." The phenomena cannot, in fact, be properly dealt with if the state of the vision is ignored. The great BUFFON had observed the differences which exist between colours when looked at separately and when they were seen combined. He described the changed character by the phrase "accidental colours," which he said arose from too great a vibration or from fatigue of the eye. CHEVREUL must have had BUFFON's theory before him when he mentioned that he made his experiments when his sight was not fatigued, and that his own experience was confirmed by others who were competent to judge of colours. It required immense labour before CHEVREUL was able to lay down the following simple law as having universal signification:—"In the case where the eye sees at the same time two contiguous colours they will appear as dissimilar as possible, both in their optical composition and in the height of their tone." So little was known about the effect of the simultaneous contrast of colours that even the foremost manufacturers of wall-papers in Paris sometimes had disputes with their colour preparers about carelessness in matching colours, when the defect, if it could be called so, was the result of optical and chromatic conditions. CHEVREUL mentions one case where grey patterns were printed on grounds of apple-green and rose. The patterns appeared to resemble in colour the complementary of the ground, and the pro-



priotor maintained that his instructions were not obeyed, for no grey was used. It was when listening to a lecture by CHEVREUL in 1829 that the unlucky colour mixer realised the cause of the failure. In colour printing, as in other matters, "things are not what they seem." An able colourist can, therefore, often produce surprising effects in his pictures, like DELACROIX, who on the ceiling of the French Senate painted figures with flesh tints equal to those of RUBENS mainly through the agency of a hatching with green paint.

The disputes among the paper-stainers are evidence of the state of knowledge about colour when CHEVREUL began to instruct his countrymen on the subject. In places which have not the artistic reputation of Paris, manufacturers would not now be ignorant of the effects of the juxtaposition of colours. That is in a great measure owing to the labours of MICHEL-EUGÈNE CHEVREUL. Those who treated of the subject before his time considered it to be the exclusive property of painters of pictures. But to CHEVREUL a picture, a drawing, a carpet, a curtain, a stained-glass window, a soldier's uniform, a garden bed, were equally interesting, for he saw in them only exemplifications of the same laws. He was therefore a true representative of Republicanism, although he was born a few years before the Bastille was demolished, and he was no less of a cosmopolite, for his investigations became known throughout the world. He was proud to own that a foreign Sovereign was willing to give financial aid towards the publication of his principal work, and the interest of the ruler's subjects would be served by the outlay.

#### AMERICAN DICTIONARY OF ARCHITECTURE.\*

AS the importance of an art, profession, calling or business is suggested by the number of terms which relate to it, a dictionary becomes a test which cannot be questioned. For architecture they are remarkably numerous. A student of natural science would be able to assert that his botanical or entomological dictionary contained a far larger number of words than are used by architects and builders. But in those cases they deal with the multitudinous products of nature, while in architecture we have only the creations of a limited number of men. A law dictionary or a medical dictionary relates to man in general, whether organised in states or suffering from afflictions which may be almost universal in their operations. Compared with them architecture can be considered as almost individual in its terminology, and the abundance of its technical terms must therefore be amazing to all who judge the subject impartially.

The second volume of Mr. STURGIS's dictionary begins with "Façade," and ends with "Nymphæum." In the 1,060 columns which are required for the explanation of the different subjects we have a record of many varieties of building. Architecture, as we have said, is the creation of men, and its history would therefore be best exemplified by the biographies of its professors. In the pages we find accounts of many of its representatives, from ICTINOS to HUNT. Unfortunately the names of some of the greatest artists remain uncertain or unknown, for all the explorations which are now in progress have not made many additions to architectural biography.

It is also a characteristic of the dictionary to give comprehensive articles on the architecture of the most important countries. In the new volume the architecture of France, Germany, Greece, India, Italy, Japan, the Mediterranean islands, Mesopotamia, Mexico, the Netherlands and North Africa, the last being by Mr. ALEXANDER GRAHAM, is treated; there are also allied articles on Gothic architecture, monastic architecture, mausoleum architecture, Latin architecture, neo-Classic architecture, &c. Various classes of buildings, such as houses, iron and steel framework buildings, libraries, music-halls, are also described.

The conclusions drawn about the modern state of architecture are sometimes a record of progress, sometimes the reverse. Japan, to take one instance, which has in so

many ways assimilated itself to Europe, has not as yet found compensation for the abandonment of its native and most picturesque architecture. Mr. R. A. CRAM says:—

It is only in domestic work that the traditions of true architecture remain; European styles are now popular, and the results of the attempts at adapting them to Eastern conditions are not encouraging. So far as one can see, the period of good architecture is over in Japan. The native attack on Buddhism two centuries ago was the beginning of the end, the restoration of Shinto was its continuation, and the acceptance of Western civilisation was its consummation. For thirteen centuries it has developed as civilisation progressed, each period perfecting some special quality until it reached its climax of decorative splendour under the first of the Tokugawa shoguns. It is now a dead style, a thing of the past, and with all other manifestations of art in Japan must for ever remain so, unless some utterly unforeseen revolution brings back the ideals and principles of a great but now misguided people.

Mexico, on the contrary, where it might be expected that art was defunct, would appear to be using the later styles with great spirit. According to Mr. T. F. TURNER:—

Modern architecture in Mexico is original and independent in its character, and, while resembling modern work in Europe, it is still quite unlike anything that the present century has produced on the Continent. Its chief characteristic is the rapidity with which in late years it has seized new materials and new conditions of construction and adapted the same to the solution of the problem in hand. Galvanised iron becomes a legitimate architectural material in the Mexican work of today. . . . Mexican architecture is unique in its boldness of colour and outline. It will bear close study, as being full of the character of the nation which produced it and, in general, expressing frankly the originality and thought of the designer. The use of gorgeous tiles and coloured washes are its most interesting features, and yet colours are handled with a vigour and ease that show the Mexican to be an adept at such work, and an excellent master to any who would learn the use of colour in architecture.

English architects are described as rarely successful in India, but the native architects, although they may not be equal to their predecessors, produce buildings which have artistic interest. Several erections are mentioned as exemplifying the capabilities of modern Hindoo architects in a very favourable light. Indeed, it must be allowed there has been no little presumption in the British efforts to set examples of our capabilities before the Indian artists. Beginning with the attempts of South Kensington to teach them the principles of their own ornament and the rules by which colour should be supplied, unto the "palatial" buildings which recall the dreariness of Pimlico streets, the evidence of British power is so ridiculous we need not wonder if critics in other countries condemn all that has been perpetrated.

There cannot be much about England in the subjects which come under the letters of the second volume. A weakness of Jacobean architecture is ascribed to the educated architect. We are told that "for the first time in English history the architect appears, and with his advent the skilled mechanic who could interpret and carry out the surveyor's sketch began to disappear. In this lies the interpretation of the successes and failures of Jacobean and later work. There was more knowledge needed to design and less knowledge to execute." INIGO JONES is mentioned in connection with the style, but he is described as neither superior in Gothic nor in Classic. It is assumed that about that time the country houses built by residents and courtiers in London were of masonry and in Classic style, while proprietors who resided in the country erected half-timbered houses. English Gothic is noticed in one of the sections of the style. There are also short biographies of some English architects, and examples of English work are introduced in illustration of technical terms of other subjects.

The contents of the volume are not, however, confined to historical accounts of buildings or memoirs of their architects. What are commonly called practical subjects also appear, and explain the latest attempts of the inventive Americans as well as of European builders. Nor are the simpler forms of architecture overlooked. Mr. DELLEN BAUGH, a painter who is an authority on American archaeology and ethnology, contributes several interesting articles on the habitations and other buildings of the American

\* *A Dictionary of Architecture and Building: Biographical, Historical and Descriptive.* By Russel Sturgis and others. In three volumes, Vol. II., F.N. New York: The Macmillan Company. London: Macmillan & Co., Ltd.



Indians and of tribes who are supposed to be in the rear of civilisation. For instance, the Esquimaux can build a snow house in about two hours, and the adoption of domical and circular forms suggests relations with some of the remote Asiatic buildings which the late WILLIAM SIMPSON describes. The following extract will explain the systematic manner of constructing the "Igluqak" in northern regions:—

For the best results, snow must be deep and compact enough to permit homogeneous blocks to be cut out with the snow knife, an implement of bone, shaped like a short sword, or with a stiff steel saw when this can be obtained. A proper site being selected on some deep drift, a small block is removed as a beginning, and in the excavation thus started the builder works, rearing the circular walls around him, the bottom of the excavation made by the removal of the blocks finally forming the floor of the finished house. The blocks are about 8 inches thick, 24 inches high, and about 2½ to 4 feet long. One man can build a small house alone except fitting the last block; but generally two work together, one cutting blocks and the other fitting them in place, supporting the upper ones on his head while adjusting them. The first block set is of a wedge shape, the point toward beginning, thus forcing the second course to mount without a break upon the first, and making the line of blocks continuous from start to finish by giving them a spiral trend. The advantage of this device is increased strength and ease of construction, because there is no actual beginning of new courses, and each block laid has at once a firm support on two edges, enabling the builder to incline it inward to approach the centre. The builder "breaks joints" as he goes. The circumference is decreased regularly. The end joints of the blocks are slanted, so that the end of the new block laps over the end of the last one, and as the incline towards the horizontal grows greater, so also does the bevelling or slanting of the edges, the better to sustain the fresh blocks. Into the last opening a key-block is fitted binding the dome firmly together, and thus it stands till warm weather comes, when it is abandoned for the tent. When the spiral of blocks is finished, the joints and openings are filled with fragments of blocks or with crushed snow till the walls are perfectly tight, only a small hole being left at the top for ventilation. No smoke outlet is needed, as heat and light are obtained from seal-oil lamps.

A volume of the new "Dictionary of Architecture and Building" is one which it is pleasant to linger over, for whether the pages are perused systematically or at hazard there is sure to be much which attracts attention by its interest. But any attempt to describe the varied character of the contents in a limited space must be a failure, and therefore an injustice to Mr. STURGIS's valuable work. There is instruction for the young architect to be found in it, and if one learned in the art professes to have failed in discovering novelties, he will at least meet with much that will revive old associations. But the use of the book should not be limited to professional students. The general reader will meet with much that he will be glad to know about, and on that account a copy should be found in every one of the public libraries which are frequented by English people. The illustrations, which consist of reproductions of photographs and of views of English and foreign works, are very numerous. The scale drawings by Japanese draughtsmen will surprise many readers by their excellence.

### WOTTON AND THE EVELYNS.

ON the 17th inst. the members of the Surrey Archaeological Society visited Wotton Church. Dr. F. R. Fairbank, F.S.A., read a paper on its history. He said that in Domesday Book, which was the result of the survey made in 1085, the manor of Odestone, or Wotton, is returned as having been held in the time of King Edward the Confessor by one Heraldis, but was then held by Oswald, one of the king's thanes. The jury of the hundred declare that they know not by what tenure Heraldis held it. It was not worth as much at the time of the survey as it was in the time of King Edward, as was so commonly the case. There is no mention of a church, which is remarkable, as churches are mentioned as existing in most of the neighbouring places, such as Abinger, Shere, Albury, Dorking, Mickleham, Buckland, Betchworth and others. Speaking generally, the non-mention of a church in Domesday is not necessarily a proof that one did not then exist, as no instructions were given to the Commissioners to report on the existence of churches, and it is therefore likely that the returns in this respect would vary, as indeed they did. One church only is returned in Cambridgeshire,

and none in Lancashire, Cornwall or even Middlesex. The advowson of the church appears from the first to have gone with the manor, and to have continued so to the present time. The church itself has many points of interest, the tower being the oldest part. It is not square; the width from north to south is greater than the length from east to west. The north, south and east sides appear of the same date, but the west side appears to be later. The eastern arch is exceedingly plain and the masonry very rough; the stones of which it is built vary in size, some of them being very large, and they are roughly cut. There are no mouldings. Opinions differ as to the age of this tower. Dr. Fairbank offered the opinion that it is of Early Anglo-Norman date and character, or possibly Late Saxon. It appears as though originally the eastern wall formed the division between the nave and the chancel, and that the western wall was built afterwards, forming it into a central tower, with chancel and probably apse to the east, and a nave to the west and a doorway to the south. There are now no evidences above ground of this nave. It would be well if some slight examination of the ground were undertaken to endeavour to ascertain its size; this would not be costly, and would not disturb the graves. That was without doubt the form of the church until in the thirteenth century it was remodelled; the nave was then removed and the western arch of the tower was built up, a small lancet light being inserted in the upper part. The chancel also was removed, and the whole of the new church was built to the east of the tower, much as it now is. The nave does not present much interest; there is a pair of lancets on the south side, the larger windows are modern insertions, the walls are much thinner than those of the tower. The large arch across the chancel is modern; on each side of it, in the face of the wall, will be noticed portions of a small arch. Previous to the building of the present arch there was a small one, and indications of others were on each side of it. He had not been able to obtain much information about them; they are suggestive of an arcade of three arches, which is occasionally found in Norman and Early English churches. There are in the tower three small bells. Two of them are described by Stahlshmidt as of the latter part of the fourteenth century; the third bell bears the date 1602. There is no staircase to the tower; this is usual in Norman churches. The font is modern, as is the porch. The outside of the doorway from the porch to the tower is of later date than the tower itself. At the restoration it was found thickly covered with plaster, which was cleared away; the stones of which it is built are alternately chalk and freestone; a similar arrangement is also found inside the church. The registers of baptisms and burials commence in 1596, and of marriages in 1603. The communion plate is of seventeenth-century date. The most interesting event here is the burial of John Evelyn, the author of the "Diary." His tomb is the one shaped like a coffin, standing under the east window in the mortuary chapel, and the epitaph sets forth that he was second son of Richard Evelyn, and that he fell asleep February 27, 1705, in the eighty-sixth year of his age. He is so well known as a learned and good man that little need be said of the importance which his "Diary" possesses as a history of the times in which he lived. He was a *persona grata* at Court throughout the troublous times of the seventeenth century, and he was a good man at a time when virtue was not altogether the fashion there. There is not much in the "Diary" about this church; he tells us that when he had arrived at the mature age of four years he was instructed in the rudiments of learning by one Frier by name, in the porch of Wotton Church. At that time it was common for the school of the village to be held in the tower or porch of the parish church. He speaks of several funerals of members of his family who were buried here, which must have been very imposing scenes. They took place mostly at night. When his brother Richard died in 1698 he was buried with extraordinary solemnity, rather as a nobleman than as a private gentleman; there were over 2,000 people present, all the gentlemen of the county doing him the last honours. The services of the church do not appear to have been, at that time, very satisfactorily conducted.

In the churchyard there is a beautiful marble urn to the memory of William Glanville. This monument has much interest locally, as it is the scene year by year of a curious ceremony. Mr. Glanville left estates to the amount of 30*l.* yearly for the purpose of paying five poor boys of the parish of Wotton, under sixteen years of age, 2*l.* each, on condition that they should attend on the anniversary of his death and, with their hands laid upon his gravestone, repeat aloud by heart the Lord's Prayer, the Apostles' Creed and the Ten Commandments, and also read the fifteenth chapter of St. Paul's First Epistle to the Corinthians, and write two verses from it. This ceremony takes place on February 2 of each year, which is called 40*s.* day. This Mr. Glanville was the nephew of John Evelyn; he appears to have been somewhat eccentric, as he gave orders to be buried 18 feet deep. His father had the odd wish to be wrapped in lead, and taken out to sea and dropped



overboard on the Goodwin Sands, which, after his death, was carried out.

At Crossways Farm Mr. Ralph Nevill, F.S.A., pointed out that this building of ornamental brickwork and Bargate stone resembles others of its type in the neighbourhood, and at Godalming and Dorking. It is chiefly interesting because it has been so little altered from its original plan, and not at all for between 200 and 300 years. The house probably dates from 1640; the staircase is part of an older house; the kitchen presents an ingle-nook fire with an iron fireback showing two heraldic dogs similar to that in the hall at Wotton.

The camp on Holmbury Hill was described by Mr. H. E. Malden, which has been surrounded by two banks and two ditches. It is a hill camp in which flint implements have not been found in any quantity, though they usually are in camps of this kind. This camp is certainly not a Roman camp, as it is entirely different from their type; it has two ditches and two banks, where the Romans would only have had one. Roman camps were rectangular, and seldom on the top of a hill, as in the absence of artillery such a position would not have commanded the country. Hill-top camps such as this were camps of refuge for non-combatants and women while war was going on. This camp could not have withstood a siege as there is no water supply; indeed, sieges were impossible with barbarian armies. The fortifications here are unusually strong, and, with the primitive instruments of the time, point to political cohesion so as to command so much labour to complete it. This camp, like that on the top of Hascombe Hill, is roughly rectangular upon three sides, and in both the south and north sides follows the side of the hill. It is probable these camps belong to the period after the Romans left the country, and before the invasion of the Saxons. No subsequent history is attached to this camp; it does not seem to have been used for the same purpose at any later period. The battle of Ockley, between the Danes who came from London and the people of Wessex, was fought considerably east of this, on the slopes of Leith Hill. Anstebury is said to have been occupied by the Danes on this occasion, which is probable. At a much later date this country was much occupied by smugglers; one old man, now 98 years of age, living near here, remembers seeing twenty men on horses, each with a keg of brandy. A naval cutlass was found here some time back, probably lost in a fray with smugglers. A fine stone celt, or hatchet, was found near here when levelling the cricket ground.

On visiting Wotton the members were received by Mr. W. J. Evelyn, F.S.A., who conducted them through the house and grounds. The family of Evelyn is known to have resided at Tower Castle in Shropshire; from there it removed to Harrow-on-the-Hill, and again to Kingston-upon-Thames; from thence to Long Ditton, and from thence to Wotton. The first of the family who resided at Wotton was George Evelyn, formerly of Long Ditton; his monument is in Wotton Church with the figures of his two wives and twenty-six children. From this George Evelyn, by his second wife, John Evelyn, the diarist, was descended, and from the same George Evelyn, by his wife Rose Williams, is descended the present head of the family.

In the mortuary chapel of the Evelyns at Wotton Church is the monument of Richard and Eleanor Evelyn, parents of the diarist. It is interesting to compare these alabaster figures with their portraits at Wotton House. It will be seen how exact the sculptors of the sixteenth and seventeenth centuries were in their work. In the library are arranged a number of interesting objects, among them the original diary of John Evelyn. In the cases are several family miniatures, and a lock of hair from the head of Charles I., and a lock from his beard; the hair is dark brown, that of the beard auburn. The conservatories are full of choice flowers, and lead into the well-cared-for ornamental gardens, in which are fish ponds and a fountain, and at the end of the gardens is a portico or temple, referred to by John Evelyn in his diary February 26, 1649, as follows:—"Came to see me Captain George Evelyn, the great traveller, and one who believed himself a better architect than he really was, witness the portico in the garden at Wotton; yet the great room at Albury is better understood. He had a large mind, but he overbuilt everything."

Mr. Ralph Nevill proposed a vote of thanks to Mr. Evelyn, who responded.

### THE OLD CLOTH HALL AT NEWBURY.

FOR many years Mr. Walter Money, F.S.A., as local secretary of the Society of Antiquaries, and as one of the trustees of the charity to which this singularly picturesque old structure belongs, has exerted himself, says the *Reading Mercury*, to preserve such an interesting connecting link between the present and the past commercial history of Newbury. From time to time Mr. Money has brought the matter before the Society for the Preservation of Ancient Buildings, the Society of Antiquaries, the National Trust, and the British Archaeological Association, before which latter body

he read, in the year 1896, what was described as "a valuable contribution on the Guild or Fellowship of the Clothworkers of Newbury," which is printed in the *Journal of the Society*, and illustrated with an admirable view of the Old Cloth Hall. It will also be remembered that on the visit of a distinguished party of artists to Newbury, under the guidance of Mr. Money, Mr. Seymour Lucas, R.A., Mr. Ernest Crofts, R.A., now Keeper of the Royal Academy, Mr. J. G. Waller, F.S.A., and others, warmly advocated the claims of this memorial of bygone generations to careful restoration. Sir John Evans, D.C.L., F.R.S., a former president of the Society of Antiquaries, and many other eminent "savants" have also expressed their desire to help forward the effort being made to preserve this sadly-neglected building from irretrievable decay. The date of the erection of the old hall is uncertain, but its architecture bespeaks it to be of the Jacobean period, or possibly somewhat earlier. The upper part is supported by oak columns or piers, the intervening spaces being closed up with brickwork, with a series of semicircular wooden arches on the exterior wall between the columns, and above is a bold cornice on large projecting brackets or trusses, richly carved with grotesque heads. The lower part was originally open, and here the old clothiers of Newbury daily congregated, at the time when the town was one of the largest seats of the clothing manufacture in the kingdom.

The whole matter is still in an embryo stage, but it is assuming some practical shape under the active encouragement of the present public-spirited Mayor of Newbury, it being intended, provided the funds can be raised and the property purchased, to utilise the lower part of the hall as a local museum, and the first floor as a gallery for the annual exhibition of pictures of the Newbury Art Society and other like purposes. Mr. A. Waterhouse, R.A., having kindly placed his services at the disposal of the Mayor and those interested in this praiseworthy movement, visited Newbury on Saturday and made an inspection of the premises, with a view to obtain an approximate estimate as to the cost of adapting the building for the purposes above mentioned. Mr. F. Mount, brother of the member for the Newbury Division, accompanied Mr. Waterhouse, and is, we believe, associated with the architectural profession.

### THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE fifty-eighth congress of the British Archaeological Association was held this year in Newcastle-on-Tyne, the opening meeting being on Thursday, the 18th inst. The Mayor received the members and expressed regret that the Corporation had not in their custody a very great amount of archaeological interest to show them. Prior to 1835 he believed there was a good deal of plate, ancient earthenware and other objects of antiquarian interest in the Mansion House at Newcastle, but when the reformed Corporation came into existence in 1835 it was largely disposed of. There were still seven silver maces carried in olden times by the Serjeants-at-Mace. There were twelve originally, and he could not say where the five had disappeared. Probably they were sold by auction along with other articles. They had also a silver cup presented to the Corporation by the grandchildren of Bishop Cosins in 1681, a salver of the date of 1753 won by George Bowes, a member of a well-known local family, in addition to two or three ancient charters granted to the city. They would have an opportunity of inspecting these objects.

The President (Dr. Thomas Hodgkin) said he was one of those who did their best to preserve one of the old wall towers of Newcastle, destroyed within living memory. The old walls, he believed, were nearly complete at the beginning of the nineteenth century, but they had practically disappeared before the march of improvement.

During the day the members visited the cathedral, the castle, the Black Gate and other places in the city.

In the evening the delegates were entertained at a conversation at the Durham College of Science, and a meeting was held when Dr. Hodgkin delivered his address.

In the course of his remarks he said that, as compared with some other districts of England, they were not rich in prehistoric remains. They had some well-marked British villages or hut circles. They had many barrows, containing evidences of both methods of disposing of the dead—both by sepulture and cremation. They had also some remarkably fine specimens of those mysterious cup markings incised on rocks which had aroused so much interest among antiquaries, and which, whatever might have been their purpose—religious, epigraphic, or simply artistic—might, he supposed, be safely stated to be the oldest remains of any kind to be found in Britain. But as they did not propose to make any of these prehistoric monuments the goal of their pilgrimage during the ensuing week, he would not longer dwell upon them, nor invite them to discuss the interesting question whether they



were to be assigned to the earliest inhabitants of our island whom scholars now spoke of as Iberians or Eskuarians, or rather to their better-known Celtic conquerors. For convenience sake, the year of our Lord 100 should be their starting-point, and he would divide the eighteen centuries which had since glided by into six periods of 300 years each, and describe as briefly as he could the leading features of each of these six periods. The Roman period lasted, roughly, from A.D. 100 to A.D. 400. In these three centuries the history of Northumberland was practically the history of the great Roman Wall, and of the Roman roads which ran either along it from sea to sea or across it from the river to the mountains. They were invited to visit the two finest camps on the line of the wall—Chesters, once known as Cilurnum, overlooking the lovely glen of the North Tyne, and Housesteads or Borcovicus, seated on the crest of a high basaltic wave, commanding a wide view of Northumbrian moorlands. The former of these camps they knew to have been garrisoned by a troop of Asturian cavalry from the north of Spain; the latter by a cohort of Tungriens from the country which we now call Belgium. But though the Roman wall was a military work, and the camps which they would visit were camps and not peaceful cities, he prayed them not to let their imagination repeople them only with scenes of war and bloodshed. In the centuries of Roman dominion there were undoubtedly long intervals of comparative tranquillity. So large a force of fighting men—not less than 10,000—with all their camp followers, wives and children settled on that narrow neck of land between Tyne and Solway, must have exerted a powerful influence on the economic condition of the country. He had sometimes startled visitors by suggesting that the middle region through which the Wall runs was far more populous and possibly more prosperous in the second century after Christ than it is at the present day. His next period must be called “Chaos and the Northumbrian Kingdom.” For the first century and a half after the departure of the Romans nothing is known with any certainty as to the history of Northumbria. The pall was partially lifted for us when Ida, the Anglian chieftain, first of Northumbrian kings, builds his wooden burgh on the high basaltic rock of Bamburgh. And yet even then, though they heard something of the succession of kings, and of wars with the Britons of Redesdale, there was for us no history of living interest till the year 617, when Edwin of Deira began his too short but glorious reign. Edwin, Oswald, Oswy—these three Christian kings of Northumbria, whose reigns covered the better part of the seventh century (617-70), seemed likely to found a dynasty which would extend its rule over the whole of Southern Britain. But for some obscure and unexplained events in the eighth century Bamburgh might have been the London, or at any rate the Windsor, of our island. And if Bamburgh was the Windsor of that great Northumbrian dynasty, Holy Island might fitly be called its Westminster. The Venerable Bede was associated with the two churches of Monkwearmouth and Jarrow. He feared they would see both places grievously changed from that quiet loveliness which they may have worn on a spring morning when Bede thus vibrated between them. “Sweet Jarrow” especially was now overhung with smoke, and resounded to the ringing blows of the sons of Tubal Cain. The chapter of Northumbrian greatness must be considered closed, at latest, in the year 793, when Holy Island was ravaged by the terrible Danish pirate, Ragnar Lodbruk. The world little knows what it may have lost when Holy Island was ravaged by the Danes, and when Jarrow and Monkwearmouth were given to the flames. The Normans came in 1066, and whatever other things they might have left unchanged in our island, they certainly changed the character as well as enormously increased the number of its fortresses. He believed it was generally admitted that the pre-Conquest fortresses, the Saxon burghs, had consisted chiefly of a high mound of earth, surmounted by a wooden palisade, without masonry. The Normans introduced the massive rectangular keep, or its sister the lighter shell keep. He thought he might term that, their fifth period, the age of castle building, remarking at the same time that here, too, he was not able to avoid a certain overlapping of periods, as the year 1300, which should end his castle-building age, marked instead the transition from the old Norman type of the solitary and massive keep to the later concentric type of castle, with barbican, gatehouse, curtain wall, postern and all the other appliances for combined and converging defence, with which an inspection of the ruins of almost any fourteenth-century castle made them familiar. Now, for that period no excursion could be more instructive than that which they would take the following day, when they would visit, under most competent guidance, the two great castles of Alnwick and Warkworth, the visible memorials of the greatness of the feudal barons of the house of Percy. But, moreover, the “New Castle” which gave their city its name, erected by Henry II, the nearly contemporary castle of Bamburgh, and the Castle Palace, College of Durham, would, he trusted, be considered by them not unworthy specimens of that triumph of defensive architecture (in the days previous to the

introduction of villainous saltpetre), the keep of the masons from Normandy. Of course, while emphasising the military character of most of the Norman remains in the district, he did not altogether forget their ecclesiastical glories. To mention the great minster of Durham, and the daughter-mother abbey church of Holy Island, was to call up the remembrance of some of the noblest and most daring of Norman church builders. His next period (1300 to 1600) he would call the period of the Border wars. From 1600 to 1900 was, notwithstanding some interruptions from civil war and from two soon suppressed rebellions, on the whole an era of peace and prosperity. For them he could only use the hackneyed quotation, “Si monumentum quaeris circumspice.” The wilderness of houses in the midst of which they met, the bridges, the factories, the iron foundries, the long lines of dull streets, lined with grim Classical architecture, the smoke, the clangour, the Central Railway station—that maelstrom of man—all or nearly all of this busy world has sprung into existence since the Mayor of Newcastle-on-Tyne kneeled to James Stuart, and to most of these there is no corresponding ray in the archaeological spectrum. Only, since the beginnings of all mighty changes should have an interest at any rate for the historian, he would ask them when they were travelling westward by the Newcastle and Carlisle railway to get their guide to point out to them a little inconspicuous house on the north bank of the Tyne between Ryton and Wylam. There lived for some years, and not far from it was born, the man who, by a simple mechanical invention, had revolutionised both worlds, that of commerce and that of war, the only man, he thought they might say, who had been the cause of such changes in the surface of our globe, as with telescopes such as we possess might be seen from the nearest planet—the inventor of the locomotive, George Stephenson. He would gladly have described to them at some length what archaeology had achieved and suffered during that most changeable period, how some of our most interesting monuments had fallen victims to what was called architectural or industrial “improvement,” and how, on the other hand, a noble succession of students, Horsley, Hodgson, Bruce and their living successors (whom he named not, though he trusted they would soon make their personal acquaintance) had carried on the work of Camden and of Cotton.

On Friday the ruins of Hulne Priory were visited. Mr. Patrick, honorary secretary, explained that Hulne Priory was a monastery of the Carmelite Friars, and possessed all the features of a fortified position. The Carmelites were one of the four Mendicant friar orders, and took their name from Mount Carmel, in Palestine. The origin of the monastery at Hulne was said to be due to Lord de Vesci and Sir Richard Grey, who visited Mount Carmel and prevailed upon some of the members of the order to return to England. This was about the year 1238. Tradition said that the site was selected because of a fancied resemblance which it bore to Mount Carmel. The foundation of Hulne Priory dated from about 1240, and the first prior was Rodolphus Fresborn.

Alnwick Castle was afterwards visited, Mr. Cadwallader Bates acting as guide. One of the chief points of interest to the party as archaeologists was the fine Norman gateway. The splendidly kept library in the castle was greatly admired. There was considerable curiosity to see the old dungeons, and a general smile was raised when it was seen that the approach thereto was now rendered easy by means of the electric light having been installed. Mr. Bates told how Cromwell sent 6,000 prisoners to Alnwick Castle after the battle of Dunbar, of whom 3,000 perished, and on the remainder being deported to Morpeth so many more died of pestilence that of the original 6,000 prisoners but a single thousand escaped death. The pictures in the castle and the many magnificent appointments engaged a good deal of time whilst a severe thunderstorm raged overhead.

At Warkworth only the castle could be inspected. This is the stronghold mentioned by Shakespeare in “Henry IV.,” in which he speaks of the Earl of Northumberland lying “crafty sick.” The structure was described in detail by Mr. Bates. Had time permitted the Hermitage, which is dealt with in the famous poem of Bishop Percy, “The Hermit of Warkworth,” and also the ancient church, would have been inspected, but the delegates had reluctantly to forego the pleasure.

At the evening meeting Mr. T. Blashill presided.

The Rev. Caesar Caine, M.A., read a paper on “The Archbishop's Mint at York.” He said the privilege of minting, which the archbishops of York had in common with other ecclesiastical dignitaries, was of greater antiquity than any documentary evidence belonging to the see. When this right originated was a question which perhaps could never be determined now. Of all attempts to give this mint a settled historic treatment the most elaborate was that of Robert Dune, published in 1854. There were certain periods—a hundred years of Anglo-Saxon times, and from the Lancastrian to the Tudor dynasty—and they had documentary evidence that the Archbishop's mint was in active operation at the time of the Norman



Conquest. In Anglo-Saxon times the coin of Egbert (732 to 766 A.D.) was most interesting. Egbert was the brother of the reigning king of Northumbria, and the coin was the joint work of the two brothers. Mr. Caine described the coins of Albert, Eanbald and succeeding archbishops. In 928, Athelstan enacted that there should be one money for the whole of the king's dominions; but how far the law affected York was not certain, because the city at this time was in the hands of the Danes. Athelstan did not become master of the place till nearly ten years later. He referred to the Peter pence, these being produced only by the ecclesiastical mint at York, but by whose authority was uncertain. These coins had no connection with the tribute to the Roman pontiff, though bearing the same name. The Peter pence bore the name Peter in reference to the apostle, patron of the church at York. Coming to the second period—the period of documentary evidence—he explained that there was much information in the registers of the archbishopric. There was no mark by which they could identify with certainty coins as the work of any particular archbishop until the time of John Kempe, archbishop in 1426 to 1452. They were able to identify the coins of the nine archbishops from 1426 to 1531. The last archbishop who exercised the privilege of minting was Edward Lee, in 1531 to 1544.

The Rev. F. S. Colman, of York, read a paper on "Earth-works at Barwick-in-Elmet, Yorks."

On Saturday the members visited Jarrow, where the fine church was described. Jarrow was called by the Saxons Gyrwy, and appears to have derived its first importance from a monastery founded by Bishop Benedict, which was destroyed by the Danes, and afterwards restored by Bishop Walcher, and made a cell to St. Cuthbert's Priory, Durham. The historian Bede, who was born in this parish, was educated at this monastery, having entered it at the age of nine years. Some traces of the monastic ruins are still visible. The church, dedicated to St. Paul, is a stone structure with a tower. It was rebuilt in 1783, and the register dates from 1572. From Jarrow the party proceeded to Monkwearmouth, where they saw the old church; and they went next to Tynemouth, where they saw the priory, which was originally founded by Edward the Saxon king of Northumbria in 625, and afterwards rebuilt of stone by Oswald in the eighth century. Of the structure there are still considerable remains, consisting chiefly of an arch and the eastern portion of the church which was made parochial at the Dissolution, and so continued until 1657, when, having become ruinous, a new parochial church was built at North Shields.

At the evening meeting Mr. C. Lynam, F.S.A., vice-president of the Association, presided.

The Rev. H. J. Dukinfield Astley, M.A., read a paper on "The Resemblance between the Religious and Magical Ideas of Modern Savage Peoples and those of the Prehistoric and Non-Celtic Races of Europe." He said he proposed to show that the religion of the prehistoric races developed along the same lines as the religion of modern savage people. The line of mental and spiritual development was constant. This he would endeavour to show by reference to the rock drawings and other relics which remained to us as a legacy from our own neolithic ancestors. The first glimmering of religion was when man grasped the notion that there were more things in heaven and earth than were dreamt of in his philosophy, and that all things were interchangeable under certain conditions. Then came the notion that the earth was inhabited by spirits, which could assume at will any form they chose. The next stage was that in which it was believed there were good and bad spirits, the former capable of being propitiated and the latter capable of being circumvented. The propitiation of good spirits they called religion, and the circumvention of bad spirits they called magic. Man's early notion about religion resolved itself into a state of magic. He referred to the witchcraft customs and the witch doctor of modern savage races, and said that in prehistoric times religion passed from a state of magic, which they found in full force among modern savage people, till it finally emerged in the higher spiritual form which it had assumed among the more cultivated races of mankind. What was true of the modern savage peoples as to the development of religious ideas from a state of magic was true of the prehistoric people and the neolithic people of Europe. By prehistoric he meant non-Roman and non-Celtic peoples. He exhibited a series of rock drawings from Australia, three from South America, and those discovered in the year 1895 near Dumbarton, on the Clyde. He pointed out the remarkable resemblance found in the representation of a human foot in Scotland and Australia, and said this representation had a living significance amongst the Australians to-day. The Australian believed that the foot mark was left by his ancestors in the long-ago, and it doubtless had a similar significance in Scotland and everywhere else. Speaking of cup and ring markings, he said that in Australia alone a living significance was attached to them to-day. He remarked that there were these markings in Northumberland on that moor dividing the

Cheviot Hills near Chatton Park; engraved boulders with cup-like depressions surrounded by circles. The rock drawings in Scotland he attributed to the Picts. Mr. Astley dealt with the question of the figures found in Scotland, as to whether or not they were forgeries. The last word, he believed, had not been said on the subject. It was said that a place could not be assigned to these figures, but he pointed out that they were not unique in prehistoric times in Europe, for there were undoubtedly genuine relics of the neolithic age from Finland. There must be some other reason for these figures, assuming them to be genuine, than that the artistic sense compelled the people to make them for their own pleasure. The extreme laziness of uncivilised man made it probable that he had a practical object in view, and that the human and animal figures served as household gods or personal amulets for hunting or fishing. He believed that a place for them could be found in a distant time of Scottish prehistoric civilisation. He discussed the use of these ancient relics in religious rites.

Some discussion followed. The Chairman said he had visited the tumuli in Brittany and in Ireland, and was wonder-struck at the similarity between the markings in Brittany and in Ireland. The figures corresponded in every way.

Mr. Andrew Oliver read a paper on "Flemish Brasses in England." He described the difference between Flemish brasses and English brasses, exhibiting a number of rubbings, including the Thornton brass in All Saints Church, Newcastle.

During the week there were visits to Vindolana, Borcovicus, Procolitia and Cilurnum, places which were occupied by the Romans. There was also an excursion, and the cathedral was explained by Dean Kitchin.

### ST. PATRICK'S CATHEDRAL, DUBLIN.

ACCORDING to Sir Thomas Drew, it is not generally known that work now going on in the choir of St. Patrick's is mainly conservative repair, cleansing from mortar and plaster of ancient stonework of the thirteenth century, untouched before by "restoration" for seven centuries, comparatively unharmed by neglect. It will be in a few months a distinct gain in interest for the visitor to Dublin and the archaeologist to find in the eastern end of St. Patrick's a survival of an ancient specimen of beautiful architecture, of the age of 1230 to 1250, comparable with what Salisbury or Beverley Minsters can show.

The ceiling of the triforium passage, familiarly known as the Monks' Walk, which bonds an inner to an outside wall, is formed of great flagstones. Three of these have been observed to be ancient granite tombstones, with raised crosses cut on them identical in character with the St. Patrick's Well stone. There are some other such stones found and identified lately already collected and on view.

Their building in as roofing stones by the Anglo-Norman masons in the thirteenth century places beyond doubt the existence before that time of an important very ancient Celtic cemetery, from which unsuspected memorials of the native dead could be freely appropriated.

The meagre record has been heretofore that in 1190 Archbishop Comyn appropriated the foundation of an ancient Irish church, called "St. Patrick de Insula," and it disappears from history. Eight hundred years later it appears that all record and relics of the ancient Irish church has not been lost in the centuries. The archaic gravestones, with their strange crosses, and some examples of very early Celtic "intrecchio" ornament, now identified and grouped, constitute a thread of record of an ancient Irish church of importance, whose history the Anglo-Norman impropiators did not care to preserve.

**The Prizes** in the competition for the municipal buildings at Hereford have been awarded as follows:—(1) 100*l.*, Messrs. Macintosh & Newman, London; (2) 75*l.*, Mr. H. F. Fowler, Barrow-in-Furness; (3) 50*l.*, Messrs. Stanger & Stanger, Wolverhampton. The following were considered by the committee:—Messrs. Brookes & Son & Godsell, Hereford; Messrs. W. J. Morley & Son, Bradford, and Mr. H. A. Cheers, Twickenham. At a special meeting of the building committee of the Corporation the designs of Mr. Cheers were accepted. The cost of the new building will be close upon 20,000*l.*

**The First Proposal** as to the erection of a memorial of the late Dean Boyle in Salisbury Cathedral was to place canopies over the choir-stalls, but the cathedral architect gave it as his opinion that there were artistic objections to this proposal, and it has therefore been abandoned. At a full meeting of the Greater Chapter it was decided that the most satisfactory memorial would be (1) a mural tablet with a medallion or bust of the late dean, and (2) the filling with stained glass of the four lights of the windows on the north side of the lady chapel.



## NOTES AND COMMENTS.

It will be remembered that litigation arose out of the construction of a station on the City and South London Electric Railway beneath the church of St. Mary Woolnoth, which stands at one end of Lombard Street. The dispute turned on the amount that was to be paid to the rector and churchwardens as compensation. The case was referred to arbitration, with Mr. ROBERT VIGORS as umpire. The award has now been issued. It declares:—(1) That if the Court should be of opinion that the purchase money and compensation are to be paid upon the basis that "all the lands taken are the site of the church of St. Mary Woolnoth, and that the said church is and will remain upon the said site," the company are to pay the sum of 90,628*l.*; (2) if the Court decide "that although the lands taken are at present the site of a church it is possible that by reason of an Act of Parliament or of some scheme under the Union of Benefices Act, 1860, or otherwise the same might but for the passing of the City and South London Railway Act at some future time have ceased to be the site of a church and have become available for building" the company are to pay the sum of 136,421*l.*; (3) that if the Court decide "that the site of the said church and the lands not occupied by the site of the said church respectively can be made immediately available for the erection of buildings other than a church" the company are to pay the sum of 143,548*l.* If the purchaser of the site retains "the right of support" 5,000*l.* is to be deducted from the sum of 136,421*l.*, and if the company are under obligations to make good any damage or injury which may be caused to the buildings erected on the site the sum of 6,000*l.* shall be deducted. In addition the sum of 3,681*l.* is to be paid by the company in respect of the warehousing of church furniture, legal and surveyor's costs, the reinterments, &c. The church is an interesting building, and was erected as one of the fifty new churches for which Queen Anne's Act provided funds. It was designed by NICHOLAS HAWKESMOOR. As a church it has been one of the least used in the City, and in 1863 its removal was advocated. According to the award the appropriation of the site for any other purpose will involve an outlay of about 50,000*l.*

THE name of M. MERODACK may not be known in this country, but he is an enthusiast whose efforts against the renovation of Mediæval buildings have won for him in France the title of "Homme des Cathédrales." Sometimes he appears in various costumes of the Middle Ages, and then he becomes, if possible, a more interesting figure. He is now editor of a paper called *Vieux Rouen-Lisieux*, and his sanctum is either in a tower of the cathedral of Rouen or of one of the ancient churches of Lisieux. From those elevations he wages war against all those who propose to supplant old buildings by new ones. M. MERODACK therefore excels VICTO HUGO's "Quasi Modo," for while the bell-ringer of Notre-Dame used only to set in motion "the cymbals glorious, swinging uproarious," M. MERODACK enters on intellectual battles with all who do not belong to the Gothic school. In this country he would hardly be prized by any archæological society, and he would not be allowed to select a domicile in a church tower; but the French are tolerant of opinions, and Mediævalism, with all its defects, has still attraction for them.

THERE are few more puzzling questions in a legal sense than What is a mineral? When minerals were first reserved there can be no doubt that the word referred to something which was found at a sufficient depth below the surface to require mining before it could be used. But with the improvements in processes of manufacture, clays, which at one time were not thought to possess mineral qualities, became as valuable as coal or iron. A remarkable case arose some years since when the water supply of Glasgow depended on what answer was given to the question. An immense reservoir was constructed on land which the Corporation had purchased, the minerals being reserved to the vendor in the usual way. But it was afterwards found that clay suitable for making firebricks and the like was spread over the surface. A demand was made that operations for its recovery should be continued in the ground forming the reservoir. The Scottish Courts were

divided, and could not agree whether the clay was a mineral. On Saturday a decision was given by Mr. Justice BUCKLEY in a case which was no less remarkable, viz. Great Western Railway Company *v.* Blades. The company had purchased land at West Bromwich, the minerals being reserved to the defendant. In course of time he began to remove a valuable bed of clay, and the excavations were carried to the foot of the railway embankment. Notice was given to the company that the work was to be continued. The company sought to restrain defendant from injuring their property. His Lordship, after hearing the arguments, defined a mineral as something which possessed a value independent of the land, and the clay beneath the embankment must therefore be regarded as a mineral. But, according to his Lordship, clay may be a mineral in one district and not in another. On the other hand, the land which was purchased could not be considered as relating only to the surface, which was in parts no more than 6 inches deep. To remove the clay which supported the surface would be to deprive the land of any value, and the company would have acquired only an easement. Judgment was accordingly given for the plaintiffs, and unless reversed in a higher Court the embankment is safe. Mr. Justice BUCKLEY's decision will confirm what was laid down by the House of Lords in the Glasgow case, that land purchased as a site for a building is not to be restricted to vegetable mould or cultivated clay, but also comprises the subsoil, although it may be a bed of fireclay.

THE effort of Lord STANMORE on Monday in the House of Lords to have a Royal Commission appointed similar in character and object to the Fine Arts Commission of 1842 could only have been a forlorn hope and doomed to failure. In 1842 there was a definite object, viz. the decoration of the Houses of Parliament. Unfortunately for art and artists the results were not successful, and the wall-paintings are taken as warnings against a repetition of the attempts. A commission now would have to be a tribunal of taste to watch over works of art, whether structures, paintings or statues, throughout the country. That would necessitate the establishment of a new Government Department with paid officials and the expenditure of large sums of money in order to give effect to the recommendations of the commission. A more unfavourable time could hardly have been selected for such a project. The war expenses are too burdensome to allow of other additions to the expenditure. Art cannot be forced on the people, and the incomplete state of the Houses of Parliament and other public buildings is sufficient to show that much of the enthusiasm that prevailed in 1842 was only factitious.

## ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: SOUTH TRANSEPT.

NEW WORKHOUSE BUILDINGS AT SHOREHAM. NEAR BRIGHTON FOR THE STEYNING BOARD OF GUARDIANS.

THE buildings shown in our illustration have been in progress for the past three years, and are now just ready for use. They stand upon a fine open site of over 20 acres at the foot of the South Downs and a mile from the sea, and provide accommodation for Poor Law purposes for a large area which embraces the wealthy district of Hove as well as many small rural parishes. The central or administrative block includes a lofty dining hall and extensive kitchen offices, and is planned on a scale which shall meet future rather than present requirements, the buildings now completed being only part of the establishment which the site is intended to accommodate. The plan and view sufficiently indicate the arrangement of the buildings, which are of local brick with Sussex tiled roofs. A very complete installation of cooking and heating appliances by CLEMENTS, JEAKES & Co., and of laundry fittings by MACINTOSH and the Blackman Ventilating Co. are features of the arrangements. The general building contractors were MESSRS. PARSONS & SONS, of Hove, and the clerk of works was Mr. GEORGE CARD, the whole of the work being under the direction of MESSRS. CLAYTON & BLACK, architects, of Brighton.

THE IMPERIAL THEATRE, BROADWAY, WESTMINSTER.

DESIGN FOR THE NEW CHURCH OF ST. COLUMB, NOTTING HILL. VIEW OF THE INTERIOR, LOOKING TOWARDS SANCTUARY.



OFFICIAL REPORTS ON THE FINE ARTS,  
PARIS EXHIBITION, 1900.  
PRELIMINARY ARRANGEMENTS.

By the Duke of Argyll, K.T., and Sir Edward J. Poynter, P.R.A.

THE fine arts committee of the Royal Commission, originally appointed in May 1898 by H.R.H. the Prince of Wales, president of the Royal Commission, consisted of:—  
The Marquis of Lorne, K.T., M.P., chairman; Sir Edward J. Poynter, P.R.A.; Lord Rothschild; Lord Windsor; Lord Pirbright; Sir William Agnew, Bart; Baron Ferdinand de Rothschild, M.P.; Sir John Murray Scott, Bart; the President of the Royal Institute of British Architects; Major-General Sir John R. D. Donnelly, K.C.B.; Major-General Sir Arthur E. A. Ellis, K.C.V.O.; Sir James D. Linton; Mr. Henry H. Armstead, R.A.; Mr. James Staats Forbes.

The above were members of the Royal Commission. There were afterwards added, with the sanction and approval of H.R.H. the President:—

Sir Wyke Bayliss, P.R.B.A.; Mr. Thos. Brock, R.A.; Mr. Frank Dicksee, R.A.; Mr. Fred. A. Eaton, sec. R.A., hon. sec. to the fine arts committee; Sir Thomas Farrell, P.R.H.A.; Mr. Luke Fildes, R.A.; Mr. E. J. Gregory, R.A., P.R.I.; Sir F. Seymour Haden, P.R.E.; Professor Hubert von Herkomer, R.A.; Colonel Herbert Jekyll, C.M.G. (*ex-officio*), sec. Royal Commission; Mr. J. H. Lorimer, R.S.A.; Mr. A. B. Freeman Mitford, C.B.; Mr. W. W. Ouless, R.A.; Mr. Valentine C. Prinsep, R.A.; Sir George Reid, P.R.S.A.; Mr. Linley Sambourne; Mr. Frank Short, R.E.; Mr. Marion H. Spielmann; Mr. Marcus Stone, R.A.; Mr. W. Hamo Thornycroft, R.A.; Mr. Alfred Waterhouse, R.A.; Mr. E. A. Waterlow, A.R.A.; P.R.W.S.

Mr. Isidore Spielmann was appointed secretary to the committee, and in Paris "Directeur de la Section."

The following classification of exhibits came within the scope of the committee:—

- Class 7. Paintings, cartoons, drawings.
- Class 8. Engraving, lithography.
- Class 9. Sculpture and engraving of medals and precious stones.
- Class 10. Architecture.

The section devoted to the fine arts is invariably regarded as one of the chief features of attraction in every international exhibition, and its success depends largely on the regulations and stipulations that are laid down by the exhibition authorities. When, as in the present case, these regulations are so framed as to place foreign nations at a disadvantage, the best efforts are unavailing to secure a proper place in the general display.

The contemporary fine arts section of the Exhibition was installed in the Grand Palais in the Champs-Elysees, one of the permanent buildings erected on the site of the Palais de l'Industrie. In this vast structure the larger portion of the space was appropriated by France, the remainder being divided more or less equally among the other countries. To Great Britain, in the section devoted to painting, drawing, engraving and architecture, there were finally allotted 566 lineal feet as against 900 feet to Russia, 880 feet to Germany, 780 feet to Italy, 600 feet to Belgium, 580 feet to Spain, 490 feet to Switzerland and 400 feet to Portugal.

As may be seen from the foregoing statement, the space set apart for the foreign fine art sections was not only altogether inadequate for a proper representation and display of their work, as compared with the French, but Great Britain received exceptionally unfavourable treatment in this respect; and when the committee began its regular sittings in March 1899 their first step was to endeavour to obtain a larger amount of space than had been allotted to it.

As, after waiting for some weeks, no response was made to our application, the following resolution of the committee was forwarded to the French Administration by the secretary of the Royal Commission:—

"The committee is unanimously of opinion that the space allotted to British art is entirely inadequate to a fair representation of that art; and they venture to express the hope that the authorities of the Exhibition may be able to increase the available space to such an extent as would enable the best examples of contemporary art to be exhibited."

With a view to obtaining a further concession, Sir Edward Poynter went to Paris and saw M. Delaunay Belleville, who promised to do his best to secure additional space. In response to this application, an official intimation was forwarded placing another room at the disposal of the committee. The space, however, was no doubt still very inadequate in which to represent so important a school, and in many instances prominent artists could only be represented by one work.

A further addition of 167 lineal feet was eventually secured by the conversion of the outside gallery or corridor into rooms for water-colours, black-and-white drawings and architectural designs, thus releasing Room 29 for oil-paintings. Two large doorways also were blocked, whereby a little more wall-space

was secured. These alterations had to be made at the expense of the committee, and were satisfactorily carried out by our secretary, Mr. Isidore Spielmann, who was on the spot at the time and devoted himself to seeing that these additional rooms were properly constructed, and at a minimum of expense to the committee.

In the result the space awarded to Great Britain was not disproportionate to that of other countries. It may be summarised thus:—

|                     |           |
|---------------------|-----------|
| Originally allotted | 475 feet. |
| Additional room     | 91 feet   |
| Corridor rooms      | 167 "     |
| Blocking doorways   | 50 "      |
| Total               | 783 feet. |

The authorities allotted 250 square metres to British sculpture.

At an early stage of the organisation of the section the committee relegated to the sub-committee all matters concerning the selection of and applications for exhibits; the arrangements respecting their insurance, collecting, packing and transport; the decoration of the rooms and all other matters not involving questions of principle. Upwards of twenty meetings were held by the committee and sub-committee during the progress of the work; those at which artists and works were selected were very protracted.

The principal clause in the "Actes Organiques" affecting the section of the fine arts is as follows:—

"The contemporary exhibition is open to the works of French and foreign artists which have been executed subsequent to May 1, 1889" (Titre IV., Article 19)

This regulation guided the action of the committee in its application for works, and was strictly adhered to.

Artists' claims to representation were based upon their past work and reputation, and were impartially selected from lists comprising upwards of six hundred names, and including all who are best known in the various branches of art. It was accepted as a principle that no art society would be invited to co-operate as a body, and that "all works would be invited and accepted as the work of individuals, and not as representing any institution; that all exhibits would be under the one head of 'Great Britain.'"

It was also agreed that as the space at international exhibitions is almost invariably restricted, such exhibitions cannot be regarded as suitable occasions at which the younger artists can reasonably expect to make their professional debut.

In order to include the greatest number of works, the committee aimed at inviting a single work by each artist, unless the distinction of such artist, the variety of his work or style, or the relative smallness of his contributions seemed to require the acceptance of more than one.

Invitations to artists to exhibit were issued towards the end of 1899, requesting them to specify two or three works of moderate size only, from which the committee proposed, in the first instance, to select but one. To private owners we intimated that we had been authorised by H.R.H. the President of the Royal Commission, to appeal for the loan of certain works in their possession, stating at the same time that an important international object would be served by their kind co-operation.

The response, both from artists and owners, was the reverse of encouraging, and it became apparent that owing to causes which need not here be referred to, great difficulty would be experienced in obtaining suitable works with which to form a thoroughly good representation of our school, and it is a fact that many artists refused the invitation of the committee for these reasons, among them being several whose works would have lent much additional strength to the collection. Many owners of works of art were no doubt actuated by the same feelings, and declined to lend. The committee had to contend not only with these difficulties, but also with the combined efforts of committees of other exhibitions at home, each of which was working in its own interests.

Notwithstanding these difficulties, the committee have reason to hope that the British art of the last decade received a fairly adequate representation.

The collection consisted of 470 works—(300 in Class 7 (painting), 68 in Class 8 (engraving), 54 in Class 9 (sculpture), and 47 in Class 10 (architecture). The number of exhibitors amounted to 282. At the Paris Exhibition of 1889 the number of exhibitors was 300, and the total number of works exhibited was 550.

The following table sets forth the number of exhibitors and works exhibited in comparison with previous international exhibitions:—

| Exhibition.    | No. of Oil-Paintings. | No. of Water-colours. | No. of Sculpture. | No. of Black and White. | No. of Architectural Drawings. | Total No. of Exhibits. | No. of Exhibitors. | No. of Exhibits per Exhibitor. |
|----------------|-----------------------|-----------------------|-------------------|-------------------------|--------------------------------|------------------------|--------------------|--------------------------------|
| Paris, 1889    | 172                   | 124                   | 40                | 123                     | 93                             | 552                    | 300                | 1'84                           |
| Chicago, 1894  | 461                   | 204                   | 53                | 266                     | 146                            | 1,130                  | 515                | 2'19                           |
| Brussels, 1897 | 205                   | 109                   | 24                | 222                     | 54                             | 614                    | 259                | 2'33                           |
| Paris, 1900    | 166                   | 89                    | 54                | 114                     | 47                             | 470                    | 282                | 1'67                           |



The arrangements concerning the collection of works of art and their packing were confided to Messrs. Dicksee & Co., who sent them in seven consignments, a special officer appointed by the committee travelling with each to insure proper care in handling the cases, &c., on the way. The works in sculpture were numerous, and the majority of them being in plaster, their transport was very difficult and risky. One-half of these were sent in cases and the remainder in vans, the latter method proving to be the more convenient. The transport was given to the London, Brighton and South Coast Railway, in conjunction with the Western Railway of France.

The decoration of the section was entrusted to Messrs. Maple & Co., and the scheme adopted was similar in many respects to that of the French section. The walls were hung with a silky material of a subdued red tone, with the addition of a handsomely decorated Lincrusta frieze, designed by Mr. Norman Shaw. Pediments were fixed to the overdoors, bearing the words "Grande Bretagne." The floors were covered with linoleum, and suitable seats were hired for the period of the Exhibition. The rooms on the corridor were lightly built of wood, and hung with similar material, white muslin forming the ceiling or velarium.

The French officials were most obliging in their efforts to further the interests of the committee, but the fact that they were often unable to respond to our legitimate requests was owing, no doubt, to the involved and complicated nature of their arrangements, and to the confusion which existed.

Although the space promised for sculpture was but 250 square metres, there was much delay in securing even this, and almost up to the last moment it was not known where the sculpture was to be installed.

Nevertheless, the section of painting was ready on the day on which the President of the Republic opened the Exhibition, when he visited the British section. The only other countries similarly prepared were Germany and Austria.

The pictures in the British section were hung by Mr. Val. C. Prinsep, R.A., Mr. W. F. Yeames, R.A., and Mr. J. Lorimer, R.S.A. The sculpture was placed by Mr. H. H. Armstead, R.A. It has already been stated that, even with the addition of the extra corridor rooms, the space devoted to oil-paintings was inadequate; the pictures were therefore somewhat crowded, and many good works had to be placed higher than we desired.

The English catalogue was necessarily arranged in accordance with the French system of numbering, which was not consecutive. It was sold at 50 centimes, and the sale, which was very successful, realised a sufficient amount to approximately cover its cost of publication. The British was the first by several weeks of all the foreign sections to offer its catalogue for sale to the public.

The "Actes Organiques" stipulated that each class jury should elect its own officers, consisting of a president, vice-president, rapporteur and a secretary. The president and vice-president were required to be of different nationalities, the one French and the other a foreigner.

Under this arrangement the following were presidents and vice-presidents of the four sections in the Fine Arts of Juries for awards:—

Class 7, Painting: M. Gerome, president (France); Mr. H. W. B. Davis, R.A., vice-president (Great Britain).

Class 8, Engraving: M. Beraldi, president (France); M. Jacoby, vice-president (Germany).

Class 9, Sculpture: M. Guillaume, president (France); Count Tolstoy, vice-president (Russia).

Class 10, Architecture: M. Vaudremer, president (France); M. Cuypers, vice-president (Holland).

In Class 7 France furnished thirty-nine jurors, and the nineteen other countries twenty-seven.

At extremely short notice given by the Exhibition authorities, the following gentlemen kindly undertook at the request of the committee to represent Great Britain upon the international jury:—

Mr. H. W. B. Davis, R.A., and Mr. W. F. Yeames, R.A., painting.

Mr. Linley Sambourne, engraving and black and white.

Mr. E. Onslow Ford, R.A., sculpture.

Mr. Ernest George, architecture.

It will be noted that a compliment was paid to this country by the appointment of Mr. Davis as vice-president of the class devoted to painting.

In the appendix will be found the able and interesting reports of the above-named gentlemen, but the following remarks upon the work of the jury may be of interest.

Reference has been made to Article 19, which strictly limited the exhibition of works to those executed subsequent to May 1, 1889. The loyalty with which we observed this regulation placed us in a disadvantageous position as compared with other countries which were less scrupulous. In this respect the French authorities seem to have been no less lax by not insisting on the observance of their own regulations.

The judging of pictures commenced on May 30 and was

concluded on July 5, and the decisions of the jury have been accepted as a fair and generous appreciation of our school and of the artists represented.

In sculpture Great Britain showed a larger number of works than she has ever contributed before to any international exhibition abroad; but, inconveniently crowded as was the whole exhibition devoted to sculpture, the exiguous amount of space accorded to our section placed us at a peculiar disadvantage in this respect.

It cannot be said that the contributions in architecture fairly represented the art. Of the hundred architects invited to participate only thirty-six responded, and these did not include all of the best-known practitioners. The drawings were mostly of domestic buildings, work of a higher class being almost entirely unrepresented.

The decisions of the class jury of the fine art section were final, appeals to the group or superior juries being in their case abolished.

Although the British exhibit, as a whole, did not reflect the highest level to which the arts have attained in this country, it was generally admitted to be the best of the foreign sections. As regards the awards, it may be noted that more medals were given to the British than to any other foreign section.

The expenses of the fine art section amounted to 6,018*l.* 3*s.* 8*d.*, being 18*l.* 3*s.* 8*d.* in excess of the estimated expenditure. The finance committee of the Royal Commission originally granted 5,000*l.* towards the expenses of this section, but eventually made a further grant to meet the amount required.

The large number of works in sculpture sent to Paris in 1900 increased the anticipated expenditure under the heading of collecting and packing, and the unfinished condition of the rooms when handed over to us by the authorities considerably increased, as has been explained, the cost of decoration and installation. The expenses of the hanging committee and the jurors also were increased by delays, which were completely beyond our control.

The works were fully insured against all risks, and the rate of premium, viz. 20*s.* per cent., was moderate except in the case of plaster casts. These could not be insured at a lower rate than 90*s.* per cent. It is gratifying to note, however, that no serious damage of any kind has occurred, and that the chief claim upon the underwriters has been for replacing broken picture glasses and injured frames. The latter were all thoroughly repaired before being returned to their owners.

The Exhibition closed on November 12, and the works were completely packed and ready for transport within a fortnight of that date. Through the kindness of Mr. William Forbes, the general manager of the London, Brighton and South Coast Railway, and Mr. T. N. Wylie, the continental traffic manager, who personally rendered us very valuable assistance, our pictures and sculpture were at once sent through to London by passenger trains, and were in the hands of their owners before many of the other foreign sections had begun to leave the Exhibition, and before the rush of departures commenced.

If it had not been for the liberality of many owners of prominent works of art, the fine art section would have been but imperfectly representative of the British School, and the committee wish to express their thanks to those who came forward in response to their request and lent their valuable works in the interests of the country.

To M. E. Molinier, M. André Saglio and M. Barthélémy, of the Palais des Beaux-Arts, we desire to express our recognition for the kind attention shown by them to those whose connection with our section necessitated their presence at Paris.

The thanks of the committee are due to Mr. F. A. Eaton, secretary of the Royal Academy, who voluntarily gave his services as hon. secretary to the fine art committee, and who, by his visits to Paris at the critical time before the opening day, was greatly instrumental in evolving order out of chaos, and in so enabling the committee to have the fine art section ready for the opening ceremony.

To Mr. Isidore Spielmann's untiring energy and devotion to the interests of the committee, both as secretary to the committee at home and as director of the section during his long stay in Paris, is no doubt due a large measure of the success which attended the efforts of the committee.

#### THE METHOD OF JUDGING.

By Mr. H. W. B. Davis, R.A.

In offering the following remarks, which I now have the honour of transmitting to you, as a report upon the proceedings of the International Jury of Fine Arts, Class 7, of the Paris Universal Exhibition, 1900, I must express my regret that they take necessarily the form somewhat of a personal narrative, as unfortunately my colleague, Mr. Yeames, was not able to undertake his duties as juror in Paris until the business of the jury had been very far advanced. There had been much uncertainty as to the probable time of meeting and the duration of the sittings of the jury, and there would appear



indeed to have been some confusion on the part even of the French Administration with respect to the date of its convocation.

I did not myself receive in England the official summons to attend until the day itself of the preliminary meeting of the jury in Paris, and consequently could not be present on that occasion. I arrived in Paris on May 30, and learned the following day that at the late meeting M. G. L. Gerome had been chosen president and myself vice-president of the jury, information I at once communicated to our Commissioner-General in Paris, Colonel Jekyll.

At the first regular meeting of the jury the mode of procedure was discussed and adopted, as well as the method of voting. Some few of the foreign jurors were still absent, but ultimately all arrived and were present at the subsequent sittings.

The jury, including *suppléants*, numbered sixty-six members, of whom thirty-nine were French, no other country being represented by more than two jurors, and the majority of them by one only.

The system of voting by *scrutin de liste* was adopted, in opposition to the wish expressed by some, if not many, of the jurors, French as well as foreign, who were in favour of the more simple method of balloting by black and white balls, which, though possibly a little more tedious in operation, has certainly the advantage of compelling the attention of voters to each individual name that had been proposed and seconded as it came on for consideration, thus at least insuring a vote one way or the other from every juror upon that particular name.

The voting for medals of honour, or grand prix, was to be taken in the first instance. And for this purpose—as was also the case when each of the subsequent class of awards, in the order of their importance, was considered, and after its anterior and superior class had been disposed of—the whole body of the jury was conducted by the President through the various galleries in succession, in the order of the numbering of the rooms; and as two or three of the foreign jurors had not yet arrived, it was decided to visit the French section first, instead of taking, as had been proposed, the various countries in alphabetical order. Before the pictures, it was competent to any juror to propose a work for an award; and it had been decided at the sitting that if the work so proposed should obtain the support of as many as ten of the jury present—but not less—the painter's name should be then and there inscribed by the secretaries upon the list, to be subsequently voted upon by the whole body.

As being significant of the obvious intention of the French authorities this year that there should be no question of the preponderance of French art in the Exhibition, not only as shown in the numerous spacious and imposing galleries—compared with those allotted to foreigners—in which the French works are displayed, but also in the list of awards, and the large number they expected and intended should be obtained by French artists, it may not be quite out of place to point out that on the lithographed form, upon which the names for proposed awards were to be inscribed by the voters, under the headings of the respective nations, the space reserved and allotted to France alone consisted of two pages of the paper, the remaining two pages being allotted, in varying sized spaces, to the countries of the whole of the rest of the world. This intention on the part of the Administration was manifested in several minor ways as well; notably, perhaps, by the manner in which the jurors were at times rather hurried through the foreign rooms. It is obvious that where—as occurred in the majority of cases—the jurors were brought to examine a work seen by most of them for the first time, it would be very difficult for a crowd of sixty and more, clustered round a picture and in a small gallery, to judge efficiently the merits of a work they could only obtain glimpses of; and if, after such a partial examination, the bulk of the jurors were hurried off to another work, sometimes to another room, the result could in many cases hardly prove satisfactory. I am afraid there was a certain amount of impatience—perhaps indifference—displayed at times by some of the French jurors, even by the President, when visiting the foreign sections. But this is by no means to be interpreted as meaning that the French jurors, personally, were ever anything but most courteous, most obliging and apparently well-intentioned and generously disposed towards foreigners.

The impression, however, they made upon me, so far as my own observation went, was that they had not expected, nor perhaps desired, that so many proposals for awards to foreigners should have been made. On the other hand, the proposals, once made and seconded, and inscribed on the secretary's list, were, on the whole, liberally dealt with. And I may here say that, as regards the British section—considering that the display, though very creditable under the circumstances, is certainly but a modest one, and cannot be said to fairly represent the art of the country, many of our exhibitors being represented by a single work, and that sometimes of

minor importance, whilst some of our best artists do not exhibit at all—considering, I say, these circumstances, we have, I think, every reason to be gratified at the result and by the number of awards gained by Great Britain. It is true that those awards were sometimes rather a surprise to my colleague and myself, and were not in some cases quite in accordance with our wishes and our hopes, but such uncertainties and such results are inevitable in international contests of the kind, where the majority of the jurors are always ignorant of the careers of most of the competitors, and, as must be recollected, are only able to form an opinion upon their respective merits by the works, or single work sometimes, they may see before them. It was on these grounds that my colleague and myself, after much anxious consideration, came to the conclusion that we should best consult the dignity of several of our artists, with whose merit and careers we were well acquainted, by withholding their names—that is, not proposing them for an award inferior to that which we felt their careers entitled them to.

We sincerely trust that the committee will hold with us that we came to a right decision, for we are very conscious of the responsibility we took upon ourselves.

It may be well, too, here to call attention to the fact that the first medal (gold medal, so called) is the highest ordinary award in France for any particular work of art, the medal of honour (grand prix) being exceptional, and usually granted in consideration of an artist's whole career, and given at the supposed period of his highest attainment. But the second medal (silver) is considered in Paris a high and important award, and it might, perhaps, be a surprise to some, who may be inclined to look askance at what they may consider a second-class award, that many of the French artists of chief importance—many even of the members of the jury itself, and twice decorated—have never received more than a second medal. Those who have attained to the greatest eminence have usually commenced by gaining a third medal—or an honourable mention, sometimes repeated. They subsequently, as a rule, obtain a second medal and ultimately a first.

After some experience now of universal exhibitions as they regard art (I do not speak of industries), and the methods of awarding medals in connection with them, I have great doubts of the advisability of our entering into competition for awards at all, though I have none whatever as to the value of a nation's participation in the Exhibition, for there can be little question of their importance to students of art, as a means of comparison and education, to say nothing of the extreme interest to art lovers generally of these displays. But I am of opinion that if such contests between nations be entered upon—since contests, however friendly, they seem to be considered—the fact should be faced that it is the manifest duty of the committee charged with the direction of management at home, that they should rigidly and fearlessly exercise their powers of selection of works for the Exhibition, however invidious and sometimes distasteful their task may appear; just as the committee charged with the duty of placing and arranging the works in the space allotted, more particularly if that space be limited, should make it a law to themselves to display them—according to the material at their disposal, and quite irrespective of possible personal bias, or any other consideration—that is, without fear or favour—to the very best advantage, with a view to their possible success in the struggle.

Unless we be prepared to act up to this standard, I think all contest or competition should be declined, as likely to lead to disappointment, if not humiliation, from a national point of view.

It need hardly be necessary to point out that, in fact, these international competitions can rarely result in justice being done to all. Artists of established eminence may very possibly be represented—and not infrequently are—by work of quite minor importance, which may not justify the claims of their authors in the eyes of foreign judges, unacquainted, most probably, with their life's work; whilst, on the other hand, an artist of inferior worth may happen to be represented, on the same occasion, by work of greater effort and attractiveness. This has frequently been the case within my own experience.

The jury held their sittings daily, with the exception of Sundays, until July 5, the date of their last meeting, when, having terminated, on the previous day, their consideration of the last class of awards, honourable mentions, the President declared the work of the jury complete, and the members separated.

The work had certainly been arduous. Besides the enormous number of works in the main galleries of what is called Le Grand Palais, every pavilion of the various nations and of the various colonies, as well as every establishment within the precincts of the Exhibition, containing any painting—mural or other—or any object of art entering under Class 7, had been visited, and the works examined, in the first instance, by a sub-committee of four delegated by the jury, consisting of the vice-president and three others (two French and two foreign), to report upon such works, and subsequently by the whole body of the jury.



At one period of the sittings a collapse of the jury threatened to occur, owing to a divergence of views with the Administration with regard to the awards. A communication from the authorities was addressed, through the President, to the jury, notifying that, according to the official view of the regulations, the awards of the jury were to be considered as provisional only, and might be reconsidered and possibly modified by the group and the superior juries, whose decisions were to be final. This proposal to interfere with the strict functions of the jury at once met with strenuous opposition, and was much resented when it appeared that the Administration was indisposed to withdraw its pretension. After a warm discussion, it was almost unanimously decided that unless the Administration gave a guarantee that the awards of the jury should in no wise be tampered with—that is, that they should neither be added to nor restricted (with the exception of any proved cases of error or forgetfulness)—the jurors would one and all give in their resignations, and that, in the meantime, pending the decision of the authorities upon the question, they would suspend their sittings.

The matter was subsequently arranged at an interview of the President of the jury and the Commissaire-Général of the Exhibition, the latter giving the required undertaking, and the jury resumed their deliberations.

Almost at the last sitting also there was danger of disruption before completion of the work. A motion was made by one of the French jurors and supported by some others, with the object of reconsidering the awards and obtaining an addition to the number of first medals, and possibly of grand prix, as well as a definite proposal on the part of the Administration of one grand prix to a country that had not succeeded in obtaining one. These, like the former proposal of the Administration, met with no success, and had to be abandoned, after some rather exciting scenes.

I may add that the relations between all sections of the jury, particularly between the foreign members and their French colleagues, were throughout of the most pleasant and cordial nature.

#### PAINTINGS.

*By Mr. W. F. Yeames, R.A.*

In reviewing the work done by the jurors in the sections devoted to painting, sculpture and architecture, one cannot help asking oneself whether in the interest of the fine arts it is advisable to bestow awards on works of art, and how far it is possible to do so fairly.

The fluctuations of fashion and of individual taste give a decided bias to all judgments passed on the merits of paintings by living artists, and the history of art teaches us that time alone can settle what position an artist deservedly holds in the world's estimation.

What one could not help noticing with the French and most of the other continental nations, whose art is an outcome of the French school, was a craving for novelty, for everything out of the common, and this at all cost and at the expense of many of the traditions of good art as upheld for centuries in the past.

Again, an unreasonable war is waged at present in France against any production in which the influence of photography can in any way be detected, in consequence of which precise drawing and sound light and shade serve frequently to condemn a picture; and, on the other hand, extravagance of all kinds is admired in works lacking in drawing, proportion and other qualities appealing to common sense. These views, if admitted, will explain how in the British section, in many cases, awards were bestowed on pictures and withheld from others very much against the estimation in which their authors are held in this country.

The mode of proceeding and the machinery adopted were too cumbersome to secure a very satisfactory result. The jurors being over sixty in number, it was not possible to have that interchange of opinion required in judging a work, and the number of pictures to be dealt with was so great that the necessary time could not be given for deliberate discussion of their merits.

For each class of medals, the médaille d'honneur, the gold medal, the silver and the bronze, a separate visit was made to all the galleries, both French and foreign, the President leading the jurors and submitting to them any work proposed by any juror for a medal. A show of ten hands carried the picture, entitling the author's name to be put on the list eventually to be voted upon.

This list was then lithographed, and a copy given to each juror, whose duty it was to strike out all the names except those of the artists he desired to have the medal. Scrutineers chosen from the jurors then counted the number of votes given to each name, and twenty-seven votes secured a medal.

Much to my regret, I was unable to attend the meetings of the jurors for the médaille d'honneur and the gold medal, but attended all the others. Owing to the large number of jurors, the President had much difficulty in gathering them round each

picture, but consistently let everyone who wished express his views, and reconsidered a decision if urged to do so by a juror. In going round the British and other foreign sections, no change could be detected in the mode of proceeding, and the impression left on my mind was that the bulk of the jurors were desirous to act fairly in their judgment of the pictures of whatever nationality.

With respect to the last awards, the honourable mentions, the committee decided that the French jurors should appoint four or five of their number to visit again the galleries of the French section, and make out a list of those who, having not yet received awards, were still entitled to honourable mention; and that the jurors of the other nationalities, two in some cases and one in others, should in their respective sections make out similar lists, these lists to be submitted to the whole jury and voted upon. Eventually, as the lists thus made out were not considered excessive, they were adopted in their entirety.

As must have been expected, the French section obtained a very large number of awards, somewhat excessive.

The British, though getting a largish number, might have had more but for two circumstances—the one, that many of our distinguished artists were not represented by their best works; and the other, that owing to insufficient room being given for their display, their pictures could not be exhibited to the best advantage.

A cordial feeling existed amongst the jurors, and Mr. H. W. B. Davis, R.A., being elected vice-president was an expression of the esteem the art of this country is held in in France. In the hubbub and general talk that attended most of the deliberations, it was noticeable that when Mr. Davis spoke silence ensued, and due attention was always given to his words. He was enabled by this to pull the committee through several serious difficulties it got into through ungovernable hastiness and excitability.

Though acknowledging that the work done by the jury was not as satisfactory as could have been wished, I doubt whether better results would have been secured by other methods and expedients.

#### SCULPTURE.

*By Mr. E. Onslow Ford, R.A.*

In opening my report as juror for the British Section in Class 9 (Sculpture) at the Paris Exhibition of 1900, it is necessary for me first of all to deal with the size of our exhibit, and I regret to say that in this respect I cannot speak of it with the satisfaction I could have wished. For without doubt in this respect it fell considerably below what had been anticipated. When the committee began to organise their collection they were encouraged by the promise that 250 square metres would be allotted to them at the Exhibition; but when the actual division of space occurred it was apparently found impossible to assign anything like the full amount to the British department, and from this fact it resulted not only that the numbers had to be cut down considerably below the amount contemplated, but the works exhibited had to be packed into so small a space that it was quite impossible to show them off to full advantage. Our grounds of complaint, however, cannot be legitimately laid at the door of the French committee, for we must in justice to them say that their own department was hampered by the same conditions, and their own exhibits were so crowded as to preclude all possibility of a really effective arrangement of the works shown. The British Section was made up of thirty-three small and twenty-one large works. In addition to the crowding, the Exhibition lost much by the absence of the works of several notable artists. But the committee had to cope with a further difficulty, occasioned by the large proportion of works which were sent in in plaster. Out of a total of exhibits of fifty-four only five were of marble and twenty-five of bronze, all the rest being plaster. The difficulty of transport of the latter material is necessarily very much greater than that of stronger materials, and owing to its fragile nature the charge for insurance reaches the very high figure of 90s. per cent., as compared to 30s. for bronze. In this way the expenses are trebled at the outset, with no compensating advantage, and this initial loss is such as to make impossible an adequate collection of works on the present system. In future a great effort will have to be made to procure works in their permanent form. No doubt sympathies are due to the private owner who is asked to lend works from his collection, but I think it must be called disappointing that when we are asked to put forward a representative collection of British works extending over a period of ten years the majority of those works should have to be in plaster. To make a comparison between the works exhibited by France and those of other countries would under the circumstances be unfair and misleading, for whereas French sculpture was fully represented, the same cannot be said of the collection of any other country. We especially suffered in this respect, as owing to want of space no one individual was given an opportunity of exhibiting all phases of his work, as was the case with some of the leading



men of other countries. In the Spanish, Russian and German sections there were undoubtedly a few things which lent dignity and distinction to the Exhibition, but, as I have said, the imperfect collections of the foreign countries make a true comparison out of the question. Numbers may speak for themselves, and I have only to say that France claimed about 1,000 exhibits out of a total of 2,000 to show how much greater was her opportunity of showing every side and quality of her art. Had we had more room allotted to us we might have made our school more assertive, and have been enabled to display a more striking and comprehensive collection of British sculpture. Though a direct comparison would thus be impossible, some general remarks might not be out of place. The modern tendency in art seems to lead towards unrest, and the British school appears to have been less affected by this tendency than has been the case with the schools of other nations. The mere physical labour of the judging was arduous in the extreme, as may easily be imagined when it is remembered there were somewhere about 2,000 works, and that a great number of these were scattered about the grounds and upon the outside of the buildings, including such objects as bridges and architectural decorations. This necessitated much walking in all weathers and temperatures. Each work, moreover, had to be examined and marked in the catalogue, and weighed according to its own merits. It is not surprising, then, that the judging should have occupied the time of three weeks, and including the voting, exactly a month. The judging throughout was carried out with the utmost fairness and impartiality, and wherever anyone was impressed with too much or too little zeal in the cause of his own country, the fact was invariably discovered and set right by some members of the jury. With regard to our own section, I have every reason to be satisfied in the matter of awards. The home section comprised fifty-four exhibits, the work of twenty-three artists, but of the twenty-three, Mr. Bates, deceased, received no recompense, and one work, being more than ten years old, stood outside the competition, as, of course, did those of myself, as being a member of the jury. There were then only twenty serious competitors, and twenty awards were made. In addition to these, four awards were also given to Canada and India.

Without doubt the success of the proceedings was very largely due to the president, M. Guillaume. Owing to his unflinching tact the most perfect harmony prevailed throughout the whole work. While delightful to all, I am indebted to him myself for very many personal attentions, and may say with my fellow-jurors that I consider it a great privilege to be a member of a committee acting under his guidance.

An Exhibition of this size cannot pass by without its lessons, and with a view to future participation in international exhibitions a few suggestions might be offered. Speaking as a sculptor I may say that it is of great importance that notice should be given to the exhibitors at least a year before the exhibition, and in order to secure the fuller co-operation of private owners a printed letter might be given to each sculptor for use in applying for the loan of his works, as in this way a greater authority would be lent to the request, and owners would be made to feel more strongly that it is a question of national concern that English art should not be handicapped more than possible in showing off its true qualities in competition with the work of other countries.

These expedients, coupled with a more liberal grant of funds than on the present occasion, which would enable the committee to act with a freer hand, would insure a fuller and more representative exhibition of British sculpture than any that has yet been seen abroad.

#### ARCHITECTURE.

By Mr. Ernest George, F.R.I.B.A.

Having been privileged to serve as a juror on the art section of the Paris Exhibition, I make the following comments upon my department, Architecture.

It was disappointing to find the contribution of architectural drawings from Great Britain to be small, and to consist for the most part of unimportant works, not fairly representing British art. The list of exhibitors contains but thirty-six names, and in this list several of our leading architects are not to be found, while one or two men have sent drawings hardly supporting their deserved reputation.

Our exhibited drawings are mostly examples of domestic buildings, and our foreign critics give us higher praise for this branch of work than for our civic or public buildings. Architecture is less erratic and more traditional in France than in England, but when a Frenchman forsakes his classical lines there is commonly less restraint and propriety and less of a pleasant homeliness than in our own country work. The English country house has more comeliness and comfort than the average *maison de campagne*.

An architectural exhibition will never claim public interest as will exhibitions of the sister arts. The painter and sculptor show their completed works, while the architect's buildings are only explained by diagrams, and it is undesirable that these

drawings should become pretty pictures or works of art in themselves.

In the group of *Grande Bretagne* there are mostly line drawings, while in the *Etats Unis* adjoining it is interesting to find architecture represented only by photographs of executed works. These, while making a modest display, seem to us to make the most reliable statement of the present position of architecture in America.

The German architectural exhibits are few, but they represent municipal buildings and churches drawn and coloured to a large scale and handsomely framed, as if the picture, rather than the building, were the ultimate end.

France presents many works of interest; there is much art in the tinting of the drawings, which are frequently on a grand scale.

There are many archaeological studies working out the problem of restoring ancient cities or temples, reconstructing them from the fragments still to be found. These show a deep and patient research into ancient art that is hardly practised with us, our training being of a more limited and utilitarian character. Our own students have given equally close study to Mediæval examples, the Early Renaissance and to subsequent styles, and I venture to think that in our revival or adaptation of the French, the Flemish, or particularly the Dutch types, our own application or reproduction of these is more satisfactory than the prevailing modern work in the countries that gave birth to these styles.

I believe that from our best hands the spirit and refinement of the old work is often attained, which in continental modern work is so frequently missed.

We have shown the difficulty of judging architecture from drawings and diagrams, and it is pleasant to turn from these latter to a few examples of the art realised in stone (or its substitute).

There is a Rue des Nations, where harmony is less possible than in a concert of European Powers. The effect of all the styles being brought into one street is necessarily bizarre, but perhaps the most reposeful building is the English Royal Pavilion, of which Edwin L. Lutyens is the able architect.

It is a small but charming country house founded upon a Wiltshire type and cleverly carried out.

The interior, with its oak panelled walls, good chimney-pieces and fine parquet ceilings, receives a further refining influence from the Sir Joshuas, Romneys and other choice pictures of the English school, kindly lent by their owners, and a source of interest to foreigners, who know too little of our English masters.

In this pavilion we only regret the needless red-brick chimney-stacks on its corners and set upon the stone wall; had these chimneys grown naturally out of the roof, we could have excused their being of brick.

The first impression given by this English manor house is of its being petite. It is no doubt out of scale with its surroundings, which have been growing up with it. We desire to see horizontal lines, terraces and yew hedges about our building, instead of the soaring lines of the Oudenarde Rathaus in its close proximity, but this difficulty was inevitable.

Another English building of interest, thoroughly original and with a distinct charm of scheme and proportion, is the pavilion of the Peninsular and Oriental Steamboat Company, by T. E. Collcutt. Its low dome is pleasant both from inside and outside, and it works off the square plan very happily. It has simplicity of line and is without ornament but for the low-relief modellings by Lynn Jenkins and Moira.

Another English architect, Mr. Charles Clowes, is answerable for the Anglo-Indian and Ceylon buildings, where the Oriental treatment is cleverly adapted to the needs of the several structures.

With regard to the medals bestowed on the section of British architecture, in which half the number of exhibitors receive distinctions, my opinion is that we owe as much to the generosity and kindly feeling of the jury as to the merits of the works exhibited.

#### EDINBURGH ARCHITECTURAL ASSOCIATION.

AT a meeting of the Council of the Edinburgh Architectural Association, Mr. Henry F. Kerr, president, in the chair, the immediately impending demolition of the Ionic portico to Parliament Square was under consideration. This portico was designed nearly a century ago by Elliott, and is in great part a transcript of the famous portico of the Erechtheum at Athens. It is undoubtedly a fine work, and of commanding scale, and as an example of the Ionic order in its richest development is of great importance. The base and the entablature have original features of individual interest and value. Perhaps the excellence of its design and the beauty of its material and masonry would have been more generally appreciated had it faced another aspect than the east, where the due effect of light and shade from



the sunlight can only fully be seen in the early morning. The Council of the Association, fully acknowledging the merit of this piece of architecture—one of the very few remaining works of such scale and excellence—unanimously resolved to express deep regret at the possibility of its being lost to the city of Edinburgh, and the earnest hope that in some way it may yet be saved. Assuming that the portico cannot be retained in its present position, the Council is of opinion that within the confines of the municipality a place and a use could be found for it, so that it may continue to be an ornament of the city. The Council is strongly of opinion that the destruction of this noble portico would be not only a civic, but to a great degree a national loss, and in this age of consideration for all things worthy of repute, it would be an irretrievable disgrace if the stones were allowed to be broken up.

### TESSERÆ.

#### Tibaldi and Michel Angelo.

OF the imitators of Michel Angelo, the two most eminent are Pellegrino Tibaldi, called "Michel Angelo riformato" by the Bolognese eclectics, and Francesco Mazzuoli, called Parmigiano. Pellegrino Tibaldi penetrated the technic without the moral principle of his master's style; he had often grandeur of line without sublimity of conception; hence the manner of Michel Angelo is frequently the style of Pellegrino Tibaldi. Conglobation and eccentricity, an aggregate of convexities suddenly broken by rectangular, or cut by perpendicular lines, compose his system. His fame principally rests on the frescoes of the Academic Institute at Bologna and the ceiling of the Merchants' Hall at Ancona. It is probably on the strength of those that the Carracci, his countrymen, are said to have called him their "Michel Angelo riformato"—Michel Angelo corrected. It would be injustice to the Carracci to suppose for one moment they could allude by this verdict to the ceiling and the prophets and sibyls of the Capella Sistina; they glanced perhaps at the technic exuberance of the Last Judgment and the senile caprices of the Capella Paolina. These, they meant to inform us, had been pruned, regulated and reformed by Pellegrino Tibaldi. Do his works in all places warrant this verdict? So far from it they exhibit little more than the dotage of Michel Angelo. The single figures, groups and compositions of the Institute present a singular mixture of extraordinary vigour and puerile imbecility of conception, of character and caricature, of style and manner. The figure of Polyphemus groping at the mouth of his cave for Ulysses, and the composition of Æolus granting to Ulysses favourable winds, are striking instances of both. Than the Cyclops, Michel Angelo himself never conceived a form of savage energy, provoked by sufferings and revenge, with attitude and limbs more in unison; whilst the God of Winds is degraded to the scanty and ludicrous semblance of Thersites, and Ulysses with his companions travestied by the semi-barbarous look and costume of the age of Constantine or Attila. From Pellegrino Tibaldi the Germans, Dutch and Flemings, Hemskerck, Goltzius and Spranger, borrowed the compendium of the great Tuscan's peculiarities, dropsied the forms of vigour, or dressed the gewgaws of children in colossal shapes. Parmigiano poised his line between the grace of Correggio and the energy of Michel Angelo, and from contrast produced elegance, but instead of making propriety her measure, degraded her to affectation. That disengaged play of delicate forms, the "sveltezza" of the Italians, is the prerogative of Parmigiano, though nearly always obtained at the expense of proportion. He conceived the variety, but not the simplicity of beauty, and drove contrast to extravagance.

#### Florentine Reliefs.

Various degrees of relief, background figures and objects and occasional attempts at perspective are to be found in the works of the Pisani and their scholars; yet their works, which are to be regarded as the infancy of Italian art, and which undoubtedly are rude enough in workmanship and imitation, are purer in style than those of the succeeding Florentine masters who attained so much general perfection in sculpture. The rilievi of Donatello are mostly in the style called by the Italians stacciato, the flattest kind of mezzo-rilievo, according to the definition before given, which he probably adopted as he worked in bronze from the facility of casting; yet in such a style, commanding little distinctness from its inconsiderable projection, he introduced buildings, landscape and the usual accessories of a picture. But this misapplication of ingenuity was carried still further by Lorenzo Ghiberti in the celebrated bronze doors of the Baptistery, or church of San Giovanni, at Florence, which exhibited such skilful compositions, in which the stories are so well told and in which the single figures are so full of appropriate action. In these works the figures gradually emerge from the stacciato style to alto-rilievo. They are among the best specimens of that mixed style, or union of

basso-rilievo with the principles of painting, which the sculptors of the fifteenth century and their imitators imagined to be an improvement on the well-considered simplicity of the ancients. In these and similar specimens the unreal forms of perspective buildings, and diminished or foreshortened figures, which in pictures create illusion when aided by appropriate light and shade and variety of hue are unintelligible or distorted in a real material, where it is immediately evident that the objects are all on the same solid plane. Even Vasari, who wrote when this mixed style of rilievo was generally practised, remarks the absurdity of representing the plane on which the figures stand ascending towards the horizon, according to the laws of perspective.

#### Aids to Invention.

He who wishes to be a painter or a poet must, like Imlac, enlarge his sphere of attention, keep his fancy ever on the wing and overlook no kind of knowledge. He must range deserts and mountains for images, picture upon his mind every tree of the forest and flower of the valley, observe the crags of the rock and the pinnacles of the palace, follow the windings of the rivulet and watch the changes of the clouds; in short, all nature, savage or civilised, animate or inanimate, the plants of the garden, the animals of the wood, the minerals of the earth and the meteors of the sky, must undergo his examination. To a painter or poet nothing can be useless: whatever is great, whatever is beautiful, whatever is interesting and whatever is dreadful must be familiar to his imagination, and concur to store his mind with an inexhaustible variety of ideas, ready for association on every possible occasion to embellish sentiment and give effect to truth. It is, moreover, absolutely requisite that man, the epitome of all, his principal subject and his judge, should become a particular object of his investigation. He must be acquainted with all that is characteristic and beautiful, both in regard to his mental and bodily endowments, must study their analogies, and learn how far moral and physical excellence are connected and dependent one on the other. He must, further, observe the power of the passions in all their combinations and trace their changes, as modified by constitution, or by the accidental influences of climate or custom, from the sprightliness of infancy to the despondence of decrepitude. He must be familiar with all the modes of life, and, above all, endeavour to discriminate the essential from the accidental, to divest himself of the prejudices of his own age and country, and, disregarding temporary fashions and local taste, learn to see nature and beauty in the abstract, and rise to general and transcendental truth, which will always be the same. Nor is his labour yet at an end. To the study of nature he must also join that of art, and enrich his mind by the contemplation of all the treasures produced by it in ancient and modern times, tracing its progress from its rudest infancy to its ultimate perfection, not contenting himself with a superficial survey, but studying attentively the peculiar manner of each master, dwelling on all their successful efforts, scrutinising all their defects, observing all their beautiful thoughts, inquiring whence they were derived, with what connected and how far founded in nature; entering into all the artifices of their compositions and comparing their different modes of execution and arrangement, till he penetrates and develops the principles on which their most splendid effects are produced.

#### The Architectonic in Sculpture and Painting.

Flaxman understood the principle of the sublime in sculpture—namely, the architectonic—much better than his English brethren who, indeed, seem not to understand it at all, or understand everything about it save its application. How little they observe or regard it may be seen in a side-chapel of Westminster Abbey; here the beautiful architectonic *coup-d'œil* is sacrificed to a single statue—that of Watt, who, seated on a ponderous block, which thrusts its diagonal awkwardly and obtrusively across the floor, receives the visitor with his back and presents to the church itself a hillock of shoulder. What occasioned the artist thus to break up the whole ordonnance of the chapel by so positing his work—a work, too, though admirable *per se*, as ill-proportioned to its Gothic cage as a lion to a show-box—must have been, we surmise, that the architectonic principle was not enough felt; in other words, the statue was made the predominant, not the subservient consideration—independent of, not co-operative with the architecture, and all general effect, appropriateness, decorum, set at nought for the sake of a favourable light upon Watt's physiognomy. Infringement of the architectonic principle has long been the law of the Abbey, but there is a monopolising spirit about this statue which renders it still more offensive. The Mansfield Monument exhibits better taste, though its circular forms redouble the impropriety of a Classic memorial under a Pointed structure. Canova's pyramid to the Christina Monument at Vienna assimilates more with the Pointed church it stands in; even Thorwaldsen's Peruginesque ordonnance for his great work at St. Peter's,



Rome, were a preferable model, if our cathedral sculpture must remain anti-Gothic. Not to speak of the Parthenon and other templar statuary among the Grecians, what a much truer instinct than we as regards this said principle had the primitive Middle Age painters—*e.g.* Perugino, Van Eyck, Wohlgemuth—whose formal perpendicularity and severe parallelism of composition, however disagreeable when their altar-pieces are seen in drawing-rooms, fitted them with marvellous accord to their proper recesses in churches, of which they miniaturized the dominant forms, and preserved the rectilinear austerity down to the uttermost detail and very decorations. Nay, how much deeper were our own old Gothic statue-makers penetrated by a sense of the architectonic principle than the modern—how much sublimer their inspiration, as well as more scientific their art. Look at their knights stretched lengthwise, sword at side and leopard at feet, their saints and solemn kings standing upright in niches, their priests kneeling, their ladies slumbering in fluted rochets or fardingales—all the attitudes, however stiff, all the lines, however ornamental, strictly architectonic, strictly harmonising with the general character of the edifice that encloses them. Hence arises the one undisturbed, overwhelming impressiveness of a Gothic cathedral, when permitted to retain even the ruinous integrity which time may have left it. But when our pseudo-Classic artists have leave to fritter away this grand effect with importunate statues, which seem to declare the cathedral meant, like a garden house for plants, to shelter them, not themselves to enrich it, sculpture becomes a most selfish art, and a disfigurer of that architecture it pretends to adorn.

#### The Ideal in Painting.

The ideal, as a general principle, and not confined to form merely, is a principle so natural that the most untaught sign-painter paints his sky with the brightest blue, and his fields and trees with the most vivid green he can procure, though he well knows he is exceeding the colour of nature. But his notion is that a picture must be an improvement on nature—a notion always preceding the true settlement of what constitutes the ideal, namely, a selection from and a combination of the beauties of nature as the only means by which art can compensate for its unavoidable shortcomings. "We cannot," said Sir Thomas Lawrence, "compete with nature in the exquisite beauties she everywhere offers us, or in the minute delicacies of her finish; our only chance is in selection and combination." The ideal is conceived to be not only the result of an inborn inspiration of all taste, but it is the sole condition of the very existence of art, and therefore where there is no selection, or where the selection is not under the guidance of judgment, there may be very good painting, as far as it is merely copy, but there can be no art; and it should be impressed on the student that though a good painter or copyist of nature may obtain immediate fame, yet, unless he can rise to the rank of an artist, he will not outlive his generation, for the ideal is the poetic element by which, properly understood, and not by any classification of subject, high art is distinguished from low or ordinary art. This principle is far from being confined to the beautiful or the perfect, for the humpbacked and near-sighted sibyl of Michel Angelo is conceived in as great a style as anything by his hand; and Hogarth, in his own subjects, is as ideal as Raphael, because every face and form there was well chosen for what he meant to express, as are the faces and forms of Raphael.

#### Wood Engravings of Maps.

Notwithstanding the disadvantage under which the ancient wood engravers laboured in the execution of maps, they for many years contended with the copper-plate printers for a share of this branch of business, and the printers at whose presses maps engraved on wood only could be printed were well inclined to support the wood engravers. In a folio edition of Ptolemy, printed at Venice in 1511 by Jacobus Pentius de Leucho, the outlines of the maps, with the indications of the mountains and rivers, are cut on wood, and the names of the places are printed in type of different sizes and with red and black ink. For instance, in the map of Britain—which is more correct than any which had previously appeared—the word "Albion" is printed in large capitals, and the word "Gadini" in small capitals, and both with red ink. The word "Curia" and "Bremenium" are printed in small Roman characters, and with black ink. The names of the rivers are also in small Roman and in black ink. Such of those maps as contain many names are almost full of type. The double borders surrounding them, within which the degrees of latitude are marked, appear to have been formed of separate pieces of metal in the manner of wide double rules. At the head of several of the maps there are figures of animals emblematic of the country. In the first map of Africa there are two parrots; in the second an animal like a jackal, and a nondescript; in the third, containing Egypt, a crocodile and a monstrous kind of fish like a

dragon; and in the fourth two parrots. In the last the "curious observer" will note a specimen of decorative printing from two blocks of wood, for the beak, wing and tail of one of the parrots is printed in red. In the last map—of Loraine—in an edition of Ptolemy in folio, printed at Strasburg in 1513 by John Schott, the attempt to print in colours in the manner of chiaroscuro wood engravings is carried yet further. The hills and woods are printed green; the indications of towns and cities and the names of the most considerable places are red, while the names of the smaller places are black. For this map, executed in three colours, green, red and black, there would be required two wood engravings and two formes of type, each of which would have to be separately printed. The arms, which form a border to the map, are printed in their proper heraldic colours.

#### Scottish Architecture.

A very distinguishing feature of Scottish architecture is the jutting lines—lines breaking all over the building, and, in attempting to analyse the design, it is difficult to tell whether the perpendicular or horizontal line of composition prevails. These lines are often exceedingly picturesque, and are to be found wherever we get a building on an irregular site. Like the bead moulding and the chamfer, they are common to all periods, and the baronial mansion took it from ecclesiastical buildings. An early specimen of these economic decorations is seen at the Nunnery of Iona. There is a play of line about them, and an artistic effect which there is no mistaking. Again, at Dryburgh, which is rather more recent than Iona, there is a capital illustration of the design suiting itself to the rising of the ground entirely by means of broken lines. The old Scottish buildings seem really to take root in the soil. Nothing can be more remarkable in the irregularity of their plans than the old Scottish churches. They are, so far as churches can be changed, as varied as castles, and all of them depend on the ground for the distribution of their parts. While Melrose Abbey is nearly all nave, Kelso Abbey is nearly all choir, though the latter peculiarity has given rise to the idea that at Kelso, as at York and Lincoln, there must have been originally a double transept. Elgin Cathedral has five divisions, while Melrose Abbey has but four; some have three, and some only two, while some are without divisions. And in the Tweed buildings in particular it is not only in the plans of the churches that the architects seem to have scorned uniformity, but even in the very details. In the clerestory of Dryburgh Abbey one arch in the series is 2 feet below the others, for no reason that can be perceived but that the architect had a contempt for symmetry.

#### Roman Shops.

By Ulpian "Taberna" is defined as any kind of building fit to dwell in, "*nempe ex eo, quod tabulis clauditur*," or, according to the more probable etymology of Festus, because it was made of planks. The latter asserts that this was the most ancient kind of abode used among the Romans, and that it was from the early use of such dwellings that the words *taberna* and *tabernaculum* were applied to military tents, though the latter were constructed of skins. We know very little of the form and materials of the ancient tents, but we may infer from the notices we have of them that they were generally composed of a covering of skins partly supported by wooden props and partly stretched on ropes. Sometimes in a permanent camp they may have been constructed entirely of planks, and sometimes in cases of emergency garments and rushes were spread over any support that could be obtained. From *taberna*, when used in this sense, are derived *tabernaculum*, the more common name of a tent, and *contubernales*. The usual meaning of *taberna* is a shop. Neither the ancient authors nor the remains of Pompeii lead us to suppose that tradesmen often had their shops forming part of their houses, as with us. A few houses are, indeed, found at Pompeii entirely devoted to the purposes of trade, consisting, that is, of the shop and the rooms occupied by the tradesman and his family. Most commonly the shops formed a part of a large house, to the owner of which they belonged, and were by him let out to tradesmen. Some of the shops round a house were retained by the owner for the sale of the produce of his estates. This arrangement of the shops was probably an improvement on an older plan of placing them against the walls of houses. Even under the emperors we find that shops were built out so far into the street as to obstruct the thoroughfare. Martial mentions an edict of Domitian by which this practice was put down and the shops were confined within the areas of the houses. The following are the most remarkable classes of shops of which we have notices or remains:—  
1. Shops for the sale of wine, hot drinks and ready-dressed meat. 2. Bakers' shops. Of these several have been found at Pompeii containing the mill as well as the other implements for making bread. 3. Booksellers' shops. 4. Barbers and hairdressers' shops.



### ASSISTANT COUNTY SURVEYORS IN IRELAND.

**A**N inquiry was held in Omagh by Mr. P. C. Cowan, chief engineering inspector Local Government Board, respecting a difference of opinion which has arisen between the County Council and the assistant county surveyors as to the remuneration to which the assistant surveyors are entitled for increased duties cast on them under the Local Government Act. The assistant surveyors were paid 80% a year each under the Grand Jury system, and the County Council had offered to increase the sum to 100% a year, but the assistant surveyors claimed 150% a year each, together with reasonable travelling expenses. The Local Government Board was therefore asked to decide what should be paid.

After hearing evidence, the Inspector said the expenditure on works in the county was somewhere about 40,000% a year. A large amount of discretion was, of course, placed in the hands of the assistant surveyors, and owing to the nature of their duties they must be men who could be relied on for the conscientious and fearless discharge of their duty as between the contractors and those who paid the contractors—the ratepayers. Thousands of pounds' worth of work and material depended on the certificate of these men, and yet the remuneration they were to receive was only the wages usually paid to an ordinary mason. Of course, it was entirely a matter for the ratepayers, and if they thought they could get this class of work done for the sum they offered that was their own look-out; but there could be no more shortsighted policy than that of having in a responsible position an official who felt that he was shabbily treated by his employers. He regretted that the members of the County Council had not attended the inquiry, so that they might discuss this matter in a reasonable and amicable way with the view of doing what was best for the persons who were most vitally concerned, namely those who had to provide for the up-keep of the county works. Of course, so far as the Local Government Board was concerned they simply desired to act impartially with a view to the efficient discharge of the county business. He knew that a great many persons thought the county expenditure was too great, and their first idea on entering office was to cut down the salaries of their officers, but there was a serious question whether that was conducive to economy in the long run.

The Inspector said he would submit his report to the Local Government Board in due course.

### GENERAL.

**Mr. Harry Ellis Wooldridge, M.A.**, has been re-elected to the Oxford Slade Professorship of Fine Art. Mr. Wooldridge was elected Slade Professor in 1895 and re-elected in 1898, so that this will be his third term of office.

**The First Commissioner of Works** has stated that no arrangements have yet been made for preparing Westminster Abbey for the Coronation. The Dean and Chapter and their architect will not retain any control over the structure of the Abbey during the progress of the works, as they will be undertaken by the Office of Works.

**M. Harpignies**, the French landscape-painter, has been raised to the rank of Commander of the Legion of Honour.

**The New Zealand Government** are urging upon Mr. Chamberlain the establishment, as a memorial to the late Queen Victoria, of a national technical university in London, where the youths of the Empire might be trained in all that science, art and industry can accomplish to make commercial enterprise successful.

**The Hon. G. W. Ross**, Premier of Ontario, has placed a commission with Mr. M. Raggi, sculptor, for a statue of the late Queen, which will be cast in bronze and erected in Toronto in the early spring.

**The London County Council** are about to issue an advertisement inviting applications for the appointment of chief engineer of the Council at a salary of 2,000% a year, in the place of Sir A. Binnie, resigned.

**The Cambrian Archæological Association** will hold their annual meeting at Newtown from July 29 to August 3. The president-elect, Colonel Pryce-Jones, M.P., will deliver the opening address.

**The National Competition Works** by students of the art schools of the Board of Education will be exhibited in the iron building "C" behind the Natural History Museum until August 31.

**A Meeting** of the British Archæological Association has been held in Nottingham during this week under the presidency of Lord Hawkesbury.

**A New Church** is about to be erected at East Kirby, Notts, from the designs of Mr. Lewis Ambler. The style is early fifteenth century. The cost at first will be about 5,000%.

**A Contract** has been entered into for a school and conventual buildings to be erected at Bishop's Stortford at a cost of 5,000%.

**The Memorial-Stone** of a new church at Leeds was laid on Saturday. The site was secured for between 8,000% and 9,000%, and the church and schoolroom will be erected from the designs of Mr. C. F. Danby, and will cost 13,000%.

**The British Institution** of Heating and Ventilating Engineers held their summer meeting in Dublin last Tuesday and Wednesday.

**The House of Commons** has sanctioned the payment out of the Consolidated Fund of any expenses which might be incurred by the Office of Works for the acquisition of three or four buildings in Pall Mall in order to secure complete isolation on the western side for the National Gallery to protect it from fire.

**Mr. George Miles**, of the Lord Chamberlain's Office, has been appointed Inspector of Windsor Castle, in succession to Mr. Leonard Collmann. Mr. Miles has been about twenty-eight years in the Royal service.

**The Archbishop of Canterbury** took part on Tuesday in the dedication services at St. Ninian's Cathedral, Perth, which has been restored at a cost of 13,000%. The chapter-house has been built as a memorial of Bishop Charles Wordsworth.

**Mr. Y. Nakajima**, engineer of the Tokio waterworks, will spend about a year in studying municipal works in the United States and Europe. He expects to leave Japan in about a month, and will first visit the former country.

**An Exhibition** of French art is to be held at Helsingfors, in Finland. There is a school of native art from which several interesting works were contributed to the Paris Exhibition of 1900.

**A Retrospective Exhibition** of the wood engraver's art is now being arranged, and will shortly be opened at the Ecole des Beaux-Arts, Paris.

**An Architectural Association** has been formed for Wolverhampton and district. The president is Mr. J. Lavender, F.R.I.B.A., and the honorary secretary Mr. W. Edwards. The members are to be duly qualified architects who have been in actual practice for at least two years. There will be also associates and honorary members.

**Plans** have been drawn up and will be laid before the Egyptian Government in the autumn with a view to carrying out a scheme which experts consider would undoubtedly preserve the famous temples at Philæ from the possibility of being submerged at the completion of the Nile dam at Assouan.

**M. Cavel** is the architect entrusted with the enlargement of the Paris Bourse. Numerous commissions of architects and archæologists have in vain protested against the alteration of Brongniart's great work. Operations were begun on Monday for the addition of lateral wings, thus making the building cruciform. The architect hopes to have the work completed about the end of 1903.

**The Last Meeting** of the present session of the Incorporated Society for Promoting the Enlargement, Building and Repairing of Churches and Chapels was held on the 18th inst. The grants made at this meeting have quite exhausted the funds at the disposal of the committee, and an earnest appeal is made for liberal subscriptions and donations to enable the committee to meet more adequately the many pressing applications for aid which are being continually brought before them.

**For the Convenience** of the travelling public the Great Eastern Railway Company have made arrangements with the German railways for return tickets on and from the 25th instant, to and from German towns by the Harwich-Hook of Holland and Harwich-Antwerp routes, to be available for forty-five days instead of thirty days as heretofore, without extra charge.

**Mr. William Hardie Hay**, of the firm of Messrs. W. & J. Hay, architects, Liverpool, died on Sunday last in his eighty-seventh year. Works of the firm are to be seen in most of the towns in the North of England.

**Mr. John Lavery** has been awarded the first-class medal at the eighth International Art Exhibition at Munich.

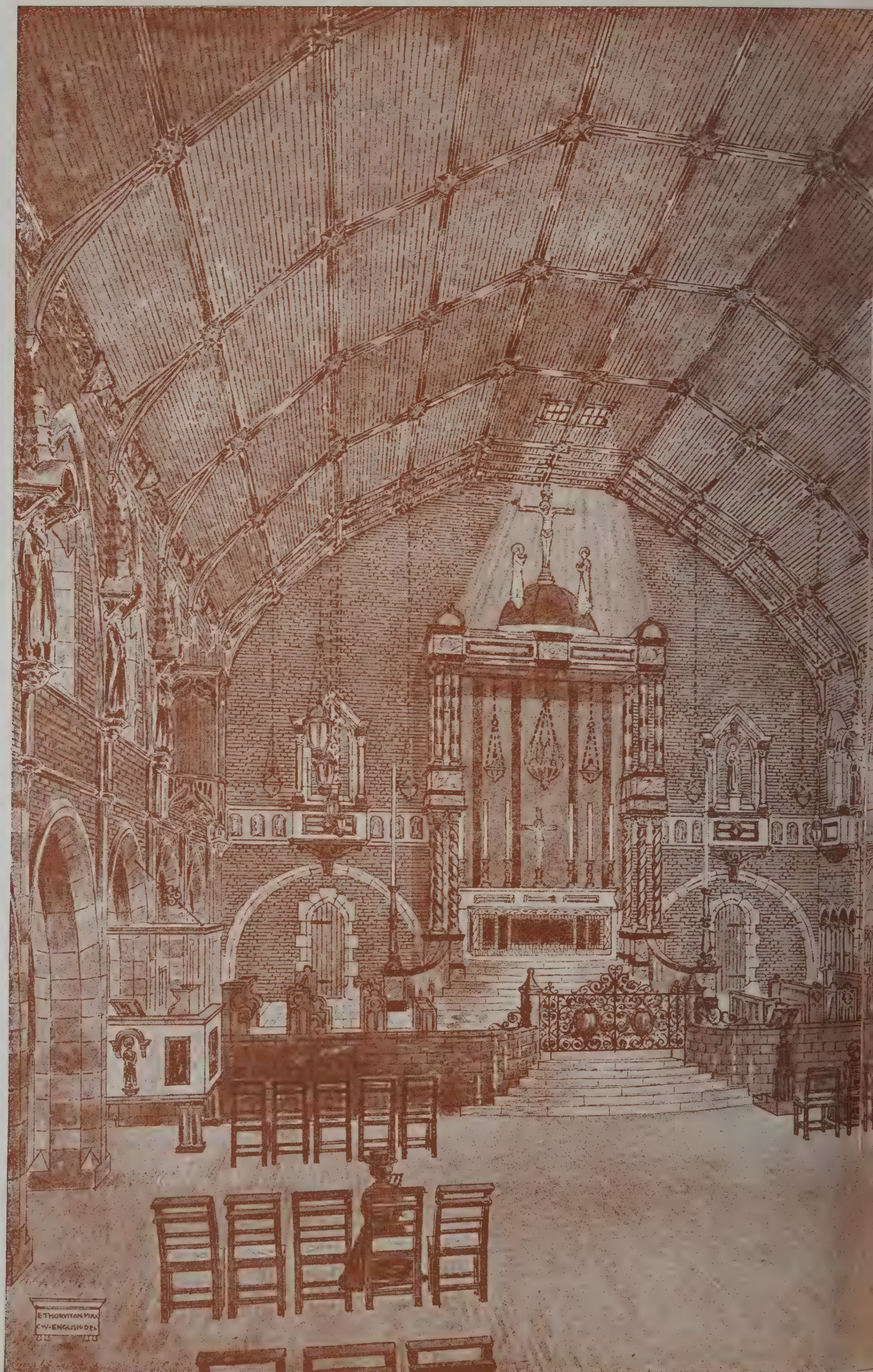
**Dieppe Harbour** is to be considerably enlarged under the direction of the engineer, M. Herzog. It is proposed to extend early next year the west portion of the entrance to the north-west, and to the eastward a new breakwater is to be made, while the old east pier is to be demolished.

**The Bradford Historical and Antiquarian Society** on Saturday inspected Kirklees, the seat of Sir Geo. J. Armytage, Bart. A party of over sixty travelled by special train from Bradford to Cooper Bridge, where their number was increased by members and friends from Brighouse, Halifax, Dewsbury and other places. The party were conducted over the various spots of interest by Sir Geo. Armytage and Mr. J. S. Chadwick, of Dewsbury, the latter a Yorkshire antiquary who has devoted years to finding out the history of Kirklees Priory, &c.



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Aug 26<sup>th</sup> 1901.



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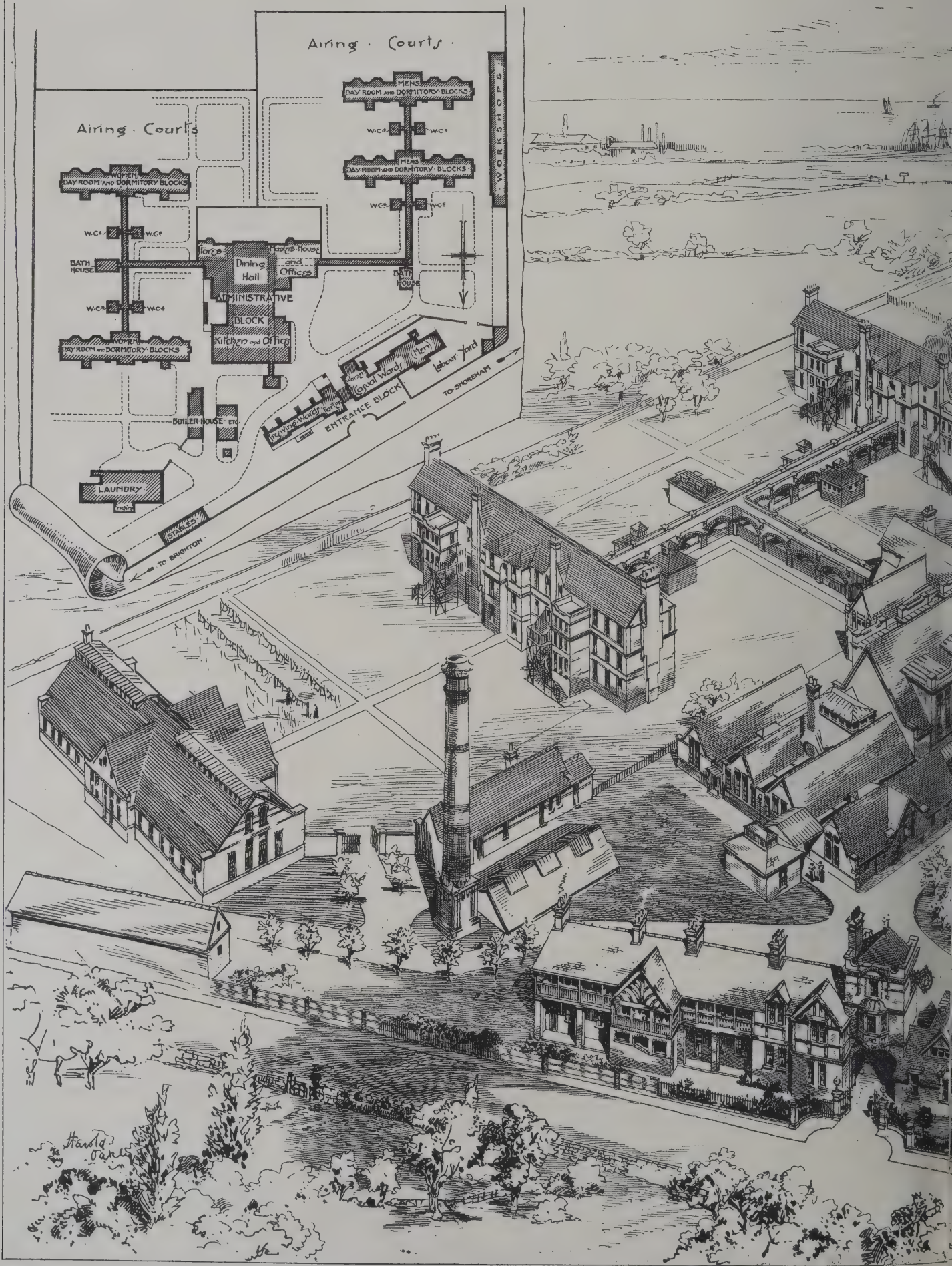






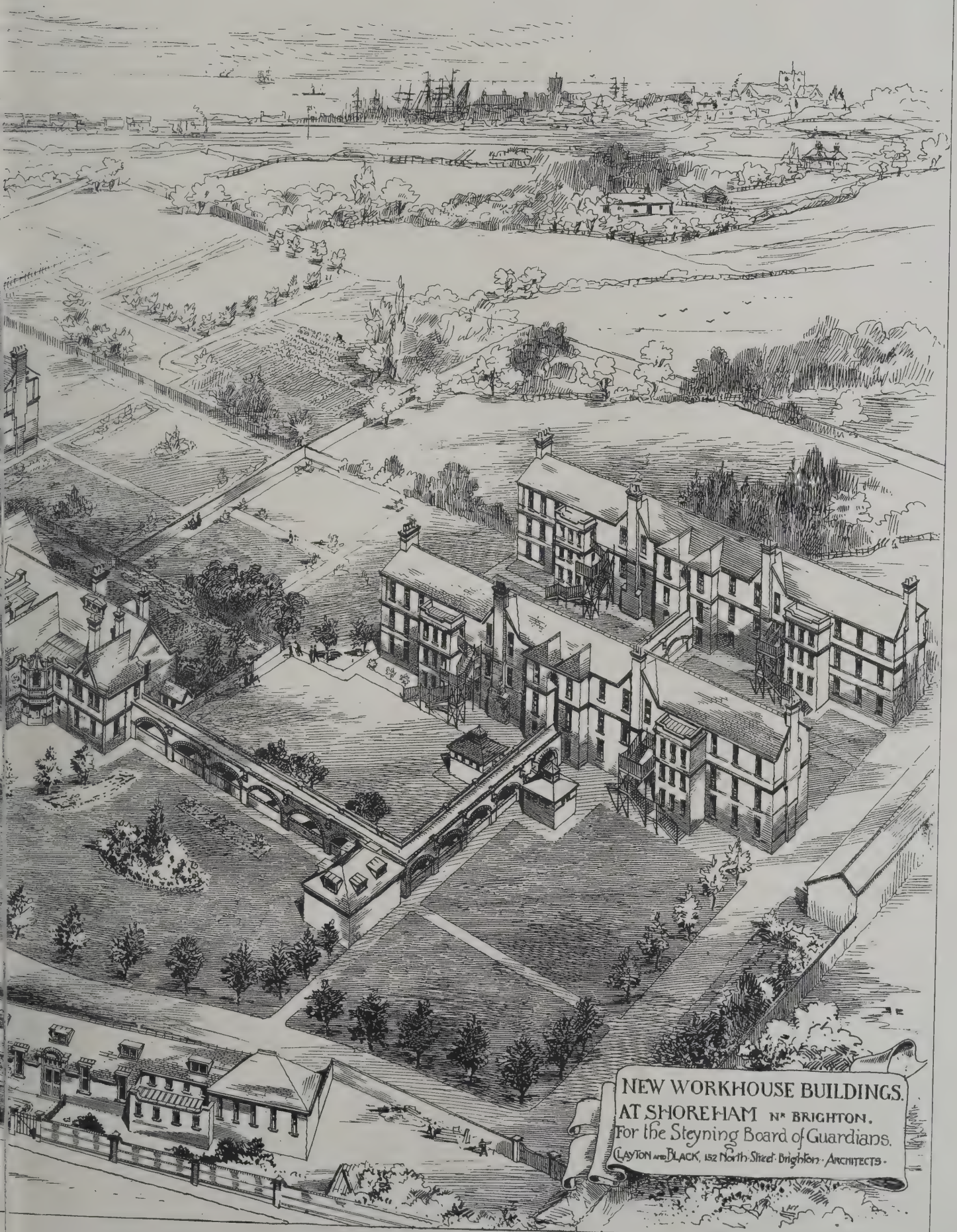
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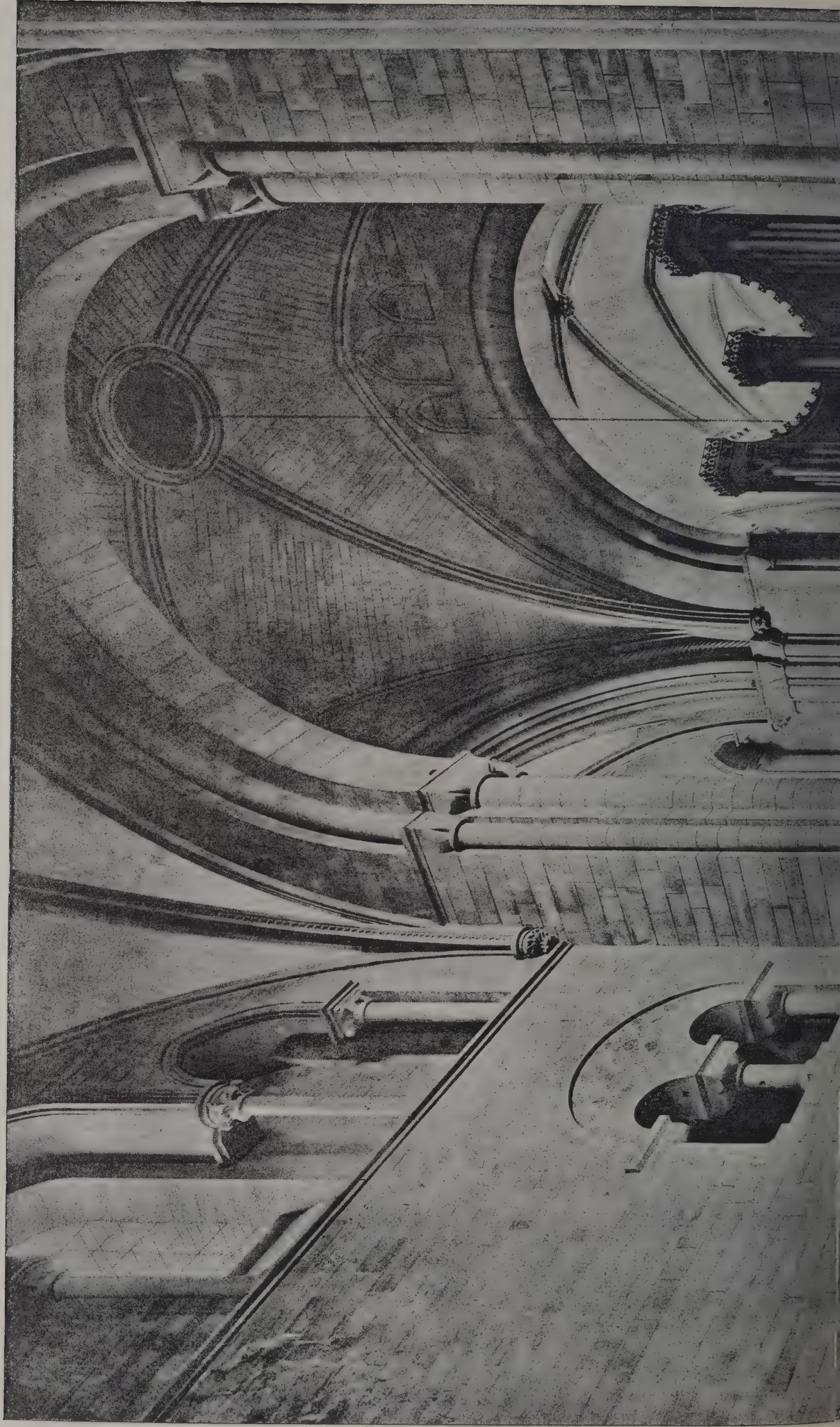




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The Architect, July 26<sup>th</sup> 1901.







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# THE Architect and Contract Reporter

## EDITORIAL NOTICES.

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

## TENDERS, ETC.

*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

## COMPETITIONS OPEN.

**CAMBERWELL.**—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

**CHELSEA.**—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

**MANCHESTER.**—July 31.—Competitive drawings are invited for a fire station, a police station and other buildings, to be erected on land abutting upon London Road, Fairfield Street, Commerce Street and Whitworth Street, at a total cost not exceeding 85,000*l.* Premiums of 300*l.*, 200*l.* and 100*l.* Lithographed plan of site and copy of conditions may be obtained on application to the City Treasurer, Town Hall, Manchester.

**PENZANCE.**—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentle-

men. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

**SHEFFIELD.**—Aug. 31.—Plans and estimates are invited for the alteration of Eccleshall Church. The Rev. T. Houghton Eccleshall Vicarage, Sheffield.

## CONTRACTS OPEN.

**ARGENTINE REPUBLIC.**—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

**ASHTON-IN-MAKERFIELD.**—Aug. 3.—For erection of additional retort-house, new coal stores, weighbridge office and culverting brook at the gasworks. Mr. Albert Sykes, clerk to the Council, Council Offices, Ashton-in-Makerfield.]

**BAKEWELL.**—July 30.—For erection of a bakehouse in connection with kitchen at the workhouse. Mr. C. O. Francis, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

**BARNSELY.**—July 30.—For erection of new children's ward and new entrance and approach at Beckett hospital, Barnsley. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

**BARNSELY.**—Aug. 1.—For erection of six houses and sale-shop at Darton, near Barnsley. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

**BEVERLEY.**—July 31.—For repairs to the White Horse inn, Hengate. Mr. F. G. Hobson, clerk to St. Mary's Churchwardens, Newbegin, Beverley.

**BIRKENHEAD.**—Aug. 3.—For erection of Board offices, &c., in Birkenhead. Mr. E. Kirby, architect, 5 Cook Street, Liverpool.

**BISHOP AUCKLAND.**—July 31.—For erection of a porter's cottage at the infectious diseases hospital, Tindale Crescent, near Bishop Auckland. Mr. Wm. Perkins, architect, Victoria Street, Bishop Auckland.

**BRADFORD.**—July 29.—For repairs and alterations at the Municipal Technical College. Mr. F. E. P. Edwards, city architect, Chapel Lane, Bradford.

**BURY ST. EDMUNDS.**—July 29.—For alteration of the provision market for cookery classroom and other purposes. All particulars can be had on application to the Borough Surveyor.

**BURY.**—July 30.—For extension of the engine and boiler-houses and other works at the electricity works, Rochdale Road, Bury, Lancs. Mr. Arthur W. Bradley, borough surveyor, Bury.

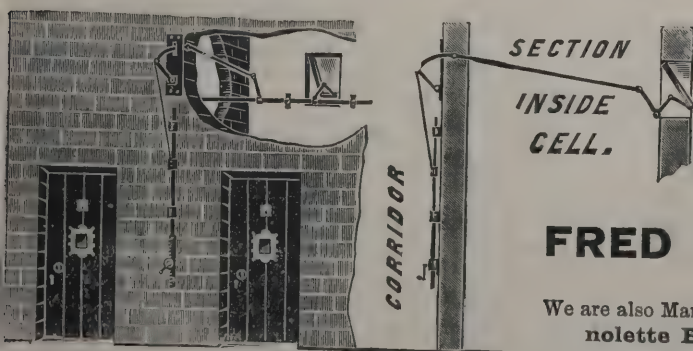
**CANNOCK.**—July 30.—For erection of an infirmary at the workhouse at Cannock. Mr. Ashton Veall, architect, 84 Darlington Street, Wolverhampton.

**CHAILEY.**—Aug. 1.—For erection of an isolation hospital, caretaker's house and other works at Chailey, Sussex. Mr. Henry Card, 10 North Street, Lewes.

**CHESTER.**—Aug. 1.—For erection of a male epileptic ward for 50 patients, and a nurses' home, at the Parkside Asylum, Macclesfield. Mr. H. Beswick, county architect, Newgate Street, Chester.

**COURT BARTON.**—For alterations, additions and repairs to the farmhouse and homestead at Court Barton, Newton St. Cyres. Messrs. Ellis, Son & Bowden, surveyors, Exeter.

**DURHAM.**—Aug. 6.—For addition of a clerestory to the parish church of Ackworth, near Pontefract. Mr. C. Hodgson Fowler, architect, The College, Durham.



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**DALTON.**—For rebuilding the Golden Ball, Dalton. Messrs. Settle & Farmer, architects.

**DEAL.**—For connecting the w.c.'s of the school houses and the latrines in the several playgrounds with the sewer. Mr. W. Howitt, Parochial Schools, London Road, Deal.

**DEAL.**—Aug. 1.—For erection of a chapel at the Convent, West Street, Deal. Plans and specifications may be seen at the Convent.

**DUNGARVAN.**—July 30.—For erection of a medical officer's residence and dispensary house at Kilcooney, for the Guardians of Dungarvan Union. Mr. John R. Dower, clerk of union, Poor Law Office, Dungarvan.

**FALMOUTH.**—July 29.—For erection of six workmen's cottages at Ponsharden, near Falmouth. Messrs. John Stephens & Son, Ltd., Ashfield, near Falmouth.

**FLAMBOROUGH.**—July 31.—For erection of a dwelling-house and stabling. Mr. Joseph Shepherdson, architect, 15 Manor Street, Bridlington.

**FULHAM.**—Aug. 15.—For alterations and additions to the workhouse, Fulham Palace Road, Hammersmith, W. Mr. A. Saxon Snell, architect, 22 Southampton Buildings, Chancery Lane, W.C.

**GLENNAMADDY.**—July 31.—For alterations, repairs and painting in the workhouse. Mr. John R. D'Arcy, clerk of Union, Board-room, Glennamaddy.

**HAYLE.**—July 31.—For erection of shop and premises with outbuildings at Connor Downs, near Hayle. Mr. Sampson Hill, architect, Green Lane, Redruth.

**HEREFORD.**—Aug. 1.—For erection of twenty-one cottages at the junction of St. Owen Street, Green Street and Mill Street. Mr. John Parker, city surveyor, Mansion House, Hereford.

**HOYLAKE.**—Aug. 12.—For erection of stables, cartsheds, engine-house, blacksmith's shop, general shops and stores on site adjoining the electric-lighting station at Hoylake. Mr. Thomas Foster, engineer, District Council Offices, Hoylake.

**HUDDERSFIELD.**—July 30.—For erection of a shed, 168 feet by 66 feet, at Tenter Croft Mills, Skelmanthorpe. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

**HUDDERSFIELD.**—July 31.—For additions and alterations to two dwelling-houses in Fitz William Street. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

**HULL.**—July 29.—For erection of a villa residence, Westbourne Avenue, Hull. Messrs. Freeman, Son & Gaskell, architects, 11 Carr Lane, Hull.

**HUNTLY.**—July 31.—For additions to the cottage hospital. Specifications can be seen at the Factor's Office, Huntly.

**IRELAND.**—July 31.—For erection of the industrial hall and works in connection therewith, for the executive committee of the Cork International Exhibition, 1902. Mr. Henry A. Cutler, Municipal Buildings, Cork.

**IRELAND.**—Aug. 1.—For erection of central dépôt, Cromac Square, Belfast. Mr. W. J. Moore, architect, Whitehall Buildings, Ann Street, Belfast.

**IRELAND.**—Aug. 1.—For erection of five labourers' cottages and out-offices, Louth, Drogheda. Mr. Louis Turley, Council's architect, at the office of the Council.

**IRELAND.**—Aug. 2.—For erection of four labourers' cottages and out-offices attached to same, and fencing plots in the townlands of Ballinowlart South (2), Clonsast Upper (1), and Clonmore (Bracknagh) (1). Mr. Waters, Edenderry.

**KING'S LYNN.**—Aug. 3.—For alterations and additions to the Naval Reserve public-house, St. Ann Street, Lynn. Mr. Herb. Tilson, architect, Railway Road, King's Lynn.

**KING'S LYNN.**—Aug. 8.—For erection of an infirmary building at the rear of the existing workhouse, Exton's Road, King's Lynn. Messrs. Charles Smith & Son, architects, Reading.

**LEEDS.**—July 29.—For alterations to premises, Upper Fountaine Street, Leeds. Mr. W. S. Braithwaite, architect, 6 South Parade, Leeds.

**LEEDS.**—Aug. 1.—For erecting a set of conveniences and a set of urinals and conveniences at Potternewton Park. Particulars may be obtained at the City Engineer's Office, Municipal Buildings, Leeds.

**LIVERPOOL.**—For erection of 100 cottages for large works. Messrs. Mines & Sutherland, Limited, 65 South John Street, Liverpool.

**LOWESTOFT.**—July 29.—For erection of additional buildings at the police-station. Mr. H. Miller, county surveyor, 16 Museum Street, Ipswich.

**MACCLESFIELD.**—Aug. 1.—For erection of a male epileptic ward for fifty patients, and nurses' home, at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

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**MAIDSTONE.**—July 30.—For painting and repairs at the Chatham, Sittingbourne, Dartford, Northfleet, Ashford, Herne Bay, Broadstairs and Sandwich police-stations, Maidstone, Canterbury and Wingham session houses, and Elham lock-up and police cottages, Charing. The County Surveyor, 86 Week-Street, Maidstone.

**MORLEY.**—July 29.—For erection of kitchen, laying of drainage, &c., to residence in Park Street. Messrs. Buttery & Birds, architects, Queen Street, Morley.

**NELSON.**—Aug. 24.—For erection of the new electric-light station in Charles Street, Nelson, for the electricity and tramways committee. Mr. B. Ball, A.M.I.C.E., borough surveyor, Town Hall, Nelson.

**NEWPORT.**—Aug. 5.—For erection of a library, technical institute, &c., at Newport, Isle of Wight. Mr. F. Newman, county surveyor, St. Thomas Street, Ryde, Isle of Wight.

**PADDINGTON.**—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

**ROCHDALE.**—July 30.—For erection of 300 lineal yards of dry sneaked walling, with coping, at the recreation ground, Brimrod. Mr. S. S. Platt, M.I.C.E., borough surveyor, Town Hall, Rochdale.

**SCOTLAND.**—July 29.—For construction of part of the sub-structure of the extension of Glasgow Central Station. Mr. J. Blackbun, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

**SCOTLAND.**—July 29.—For improvements at Bervie. Mr. Andrew, burgh treasurer, Bervie.

**SCOTLAND.**—July 29.—For renovations on Logie manse and offices, Cupar-Fife. Mr. Henry Bruce, architect, County Buildings, Cupar-Fife.

**SCOTLAND.**—July 30.—For erection of steading at Moss Side, Fraserburgh. Mr. William Reid, architect, Saltoun Square, Fraserburgh.

**SCOTLAND.**—Aug. 10.—For construction of municipal buildings, Musselburgh. Messrs. Lyle & Constable, architects, 3 Hill Street, Edinburgh.

**SEATON SLUICE.**—July 29.—For rebuilding the Astley Arms Hotel, Boiling Well, near Seaton Sluice, Northumberland. Messrs. J. Oswald & Son, architects, 33 Mosley Street, Newcastle-on-Tyne.

**SOUTH KENSINGTON.**—Aug. 14.—For erection of the super-structure of the Royal College of Science, South Kensington. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

**SUNDERLAND.**—Aug. 2.—For erection of electric tramcar sheds, Hylton Road. Messrs. Barnes & Coates, architects, 41 Fawcett Street, Sunderland.

**SURBITON.**—Aug. 1.—For erection of mortuary and post-mortem rooms in Alpha Road, Surbiton Hill. Mr. James Bell, clerk to District Council.

**TEIGNMOUTH.**—Aug. 6.—For alterations and additions to the isolation hospital. Mr. C. Jones, surveyor, Town Hall, Teignmouth.

**TORQUAY.**—Aug. 6.—For execution of the undermentioned works and for the supply and erection of the following plant for the Corporation, viz. removal and refixing of station meter, washer, &c., chimney, retort-bench, pipe-condensers, exhausters, mechanical washer-scrubber, purifiers (elevated). Mr. Fredk. S. Hex, town clerk, Town Hall, Torquay.

**WALES.**—For erection of vicarage at Merthyr Cynog vicarage, Brecon. Mr. Glendinning Moxham, architect, 39 Castle Street, Swansea.

**WALES.**—July 29.—For alterations to the Old George and Dragon, 156 High Street, Bangor. Mr. W. G. Williams, architect, 220 High Street, Bangor.

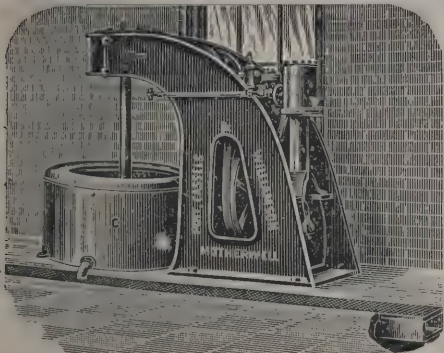
**WALES.**—July 29.—For taking-down the present farmhouse and erection of a new house, with outbuildings, stabling and other conveniences at Bowlers' Barn Farm, near Abergavenny; and for erection of an additional boiler-house and chimney shaft, 112 feet high, at the Monmouthshire asylum, erection of new stores, sheds and yard for masons, &c., and the conversion of the present stores into pathological rooms. Mr. B. J. Francis, architect, Abergavenny.

**WALES.**—July 30.—For construction of a bridge (stone abutments and steel superstructure) over the Kenson river, and an approach road in the parish of Penmark, Llandaff. Mr. James Holden, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.

**WALES.**—July 31.—For certain repairs, renovations, painting, &c., at the Pontypridd and Porth police-courts. Messrs. Cook & Edwards, architects, Bridgend.

**WALES.**—Aug. 1.—For erection of fifteen houses at Cwmpark Road, Cwmpark, near Treorchy, Rhondda Valley. Particulars can be obtained at Park Hotel, Cwmpark.

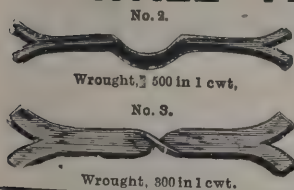
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WALES.—Aug. 3.—For erection of additions to jeweller's shop and business premises, St. Mary's Street, Cardiff. Messrs. Veall & Sant, solicitors, 6 Arcade Chambers, High Street, Cardiff.

WALES.—Aug. 3.—For erection of extensive premises at High Street, Merthyr Tydfil. Mr. E. M. Bruce Vaughan, architect, Cardiff.

WALES.—Aug. 4.—For rebuilding Horeb Independent chapel, Loughor. Mr. Thomas Arnold, Castle Buildings, Llanelly.

WALES.—Aug. 5.—For erection of school and house wings and alterations to the College, Llandovery. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

WALES.—Aug. 6.—For erection of 100 houses at Pen-y-darren, Merthyr, in connection with a scheme under the Housing of the Working Classes Act, 1890. Mr. John Vaughan, clerk, Town Hall, Merthyr.

WALES.—Aug. 7.—For erection of new Board schools at Ely, near Cardiff, for boys, girls and infants. Mr. Edgar Down, architect, 31 High Street, Cardiff.

WALES.—Aug. 8.—For erection of club premises for the Baden Powell Conservative Club, Ynyshir. Mr. A. J. Pope, Baden Powell Conservative Club, Ynyshir.

WALES.—Aug. 12.—For erection of a small stone arched bridge to carry the road over the brook above the Pentre, Abergavenny. Mr. John Gill, surveyor, 4 Brecon Road, Abergavenny.

WALES.—Aug. 19.—For erection of a new two-storeyed school in Meyrick Street, Pembroke Dock. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WALLINGFORD.—For alterations and additions to the grammar schools. Mr. Sidney R. Stevenson, architect, 12 Burns Street, Nottingham.

WALSALL.—Aug. 24.—For erection of municipal offices and town hall in Lichfield Street. Mr. J. S. Gibson, architect, 4 Gray's Inn Square, W.C.

WALSALL.—Aug. 1.—For erection of boiler-house and laundry buildings at the workhouse in the Pleck Road. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WEST GRIMSBY.—July 31.—For erection of a warehouse, Victoria Street West. Messrs. Rope & Jackson, architects, River Head Chambers, Victoria Street, Grimsby.

## TENDERS.

### BLACKBURN.

For alterations and additions to slaughter-house No. 4. Mr. WILLIAM STUBBS, borough engineer.  
G. KEELEY & SONS, Nab Lane, Blackburn (*accepted*).  
J. HEYS & SONS, Darwen Street, painting and whitewashing abattoirs (*accepted*).

### BRIGHTON.

For painting the electric lamp columns, &c., on the King's Road, Junction Road and Marine Parade. Mr. FRANCIS J. C. MAY, borough surveyor.

|                                                |           |
|------------------------------------------------|-----------|
| Gates & Sons                                   | £285 12 6 |
| T. F. Holland                                  | 195 5 0   |
| G. OLLIVER, 21 Elder Place ( <i>accepted</i> ) | 166 15 6  |

For internal and external repairs, painting, &c., at Board schools. Messrs. T. SIMPSON & SON, surveyors, 16 Ship Street, Brighton.

#### Circus Street school—Exterior painting, &c.

|                                  |          |
|----------------------------------|----------|
| Hallett & Duke                   | £101 0 0 |
| J. Barnden                       | 94 0 0   |
| G. Olliver & Son                 | 90 0 0   |
| W. Brown & Sons                  | 86 0 0   |
| GATES & SONS ( <i>accepted</i> ) | 72 0 0   |

#### Ditchling Road school—Repairs to caretaker's house.

|                                 |         |
|---------------------------------|---------|
| Hallett & Duke                  | 15 0 0  |
| G. Olliver & Son                | 11 19 6 |
| S. Worsley                      | 8 15 0  |
| GATES & SON ( <i>accepted</i> ) | 5 19 6  |

#### Elm Grove school—Exterior painting, &c.

|                                  |          |
|----------------------------------|----------|
| G. Olliver & Son                 | 131 0 0  |
| J. Barnden                       | 128 0 0  |
| Hallett & Duke                   | 124 12 0 |
| Gates & Sons                     | 122 17 0 |
| BROWN & SONS ( <i>accepted</i> ) | 112 15 0 |

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| G. Olliver & Son . . . . .      | 118  | 0  | 0 |
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| Brown & Sons . . . . .          | 89   | 0  | 0 |
| J. BARNDEN (accepted) . . . . . | 79   | 10 | 6 |

*Middle Street school—Exterior and interior painting, &c.*

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| Gates & Sons . . . . .                | 210 | 0  | 0 |
| J. Barnden . . . . .                  | 175 | 10 | 0 |
| Brown & Sons . . . . .                | 168 | 0  | 0 |
| Hallett & Duke . . . . .              | 156 | 0  | 0 |
| Botting & Son . . . . .               | 153 | 15 | 0 |
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*Richmond Street school—Exterior painting, &c.*

|                                   |     |    |   |
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| Hallett & Duke . . . . .          | 154 | 0  | 0 |
| G. Olliver & Son . . . . .        | 140 | 0  | 0 |
| J. Barnden . . . . .              | 131 | 10 | 0 |
| S. Worsley . . . . .              | 121 | 10 | 0 |
| Brown & Sons . . . . .            | 113 | 0  | 0 |
| GATES & SONS (accepted) . . . . . | 111 | 0  | 0 |

**CANTERBURY.**

For alterations in the old museum, Guildhall Street. Mr. ARTHUR C. TURLEY, city surveyor.

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|-------------------------------------------|------|----|---|
| W. J. Adcock . . . . .                    | £783 | 11 | 2 |
| Gann & Co. . . . .                        | 630  | 0  | 0 |
| C. MOUNT, Canterbury (accepted) . . . . . | 564  | 10 | 0 |
| City surveyor's estimate . . . . .        | 650  | 0  | 0 |

**COCKERMOUTH.**

For a heating apparatus in the Congregational church, Cocker-mouth.

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| H. Skidmore . . . . .    | £97 | 0  | 0 |
| T. Rook . . . . .        | 95  | 0  | 0 |
| Dinning & Cook . . . . . | 78  | 5  | 0 |
| Banks & Son . . . . .    | 71  | 14 | 0 |
| Burns & Co. . . . .      | 70  | 0  | 0 |
| Fisher & Co. . . . .     | 69  | 0  | 0 |
| D. Bell . . . . .        | 57  | 1  | 4 |
| Seward & Co. . . . .     | 55  | 0  | 0 |

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For construction of new sewers in the vicinity of Washington station. Mr. JOHN H. MOLE, surveyor.

|                                          |      |    |    |
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| G. E. Simpson . . . . .                  | £447 | 15 | 10 |
| J. & R. Thompson . . . . .               | 411  | 11 | 0  |
| W. CRAIG, Gateshead (accepted) . . . . . | 384  | 1  | 6  |
| Armstrong . . . . .                      | 273  | 11 | 0  |
| W. Rutter . . . . .                      | 201  | 11 | 11 |

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|                                                                      |      |    |   |
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**DENTON.**

For sewerage, paving, flagging, &c., in Peel Street and Moor-side Lane. Mr. GEO. H. NEWTON, surveyor, Town Hall, Denton.

*Accepted tenders.**Peel Street.*

W. Snape & Sons, Eccles.

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For painting portions of the workhouse.

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| May . . . . .                              | 1,530  | 0  | 0 |
| Stevenson . . . . .                        | 1,520  | 0  | 0 |
| Blake . . . . .                            | 1,502  | 0  | 0 |
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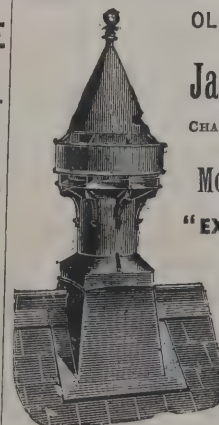
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E. Hoyle, jun., 14 North Parade, Bradford.

G. Tomlinson &amp; Son, Commercial Street, Batley.

Molineux &amp; Ramm, Carlinghow, Batley.

N. Ramsden, Victoria Road, Dewsbury.

C. A. Kershaw &amp; Son, Batley Carr, Dewsbury.

T. BRAY &amp; SON, Wellington Road, Dewsbury (accepted).

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For cloakroom and offices and extension of playground at Gulval Cross Board school, Gulval, Cornwall.

J. H. NICHOLAS, 9 Bellevue Terrace, Penzance (accepted). £278 15 0

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For painting the exterior wood and iron work of the town hall, and painting, papering and whitewashing the hallkeeper's rooms.

|                        |      |    |   |
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| Swan & Co.             | 122  | 0  | 0 |
| B. Pope                | 104  | 9  | 6 |
| H. W. GREED (accepted) | 79   | 10 | 0 |

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For construction of two bacteria beds (adjoining the existing beds) at the sewage works, Haslemere, Surrey. Mr. J. H. HOWARD, surveyor.

|                                     |      |   |   |
|-------------------------------------|------|---|---|
| F. T. Wonnacott                     | £510 | 0 | 0 |
| R. Wood                             | 503  | 0 | 0 |
| G. A. Franks                        | 482  | 0 | 0 |
| Streeter Bros.                      | 379  | 0 | 0 |
| H. HUTCHINSON, Haslemere (accepted) | 345  | 0 | 0 |

For alterations, &amp;c., to the town hall. Mr. J. HOWARD, surveyor.

|                 |      |    |   |
|-----------------|------|----|---|
| J. Eeb          | £450 | 12 | 8 |
| H. Hutchinson   | 420  | 0  | 0 |
| R. Wood         | 414  | 0  | 0 |
| C. Bridger      | 381  | 0  | 0 |
| H. Carpenter    | 380  | 0  | 0 |
| F. T. Wonnacott | 370  | 0  | 0 |

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For conversion of closets to houses in the district to the waste-water carriage system.

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| Sanitary Engineering Co.                                     | 166  | 0  | 0 |
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|---------------------------|-----|----|---|
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SIDDONS & FREEMAN, Oundle (accepted) . £2,010 0 0

**HEXWORTHY.**

For enlarging the Forest inn, Hexworthy, Princetown, Devon. Mr. RICHARD C. MERSON, architect.  
ALMOND, Ashburton (accepted).

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For erection of a soldiers' home at Waterside, Derry, London-derry.  
R. Colhoun . . . . . £1,902 0 0  
J. A. Fulton . . . . . 1,855 0 0  
M. Jack . . . . . 1,600 0 0  
Shannon & Rutledge . . . . . 1,485 0 0  
J. DUNLOP, Derry (accepted) . . . . . 1,471 0 0

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Mann & Co., Norwich, electric wiring and fittings . . . . . 3,484 11 7  
Laurence, Scott & Co., Norwich, electric plant . . . . . 2,456 6 0

**KNARESBOROUGH.**

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J. Foulds Bros, Ireland Bridge, bricklayer and mason . . . . . £1,033 0 0  
J. Greenwood, Crosshills, near Keighley, carpenter and joiner . . . . . 599 0 0  
R. Hewson, Starbeck, plumber . . . . . 141 16 6  
T. Rayner, Harrogate, slater . . . . . 106 0 0  
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J. Mowlem & Co. . . . . 570,000 0 0  
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Holloway Bros. . . . . 551,345 0 0  
Higgs & Hill, Ltd. . . . . 545,994 0 0  
J. Shillitoe & Son . . . . . 530,000 0 0  
H. Lovatt . . . . . 527,000 0 0  
H. S. Foster . . . . . 515,000 0 0  
H. Martin . . . . . 505,000 0 0  
Maple & Co., Ltd. . . . . 497,875 0 0  
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J. HEAP & Co, LTD. (accepted) . . . . . 64 10 0

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| E. Lawrance & Sons . . . . .                                     | 5,554  | 0 | 0 |
| MARK PATRICK & SON, Westminster Bridge Road (accepted) . . . . . | 5,470  | 0 | 0 |

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| General Builders, Ltd. . . . . | £4,363 | 0 | 0 |
| J. Allen & Sons, Ltd. . . . .  | 4,078  | 0 | 0 |
| J. Garrett & Son . . . . .     | 3,841  | 0 | 0 |
| H. Wall & Co. . . . .          | 3,832  | 0 | 0 |
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| J. & C. Bowyer . . . . .       | 3,686  | 0 | 0 |
| O. Craske . . . . .            | 3,643  | 0 | 0 |
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## LONDON SCHOOL BOARD—continued.

For new school, Church Manor Way site, Plumstead (Greenwich).

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| F. & H. F. Higgs . . . . .         | £24,227 | 0 | 0 | If Walls of Class-rooms and Halls are Plastered, add | £299 | 0 | 0 |
| Perry & Co. . . . .                | 23,842  | 0 | 0 |                                                      | 287  | 0 | 0 |
| Holliday & Greenwood, Ltd. . . . . | 23,630  | 0 | 0 |                                                      | 261  | 0 | 0 |
| E. Lawrance & Sons . . . . .       | 23,539  | 0 | 0 |                                                      | 270  | 0 | 0 |
| J. Garrett & Son . . . . .         | 23,293  | 0 | 0 |                                                      | —    |   |   |
| Treasure & Son . . . . .           | 23,169  | 0 | 0 |                                                      | 274  | 0 | 0 |
| Kirk & Randall . . . . .           | 22,847  | 0 | 0 |                                                      | 249  | 0 | 0 |
| J. Smith & Sons, Ltd. . . . .      | 22,545  | 0 | 0 |                                                      | 279  | 0 | 0 |
| J. Chessum & Sons* . . . . .       | 22,281  | 0 | 0 |                                                      | 33   | 0 | 0 |

For new school, Kilmorie Road site, Stanstead Road, Forest Hill (Greenwich).

|                                    |         |   |   |                                                      |      |   |   |
|------------------------------------|---------|---|---|------------------------------------------------------|------|---|---|
| F. & H. F. Higgs . . . . .         | £24,758 | 0 | 0 | If Walls of Class-rooms and Halls are Plastered, add | £402 | 0 | 0 |
| J. Garrett & Son . . . . .         | 24,786  | 0 | 0 |                                                      | 411  | 0 | 0 |
| W. Antill & Co. . . . .            | 24,545  | 0 | 0 |                                                      | 420  | 0 | 0 |
| Kirk & Randall . . . . .           | 24,172  | 0 | 0 |                                                      | 407  | 0 | 0 |
| Perry & Co. . . . .                | 23,689  | 0 | 0 |                                                      | 425  | 0 | 0 |
| Treasure & Son . . . . .           | 22,931  | 0 | 0 |                                                      | 305  | 0 | 0 |
| Holliday & Greenwood, Ltd. . . . . | 22,750  | 0 | 0 |                                                      | 387  | 0 | 0 |
| J. & M. Patrick* . . . . .         | 21,787  | 0 | 0 |                                                      | 309  | 0 | 0 |

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|                                |      |    |   |
|--------------------------------|------|----|---|
| Johnson & Co. . . . .          | £470 | 0  | 0 |
| W. Hayter & Son . . . . .      | 330  | 0  | 0 |
| E. Proctor . . . . .           | 268  | 0  | 0 |
| H. GROVES (accepted) . . . . . | 266  | 10 | 0 |

For painting exterior, Orchard Street.

|                                     |      |   |   |
|-------------------------------------|------|---|---|
| C. Willmott . . . . .               | £139 | 0 | 0 |
| Barrett & Power . . . . .           | 135  | 0 | 0 |
| W. Silk & Son . . . . .             | 125  | 0 | 0 |
| CORFIELD & Co. (accepted) . . . . . | 116  | 0 | 0 |
| G. Wales . . . . .                  | 90   | 0 | 0 |

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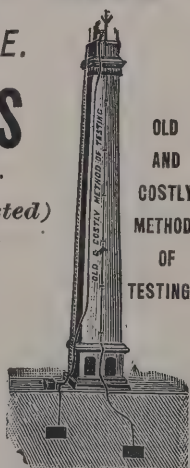
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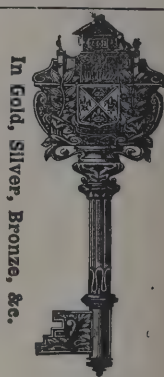
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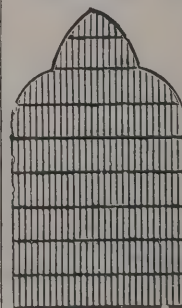
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| J. Grover & Son . . . . .                                       | £392 | 0  | 0 |
| T. Cruwys . . . . .                                             | 388  | 0  | 0 |
| H. Wall & Co. . . . .                                           | 382  | 0  | 0 |
| G. Kirby . . . . .                                              | 366  | 0  | 0 |
| Stevens Bros. . . . .                                           | 346  | 0  | 0 |
| C. & W. HUNNINGS (accepted) . . . . .                           | 228  | 17 | 6 |
| For painting interior and exterior, Dempsey Street.             |      |    |   |
| A. E. Symes . . . . .                                           | £966 | 0  | 0 |
| J. Dolman & Co. . . . .                                         | 751  | 0  | 0 |
| Corfield & Co. . . . .                                          | 729  | 0  | 0 |
| Vigor & Co. . . . .                                             | 712  | 10 | 0 |
| D. Gibb & Co. . . . .                                           | 711  | 0  | 0 |
| A. W. Derby . . . . .                                           | 690  | 0  | 0 |
| G. Barker . . . . .                                             | 665  | 0  | 0 |
| J. F. HOLLIDAY (accepted) . . . . .                             | 575  | 0  | 0 |
| For painting interior and exterior, Springfield.                |      |    |   |
| W. Hornett . . . . .                                            | £662 | 0  | 0 |
| E. B. Tucker . . . . .                                          | 658  | 0  | 0 |
| E. Triggs . . . . .                                             | 649  | 0  | 0 |
| Lathey Bros. . . . .                                            | 630  | 0  | 0 |
| Rice & Son . . . . .                                            | 623  | 0  | 0 |
| W. King & Son . . . . .                                         | 599  | 0  | 0 |
| W. H. Lorden & Son . . . . .                                    | 555  | 15 | 0 |
| J. GARRETT & SON (accepted) . . . . .                           | 538  | 0  | 0 |
| For painting exterior and cleansing interior, Whitfield Street. |      |    |   |
| T. L. Green . . . . .                                           | £398 | 0  | 0 |
| T. Cruwys . . . . .                                             | 378  | 0  | 0 |
| G. Barker . . . . .                                             | 328  | 0  | 0 |
| Marchant & Hirst . . . . .                                      | 268  | 0  | 0 |
| W. BROWN & SONS (accepted) . . . . .                            | 245  | 10 | 0 |
| For painting interior, Victory Place.                           |      |    |   |
| Johnson & Co. . . . .                                           | £565 | 0  | 0 |
| W. Downs . . . . .                                              | 523  | 0  | 0 |
| W. Sayer & Son . . . . .                                        | 452  | 0  | 0 |
| E. B. TUCKER (accepted) . . . . .                               | 388  | 10 | 0 |
| For painting exterior, Dalglish Street.                         |      |    |   |
| A. W. Derby . . . . .                                           | £181 | 0  | 0 |
| Vigor & Co. . . . .                                             | 164  | 10 | 0 |
| J. T. Robey . . . . .                                           | 155  | 0  | 0 |
| G. Barker . . . . .                                             | 150  | 0  | 0 |
| J. Dolman & Co. . . . .                                         | 150  | 0  | 0 |
| D. GIBB & CO. (accepted) . . . . .                              | 139  | 0  | 0 |

LONDON SCHOOL BOARD—continued.

|                                                             |      |    |   |
|-------------------------------------------------------------|------|----|---|
| For painting interior and exterior, Brewhouse Lane.         |      |    |   |
| G. Barker . . . . .                                         | £225 | 0  | 0 |
| Corfield & Co. . . . .                                      | 206  | 0  | 0 |
| H. Wall & Co. . . . .                                       | 189  | 0  | 0 |
| D. GIBB & CO. (accepted) . . . . .                          | 183  | 0  | 0 |
| J. E. Holliday . . . . .                                    | 157  | 8  | 0 |
| For painting exterior and cleaning interior, Walton Street. |      |    |   |
| W. Brown . . . . .                                          | £189 | 10 | 0 |
| C. Gurling . . . . .                                        | 179  | 0  | 0 |
| Lathey Bros. . . . .                                        | 179  | 0  | 0 |
| W. R. & A. Hide . . . . .                                   | 163  | 10 | 0 |
| W. HAMMOND (accepted) . . . . .                             | 149  | 0  | 0 |
| For painting exterior, Earl Street.                         |      |    |   |
| E. PROCTOR (accepted) . . . . .                             | £205 | 0  | 0 |
| Vigor & Co. . . . .                                         | 195  | 0  | 0 |
| For cleaning interior, Union Street.                        |      |    |   |
| Johnson & Co. . . . .                                       | £250 | 0  | 0 |
| W. J. Howie . . . . .                                       | 190  | 0  | 0 |
| H. Groves . . . . .                                         | 169  | 10 | 0 |
| E. PROCTOR (accepted) . . . . .                             | 160  | 0  | 0 |
| For painting exterior, Byron Street.                        |      |    |   |
| Vigor & Co. . . . .                                         | £239 | 0  | 0 |
| T. N. Jackson . . . . .                                     | 197  | 14 | 9 |
| D. Gibb & Co. . . . .                                       | 189  | 0  | 0 |
| J. Haydon . . . . .                                         | 187  | 15 | 0 |
| G. Wales . . . . .                                          | 185  | 0  | 0 |
| J. T. ROBEY (accepted) . . . . .                            | 182  | 0  | 0 |
| For painting exterior, Lauriston Road.                      |      |    |   |
| W. Silk & Son . . . . .                                     | £154 | 15 | 0 |
| Barrett & Power . . . . .                                   | 150  | 0  | 0 |
| J. Dolman & Co. . . . .                                     | 150  | 0  | 0 |
| C. Willmott . . . . .                                       | 140  | 0  | 0 |
| CORFIELD & CO. (accepted) . . . . .                         | 138  | 0  | 0 |
| G. Wales . . . . .                                          | 131  | 0  | 0 |
| For painting interior and exterior, Swaffield Road.         |      |    |   |
| R. S. Ronald . . . . .                                      | £719 | 8  | 6 |
| J. & M. Patrick . . . . .                                   | 575  | 0  | 0 |
| Maxwell Bros. Ltd. . . . .                                  | 495  | 0  | 0 |
| Rice & Son . . . . .                                        | 469  | 0  | 0 |
| W. Johnson & Co., Ltd. . . . .                              | 449  | 0  | 0 |
| J. Garrett & Son . . . . .                                  | 436  | 0  | 0 |
| W. H. LORDEN & SON (accepted) . . . . .                     | 422  | 15 | 0 |
| J. & C. Bowyer . . . . .                                    | 310  | 0  | 0 |

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| W. Hill & Co. . . . .                     | 1,975  | 0 | 0 |
| Pedrette & Co. . . . .                    | 1,950  | 0 | 0 |
| G. Hayward . . . . .                      | 1,838  | 0 | 0 |
| A. Fowler . . . . .                       | 1,790  | 0 | 0 |
| A. Fasey & Sons . . . . .                 | 1,781  | 0 | 0 |
| A. E. Nunn . . . . .                      | 1,650  | 0 | 0 |
| W. Thair & Co. . . . .                    | 1,565  | 0 | 0 |
| Leggott & Speight . . . . .               | 1,485  | 0 | 0 |
| T. W. Pedrette . . . . .                  | 1,390  | 0 | 0 |
| H. CHAMBERS, Seaford (accepted) . . . . . | 1,360  | 0 | 0 |

## PORTSMOUTH.

For construction of car-shed, pits, drains and arcade at Gladys Avenue, North End. Mr. E. ROTTER, tramways engineer.

|                                                           |         |   |   |
|-----------------------------------------------------------|---------|---|---|
| W. W. Learmouth . . . . .                                 | £19,598 | 0 | 0 |
| Light & Son . . . . .                                     | 19,143  | 0 | 0 |
| H. Clark & Son . . . . .                                  | 18,590  | 0 | 0 |
| W. Ward . . . . .                                         | 18,587  | 0 | 0 |
| J. W. Perkins . . . . .                                   | 18,350  | 0 | 0 |
| J. Crockerell . . . . .                                   | 18,218  | 0 | 0 |
| W. W. EVANS, Brougham Road, Southsea (accepted) . . . . . | 17,980  | 0 | 0 |
| J. & M. Patrick . . . . .                                 | 17,780  | 9 | 0 |

## SCOTLAND.

For laying sewer in North College Street, Elgin, for the Town Council.

|                                            |      |    |   |
|--------------------------------------------|------|----|---|
| D. Matheson & Co. . . . .                  | £159 | 3  | 0 |
| T. Maclean . . . . .                       | 134  | 12 | 9 |
| J. MILNE & SON, Elgin (accepted) . . . . . | 92   | 2  | 8 |

For laying sewer in and forming extension of Maisondieu Place, Elgin.

|                                            |      |    |   |
|--------------------------------------------|------|----|---|
| T. Maclean . . . . .                       | £115 | 11 | 0 |
| J. MILNE & SON, Elgin (accepted) . . . . . | 110  | 1  | 3 |
| A. Leslie . . . . .                        | 102  | 8  | 6 |

For erection of a new school in Edzell. Mr. D. WISHART GALLOWAY, architect, 2 Market Street, Brechin.

## Accepted tenders.

D. A. Crabb, Brechin, mason.  
A. Bruce & Son, Dundee, joiner.  
J. A. M. Fox, Edzell, plumber.  
C. Thomson, Brechin, plasterer.  
J. Scott, Brechin, slater.  
Total, £2,000.

## SOUTHAMPTON.

For drainage of the workhouse, West End.

COSTON & CO., £1,895 (accepted). In lieu of tender from Nicholls, £1,695, withdrawn after acceptance on account of error.

## STOKE-UPON-TRENT.

For erection of three shops and warehouse in High Street. Messrs. R. SCRIVENER & SONS, architects, Hanley.

|                                       |        |    |   |
|---------------------------------------|--------|----|---|
| Bram & Smith . . . . .                | £3,597 | 0  | 0 |
| R. E. James . . . . .                 | 3,447  | 12 | 2 |
| Tompkinson & Bettallay . . . . .      | 3,305  | 0  | 0 |
| J. Bagnall . . . . .                  | 3,210  | 0  | 0 |
| MEIKLEJOHN & SON (accepted) . . . . . | 3,100  | 0  | 0 |

## WALES.

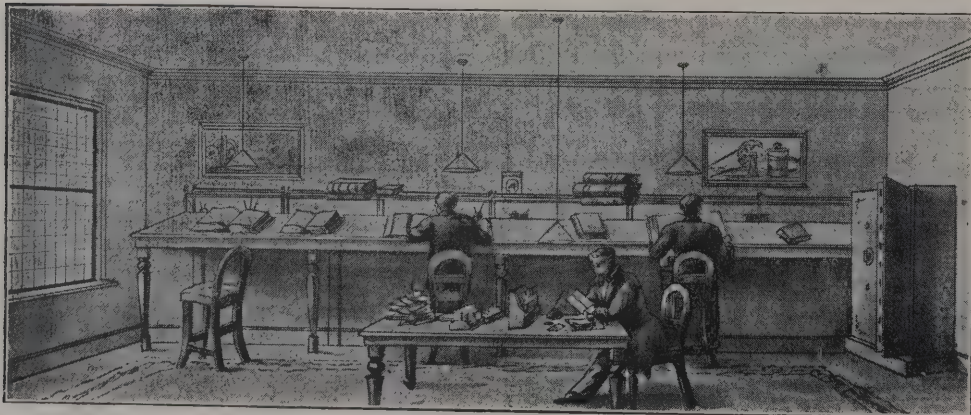
For painting and varnishing the dado doors and woodwork and colouring the walls of Garway Board school, Skenfrith, Abergavenny, including the classroom and two porches, with two coats of best material.

|                                                        |     |    |   |
|--------------------------------------------------------|-----|----|---|
| Watkins & Sons . . . . .                               | £13 | 15 | 0 |
| T. C. JENNINGS, Pontrilas, R S O. (accepted) . . . . . | 10  | 5  | 0 |

# WILSON'S PATENT "MULTILUX" WINDOWS



The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light, and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.



## PRICE

5/- per foot super.

Wilson's Patent  
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Lights prevent slipping

Wilson's "DIOPTRIC"  
Pavement Lights are  
an improvement on  
the semi-prism at the  
same price.

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GIRDERS, AND ALL ARCHI-  
TECTURAL CASTINGS.

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FOR THE STEYNING BOARD OF GUARDIANS.

THE IMPERIAL THEATRE, BROADWAY, WESTMINSTER.

DESIGN FOR THE NEW CHURCH OF ST. COLUMB, NOTTING HILL;  
VIEW OF THE INTERIOR, LOOKING TOWARDS SANCTUARY.

WALES—continued.

For erection of a stone arched bridge and an iron girder bridge  
to carry the road over the brook, near Old Court, Llan-  
gattock, Lingoed, Abergavenny. Mr. JOHN GILL, sur-  
veyor, 4 Brecon Road, Abergavenny.

|                                            |     |    |   |
|--------------------------------------------|-----|----|---|
| Sheen . . . . .                            | £95 | 0  | 0 |
| L. PARRY, Abergavenny (accepted) . . . . . | 85  | 10 | 0 |
| Phillips . . . . .                         | 60  | 8  | 0 |
| Kirby & Co. (ironwork only) . . . . .      | 40  | 0  | 0 |

For painting and colouring the Treforest Board schools,  
Trealaw.

Walls painted.

|                         |      |    |   |
|-------------------------|------|----|---|
| W. Rees . . . . .       | £163 | 17 | 6 |
| Llewellyn Bros. . . . . | 126  | 8  | 5 |
| L. Talbot . . . . .     | 110  | 10 | 0 |
| T. Evans . . . . .      | 82   | 10 | 0 |

Walls coloured.

|                                          |     |    |   |
|------------------------------------------|-----|----|---|
| Llewellyn Bros. . . . .                  | 108 | 14 | 5 |
| W. Rees . . . . .                        | 103 | 15 | 0 |
| L. Talbot . . . . .                      | 76  | 10 | 0 |
| T. EVANS, Treforest (accepted) . . . . . | 52  | 10 | 6 |

WOOLWICH.

For drainage and roadmaking in connection with six cottage  
homes, Lodge Lane, Bostal Heath, Plumstead. Messrs.  
CHURCH, QUICK & WHINCOP, architects, William Street,  
Woolwich.

|                         |        |    |    |
|-------------------------|--------|----|----|
| Foster Bros. . . . .    | £5,058 | 0  | 0  |
| W. H. Wheeler . . . . . | 4,400  | 4  | 11 |
| Thomas & Edge . . . . . | 3,700  | 0  | 0  |
| T. Adams . . . . .      | 3,672  | 6  | 0  |
| Fry Bros. . . . .       | 3,517  | 14 | 0  |
| A. T. Catley . . . . .  | 3,200  | 0  | 0  |

WREXHAM.

For erection of county school buildings at Wrexham. Mr.  
J. H. PHILLIPS, architect, Clive Chambers, Windsor Place,  
Cardiff.

|                                            |         |    |   |
|--------------------------------------------|---------|----|---|
| J. E. Evans . . . . .                      | £12,575 | 0  | 0 |
| Davies Bros. . . . .                       | 9,981   | 14 | 0 |
| J. Hughes . . . . .                        | 9,900   | 0  | 0 |
| J. Gethin & Co. . . . .                    | 9,725   | 0  | 0 |
| Lewis Bros. . . . .                        | 9,585   | 0  | 0 |
| E. H. Nicholas . . . . .                   | 9,470   | 17 | 3 |
| W. E. SAMUEL, Wrexham (accepted) . . . . . | 9,425   | 0  | 0 |

WESTMINSTER.

For alterations to town hall buildings.

|                                        | A       | B    |
|----------------------------------------|---------|------|
| Perry & Co. . . . .                    | £27,988 | £504 |
| Kirk & Randall . . . . .               | 26,940  | 560  |
| Holland & Hannen . . . . .             | 26,670  | 720  |
| Higgs & Hill, Ltd. . . . .             | 26,500  | 584  |
| W. Johnson & Co., Ltd. . . . .         | 26,340  | 630  |
| Campbell, Smith & Co., Ltd. . . . .    | 26,272  | 690  |
| Holliday & Greenwood, Ltd. . . . .     | 25,930  | 580  |
| Holloway Bros. . . . .                 | 25,300  | 600  |
| B. E. Nightingale . . . . .            | 25,272  | 630  |
| Prestige & Co. . . . .                 | 24,877  | 525  |
| Maple & Co., Ltd. . . . .              | 24,560  | 360  |
| H. Lovatt . . . . .                    | 24,500  | 400  |
| G. H. & A. Bywaters & Sons . . . . .   | 23,380  | 850  |
| Patman & Fotheringham, Ltd.* . . . . . | 22,873  | 830  |

A. Extra if wainscot wax polished.  
B. Extra if various works are in polished marble.  
\* Recommended for acceptance.

THE improvement committee of Edinburgh Town Council  
has resolved to recommend the acceptance of estimates  
amounting to 5,588*l.* for the erection of houses for the working  
classes in Pipe Street, Portobello. The estimate was 7,392*l.*  
The scheme includes the reconstruction of the tenement at  
present on the site, whereby twenty-four houses will be pro-  
vided, and the construction of thirty-six new houses, making  
sixty in all, of one and two rooms.

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Glass; Rough Rolled and Rough Cast Plate  
Glass; also of Rough and Polished Prismatic  
Glass, &c., &c.

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"Gives EVERY SATISFACTION."  
"The Glass I am perfectly satisfied  
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Wood Mantels & Overmantels a Specialty.  
Large Quantity of English-made DOORS, WINDOWS & MOULDINGS kept in Stock.



## TRADE NOTES.

THE ventilation of St. John's school, Taunton, is being carried out by means of Mackay's patent direct-acting ventilators, supplied by the sole makers, Messrs. Cousland & Mackay, ventilating engineers, Glasgow and Manchester.

THE extensions to the Keighley and Bingley Joint Hospital, Keighley, are being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues, and patent Manchester grates, supplied by Messrs. E. H. Shorland & Brother, of Manchester.

## VARIETIES.

IT is proposed to hold an American exhibition at the Crystal Palace next year. Commerce, industry and inventions are to be extensively represented.

A REPORT which has been issued by the committee with reference to the erection of the new church at Chapel-Allerton states that the cost has been 20,926*l.* 5*s.* 10*d.*, and there is a small balance in hand to meet unascertained liabilities.

THE new parochial hall which has been built on the Lidgett Park estate at Roundhay, Leeds, was dedicated as a mission church on Saturday afternoon. As soon as the funds are available, the parish will be provided with a permanent church, but at present the building in existence is admirably adapted to the purposes for which it is required.

IT transpired at the fortnightly meeting of the Edinburgh Town Council that the contracts for the erection of the new City Hospital amounted to 271,621*l.*, and that the probable cost of remaining works required for the completion and equipment of the hospital was 62,240*l.*—together 333,861*l.*

THE memorial-stone of Trinity Church lecture-hall and classrooms, which are being erected in Woodhouse Lane, Leeds, at a cost of 13,000*l.*, exclusive of that of the site, which alone is between 8,000*l.* and 9,000*l.*, was laid on Saturday last. Mr. G. F. Danby is the architect.

COUNT KAMAROWSKY, president of the International Fire Council, which held its congress at Berlin last month, and who is now on a visit in London, was entertained by the chairman of the British Fire Prevention Committee at the Carlton Hotel

to meet the various chairmen of the sub-committees, and also the four vice-presidents of the National Fire Brigades Union.

THE new building erected by the Buckley Urban Council as a meeting-room and magistrates' court-room has now been completed at a cost of about 1,800*l.* The building has been erected by Mr. Thomas Roberts, builder, Mold, from plans prepared by Mr. R. Cecil Danes, architect, Chester.

ON Wednesday evening, when the traffic was greatest, a number of the vertical supporting cables of the suspension bridge between Manhattan Island and Brooklyn, New York, were pulled out from their sockets, and are now dangling in the air. This happened on the north side of the Manhattan end, which sagged from 4 to 6 inches, causing great excitement. All the car traffic was stopped, but after some delay pedestrians and waggons were allowed to proceed.

THE new Kursaal which has been added to the attractions of Southend was opened on Wednesday last. The estate which has been acquired for the purpose of the Kursaal and Marine Park consists of 20 acres of well-laid-out grounds, and about 6 acres of adjoining land available for open-air amusements. The main block of buildings is of an imposing elevation, having spacious internal accommodation. There is a fine dining hall, 125 feet by 60 feet, with a gallery running the whole length of the sea frontage, and numerous refreshment and recreation rooms. One of the main features of the building is the concert hall and assembly room, some 125 feet long by 89 feet wide, constructed to hold 5,000 people. This hall is fitted with a variety stage, and in the evenings will be cleared for dancing. In the Marine Park is to be found a cycle track, ground available for football and cricket, and a large open-air dancing platform. Messrs. W. James & Co., of Kentish Town, London, N.W., supplied all the leaded glazing for ceiling lights, &c., of specially strong manufacture to suit the position (lying flat), and with a special arrangement for ventilation, of which there is over 6,000 feet super.

AT a meeting of Dundee Town Council on the 4th inst. a deputation of working men was received on the subject of the housing of the working classes. Mr. William Smith, secretary of the Trades Council, who was one of the deputation, said that a crying evil in Dundee was the single-room dwellings. There were from 10,000 to 12,000 of this class of houses in Dundee, and for these an average of 5*l.* rent was paid, whilst from six to eight persons each lived in the single rooms. He asked the Town Council to adopt the Housing Act of 1890,

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& . . . FRIEZES . . . DADOS

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which would enable the Corporation to build working-men's dwellings. One of the other speakers alleged that a number of the property owners in Dundee were desirous of hiding their own shortcomings and deficiencies by blackening the characters of their tenants and seeking to obscure the real issues at stake. Lord Provost Hunter assured the deputation that the various questions raised would receive the attention of the Town Council.

THE new school which is in course of erection in Summer Street, Aberdeen, for the Roman Catholic authorities is now nearing completion, and will be ready for occupation at an early date. Already all the contractors have practically finished their work, and it only remains for the furnishings to be provided and the rooms decorated. The building faces Summer Street at an angle. On the ground floor there is a large hall which may be used as a gymnasium. Immediately above are two rooms partitioned off by a sliding glass screen, so that the rooms may be converted into one at a moment's notice. On the upper floor a similar arrangement has been provided for. The rooms are spacious, well-lighted and ventilated in the most up-to-date manner. On the ground floor and also on the upper storey, there is ample lavatory accommodation, while rooms are prepared for the headmaster and headmistress. The building is heated throughout with steam-pipes, the boiler-house being situated at the side of the school. There are two staircases to the various rooms running parallel, so that if it is thought necessary the boys may enter at one side and the girls at the other.

THE Coast Development Company, Limited, announce their Special Holiday Arrangements, and we learn that the whole of the company's fleet of seven steamers will be available for the conveyance of passengers to the seaside. The sailings from Fresh Wharf, London Bridge, will be as follows:—*Friday, August 2.*—9.15. To Southend, Walton, Clacton and back; also to Felixstowe, Harwich and Ipswich, change at Walton. 9.35. To Margate and Ramsgate and back. *Saturday, August 3.*—8.45. To Southwold, Lowestoft and Yarmouth express. 9.0. To Clacton, Walton, Felixstowe and Harwich direct. 9.15. To Southend, Walton, Clacton and back; Felixstowe, Harwich and Ipswich, change at Walton. 9.35. To Margate and Ramsgate and back. 10.0. To Walton, Southwold and Yarmouth direct. 2.0. Husband's Boat to Southend and Margate. *Sunday, 4th, Bank Holiday, and Tuesday, August 6.*—9.0. To Clacton, Walton, Felixstowe and Harwich direct. 9.15. To Southend, Walton, Clacton and

back; also to Felixstowe, Harwich, Ipswich, Southwold and Yarmouth, changing at Walton. 9.35. To Margate and Ramsgate and back. 10.0. To Walton, Southwold, Lowestoft and Yarmouth direct. 3.0. To Southend and Round the Nore, calling at Gravesend (Town Pier). The Nore steamer will not run on August 3.

THE new church of St. Chad, which has been erected in the crowded district of Cape Hill, Smethwick, has been consecrated. The style of the building, which has been erected in red brick with stone dressings at a cost of 5,000*l.*, is a plain treatment of Early English Gothic, and accommodation is provided for 600 persons. The nave is 80 feet long and 24 feet wide, and is divided from the aisles by arcades, each of five arches. The chancel is 30 feet by 24 feet. Clergy and choir vestries are provided, as well as a large organ chamber, in which a small organ formerly used in an iron structure is placed as a temporary arrangement. The main entrance of the church is from a porch on the north side, near the corner of Shireland Road. The interior of the building is faced with red brick dadoes and quoins to all windows, the remaining portion of the walls being plastered. The roof is open timbered, of pitch pine and red deal; the windows have been glazed with leaded lights, and the heating of the building will be by the low-pressure system. The edifice is lighted from ornamental wrought-iron coronas, suspended from the nave arcading. Messrs. J. Harley & Son have carried out the work from designs by Mr. F. G. Gill.

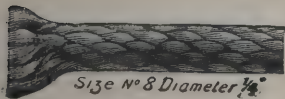
A NEW Wesleyan church erected in Norman Road, Hastings, on the site of one which was destroyed by fire last year, has recently been opened. It is in the Gothic style of architecture, with a tower and spire. The grouping of the various parts and the pleasing detail form a picturesque building that will be an ornament to the town. The church is upwards of 78 feet in length and 47 feet in width with a transept and organ chamber in addition, and is suitable in all its detailed arrangements for the accommodation of about 650 worshippers. The edifice is erected in native blue stone with Bath stone facings. Nave and arches are in Bath stone and polished granite columns with clerestory above, finished with traceried windows. The roof is open chambered to the height of the collar, and the joinery is in pitch pine. The windows are filled in with tinted cathedral glass. The rostrum is of pitch pine, embellished with roses of sycamore, and approached by four steps. The height of the spire is about 90 feet. Illumination is given both by electric light and gas. There are ten electroliers, some with

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five burners each. Vestries and schoolroom are at the rear of the building. The architect was Mr. James Weir, of 17 Victoria Street. The total cost was about 5,500/.

ON Saturday afternoon a small party of the Birmingham Archæological Society visited Long Itchington and Stockton. The former is one of the pretty villages of Warwickshire, with a large village green, fringed by cottages with luxuriant gardens. The church was first visited—a large church of Early English and Decorated features. It is probable that there was a small church of simple Early English design, having a south door of transitional Norman date. To this was added, perhaps two generations later, a nave and chancel alongside, making the old nave into a south aisle to the new nave. Some interesting windows with straight mullions suggest a rebuilding of the windows about the seventeenth century. There is a curious screen here of probably the time of Charles II., while a well-marked squint is to be found looking from the south aisle to the high altar. On leaving the village a handsome house with five gables, dated 1511, attracted attention. A pleasant walk of about two miles brought the party past the cement works to Stockton, whose prosperity now rests, like the village itself, on blue lias. Hereabouts are several quarries in the blue lias for supplying the cement works. In one of these was lately found a very large fossilised dinosaurus, now in the museum in London. The church has been largely rebuilt, but Archdeacon Colley kindly showed the very interesting old registers dating back to Queen Elizabeth's reign, of much interest, and other old documents, together with a black-letter Prayer Book, issued in the reign of Charles II., in which the prayer for the king had been altered in ink to James, and again to William and Mary.

### ELECTRIC NOTES.

THE Stepney Borough Council at their last meeting accepted tenders for laying electric-light cables along the Mile End Road. The work is to be commenced almost immediately, and every effort is to be made to complete it by the early autumn. When this is done the whole of the route from the West End of London to Epping Forest will be illuminated by the electric light. At the present time the Stepney installation is the cheapest in London, the average cost to consumers only being 3d. per unit, bringing the cost of electricity down to that of gas.

THE Lord Mayor has promised to publicly inaugurate to-morrow the municipal telephone system at Tunbridge Wells, the first of its kind established in England, and for which a license has been obtained from the Postmaster-General. The ceremony will take place in the Great Hall, and afterwards the Lord Mayor and other guests will be entertained at luncheon in the Pump Room. One result of the competition of the Corporation of Tunbridge Wells with the National Telephone Company is that the latter have reduced their rates in Tunbridge Wells about 50 per cent.

### BUILDING AND BUILDERS.

THE corner-stone of a new Sunday school in connection with St. Mark's Church, Leeds Road, Huddersfield, was laid on Saturday afternoon. The cost of the new school is estimated at 1,950/.

As a memorial of the late Queen Victoria, it has been decided to erect a new wing of Leicester Infirmary and establish a convalescent home. At a meeting of representative citizens it was announced by the Mayor that the scheme would involve an expenditure of 30,000/., towards which he had received over 24,000/.

A REPORT has been presented to the Paddington Borough Council by a special committee recommending the erection of a new town hall on the site of the present building and adjacent ground, at an estimated cost of 60,000/.. The land is already the property of the borough. The Council will consider the report at a special meeting.

AN inquiry was held at Sleaford Sessions House on the 16th inst. by Mr. A. W. C. Malet, a Local Government Board inspector, to consider the application by the Kesteven County Council for a further loan of 42,000/., to complete the new county asylum at Rauceby. No opposition was offered. It was explained that the total estimate was 166,037/.. The additional loan was required to meet the cost of furnishing and equipment, heating and ventilating and other works.

THE foundation-stone of a new Grammar school at Lichfield was laid on Saturday in the presence of the Corporation, the undertaking owing its initiative to the Dean of Lichfield. The Joint Lands Trust has given a site of 8 acres and made a contribution of 4,500/.. Special attention has been devoted to perfecting the scientific and technical departments, and the Staffordshire County Council has promised a substantial grant for this purpose. The whole expenditure is estimated at



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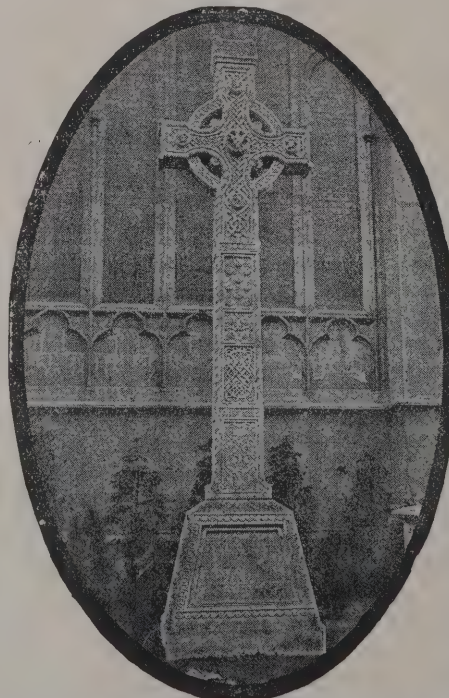
Secretary.

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17 Great Brunswick St., DUBLIN.

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upwards of 9,000*l*. The new premises are only part of a larger scheme which will be carried out later should the school succeed. The projected buildings will afford accommodation for 125 boys, with 22 resident scholars, and comprise residences for the head master and assistant masters.

MR. NORTH, Local Government Board inspector, held an inquiry at the Town Hall, Carlisle, on the 19th inst., relative to the application by the Town Council for leave to borrow 17,000*l*. in respect of the Bridge Street improvement, 6,000*l*. for the proposed dépôt, and 1,985*l*. in regard to the proposed Turkish baths. Among those present were Mr. Wheatley and Mr. F. P. Dixon, with the town clerk, the city surveyor, the gas and waterworks engineer, the city treasurer, the clerk of the County Council and other officials. There was no one present to oppose any of the applications. In reference to Bridge Street, the town clerk explained the scheme and a plan, which was shown, and the city surveyor gave the 1901 population of the city as 45,478. The inspector asked when the houses were built. The surveyor replied that they were so old that the plaster was put on rushes, and some of the slates were fastened with fishbones.

MR. W. A. DUCAT, of the Local Government Board, visited Bradford to hold an inquiry into the application of the Corporation for power to borrow 53,000*l*. for the provision of baths for the city. Mr. W. Beverley appeared for the Corporation and Mr. H. Newall (instructed by Messrs. Rawnsley & Peacock, solicitors, of Bradford) appeared on behalf of Mr. Eli Watson, brushmaker. The scheme as laid before the inspector included the erection of central baths in Morley Road and district baths in Drummond Road. There are at the present time only two baths in the city. The estimated cost of the proposed central baths in Morley Road is 41,085*l*., including the site, and for the Drummond Road baths 9,671*l*. 6*s*. 10*d*., also including the site. The opposition from Mr. Wilson was on the ground that the plans as submitted would do away with an alleged right to a back road which was one of the conditions of sale when he bought an adjoining plot of land in Morley Road from the Corporation. This, however, was denied by Mr. Beverley. The Inspector heard both sides and will make his report later.

At a meeting of the governors of the Dundee University College the question of erecting new buildings for the completion of the medical school was considered. It was proposed that accommodation should be provided in the new buildings

for the new chairs—medicine, surgery, pathology, materia medica, midwifery, and medical jurisprudence and public health—and that the old Dundee chairs of anatomy and physiology should also be housed in the new buildings, the trustees, on their part, granting a site on the college grounds for a nominal feu duty. The new buildings were estimated to cost 20,000*l*., and of this sum they hoped to receive from St. Andrews about 15,000*l*. on account of the proportion of arrears and accumulations of the Parliamentary grants dedicated to Dundee. Mr. J. J. Weinberg, jute merchant, moved that the proposed arrangement between the Council of the College and the University Court of St. Andrews for the erection on one site of the college property of buildings to be used as a school of medicine, be approved, and that the trustees of the college be authorised to enter into the necessary feu contract. He remarked that the necessity for the better accommodation of the Dundee medical chairs had for years been a growing one. Mr. John Robertson seconded. Sir John Leng, M.P., said he was sure that not only the medical profession, but the inhabitants of Dundee generally, and of the district, must rejoice that they were the foundation-stone of a properly equipped medical school for Dundee. The motion was unanimously adopted.

A PUBLIC inquiry was held at Sleaford on the 16th inst. by Mr. A. W. C. Malet, an inspector of the Local Government Board, with respect to an application by the Kesteven County Council for leave to borrow a further sum of 42,000*l*. for the completion of the new county asylum at Rauceby, near Sleaford. The officials present included Mr. J. Phillips (clerk to the County Council), Dr. Ewan (medical superintendent), Captain Peacock (county treasurer), Mr. Holdich (clerk to the visiting committee), Mr. Carter Pegg (architect) and Mr. W. Wright (county surveyor). No opposition was offered to the application. It was stated that the outstanding loans amounted to 104,000*l*. The original estimate in 1898 was 125,000*l*., but was increased in 1899 to 144,693*l*., and in March 1901 to 164,557*l*. The increase was accounted for by the purchase of the site, the cost of laying in foundations, the extension of farm buildings, water-supply, laying-out the grounds, &c. The total estimate up to date was 166,037*l*., which would include everything. The contractors, Messrs. Kirk, Knight & Co., had received 73,500*l*., and there was still due to them 32,853*l*. The extra loan was required for furnishing and equipment, 10,000*l*.; electric-lighting balance, 4,617*l*.; water-softening tanks, heating and ventilating, 3,800*l*;

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roads, fencing and several smaller items. After evidence had been taken, the inspector and officials viewed the buildings, which are now nearing completion.

### VICTORIA STONE.

It is not alone as a material adapted as a substitute for several varieties of stone in buildings, and for the execution of the most elaborate architectural ornament, that Victoria stone has become renowned. Its toughness to withstand traffic, and other qualities, have obtained preference for it when footways are to be formed in many provincial towns. At the present time a large quantity of the flags are being laid down in Littlehampton. As a watering-place with many older rivals, there is a necessity to bring the town up to the most advanced standard, and from the success of its drainage and paving Littlehampton can be considered a model town. The Duke of Norfolk's desire is to insure the fitness of his "Port of Arundel" for permanent residence, and the authorities endeavour, with the aid of his Grace's liberality, to attain the ducal standard. As one means towards that end Victoria stone has been in use for the footways. The traffic is exacting, for there are heavy bath-chairs constantly passing, and troops of children perform exercises which would quickly put an end to anything with a slight element of fragility in its composition. For years, however, the slabs of Victoria stone have withstood all varieties of passing loads as if they were invulnerable against attrition, and those which were earliest laid show no outward signs of wear. After so onerous a test coupled with resistance to climatic variations, it is not surprising the stone was selected for the new streets forming the extension of the town, and that it has been substituted for various descriptions of pavement in other streets. One remarkable characteristic of the operations of the paving is the expedition with which the flags can be set in their places. The mathematical accuracy of lines and angles and the absence of any winding, enable each to be laid in its place without a moment's delay for consideration. There is no time lost in squaring or fitting, and from their toughness the flags can be handled and carried without any loss from breakage. A visit to any street in which Victoria stone is being laid is enough to demonstrate the economy attained by using the material, while it is only necessary to examine a flag after several years' use to be assured of its extraordinary durability.

### TYNEMOUTH PIER.

A NUMBER of members of the Newcastle-upon-Tyne Association of Students of the Institution of Civil Engineers have visited the works in connection with Tynemouth Pier. They were met by Mr. I. C. Barling, the resident engineer, who explained the new work rendered necessary by the destructive storms of the winter of 1896-97. A new pier 1,500 feet in length is being constructed to the southward of the existing pier, being made lineable with the straight portion forming the shore end of that structure, and with it making a pier straight from end to end of a length of 2,900 feet. The foundations of the new work are on hard shale, and their depth averages about 20 feet below those of the old work. The new pier is being built of concrete blocks, bonded from side to side, and it is being faced with granite. At the point where the foundations dip from the old to the new level, cylinders 13 feet in diameter are being sunk so as to form a bulkhead to prevent the rubble foundation from getting away from under the old work. The work of block-setting was explained by Mr. Barling, and a number of the more venturesome visitors descended in the diving bell. This portion of the undertaking having been thoroughly inspected, a visit was made to the yard, where the process of block-making, from the raw material to the finished concrete block, was witnessed. Attention was specially drawn to the very heavy plant used for handling the blocks.

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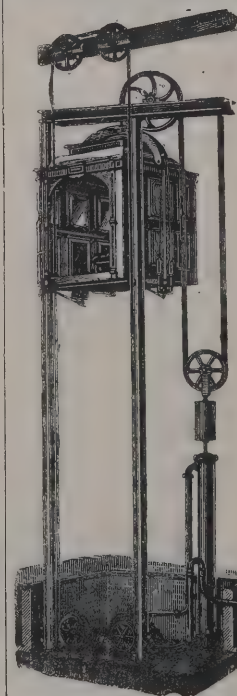
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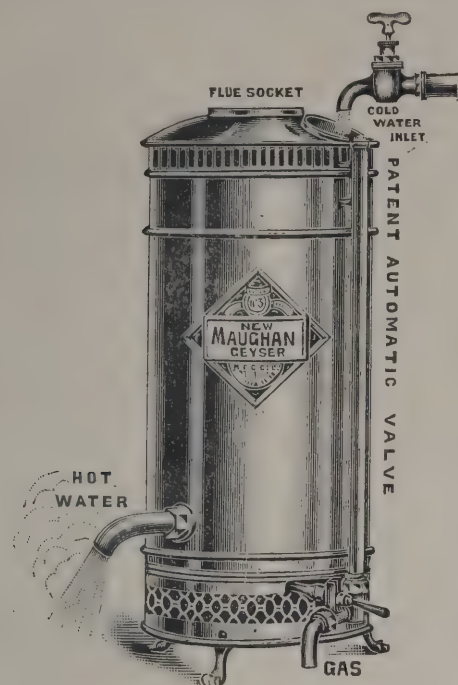
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## THE "NEW MAUGHAN" GEYSER.

THE "New Maughan" geyser, of which we give an illustration, while retaining all the distinctive features to which the older pattern owes its high reputation, has been improved in details so as to adapt it in every way to modern requirements. Among the many excellent qualities claimed for the new form of geyser may be mentioned the following:—



There are no tubes, chambers or other confined spaces in the interior. It is, therefore, not affected by the "fur" in hard water, or by frost, and cannot burst. The "New Maughan" geyser is fitted with a vent socket for connection to flue pipe when used in rooms of less than 1,000 cubic feet capacity. The durability of the old pattern is fully maintained in the "New Maughan" geyser. The thorough protection of the metal by the water renders those made in galvanised iron as lasting as most other geysers of copper, while the copper quality is still more durable. The cost of the "New Maughan" geyser is less than half that of the "circulation" system, and considerably less than any other "high-class" geyser. The consumption of gas in heating a 30-gallon bath is 20 cubic feet (costing about 3d.), as against 30 to 40 cubic feet in other patterns. The "New Maughan" geyser is the easiest to fix and use. The water is supplied into the open spout from cistern or main through any pattern tap, thus avoiding any objections from water companies, while the supply being visible is easily adjusted. The gas cock is provided with a small pilot jet, which is lit first and passes into the burner by the act of turning the main cock, thus avoiding any risk of gas escape or explosion. No pressure of water is necessary, as the water supply is not connected to the geyser or valve, but enters the open spout from an ordinary tap. This valve will operate equally well whether supply is direct from main or from tank, and can be used when the water authorities prohibit the interlocking taps or other direct connection between main and geyser. All working parts are of metal, and all other similar valves depend upon diaphragms or tubes of leather, rubber or other perishable material, the deterioration of which causes leakage or failure. The new automatic valve has no such parts, is frictionless, and not likely to get out of order, whatever the quality of water.

An important feature of the "New Maughan" geyser is the new automatic gas and water valve. The working of this is as follows. In the upper reservoir of the geyser is a float, which is lifted by the cold water entering. A rod or lever is fixed to the float, and communicates with a valve opening the gas supply through the tube shown at the side of the geyser. The gas therefore can only pass to the burner when a sufficient quantity of water is entering the geyser, being shut off by the gas valve when the float is down. For preventing gas escape a telescopic water seal (as used in sliding chandeliers) is employed, this being self-filling.

## NEW BOARD SCHOOL, SHIRLEY.

THE foundation-stone has been laid of the new Board school which is being erected at Shirley, Hants. It is situated on a site at the northern end of Foundry Lane, nearly adjacent to the main road through Shirley, being part of Shirley Free-

hold Building Estate; will have three frontages—to Foundry Lane, on the east, English Road on the south and Imperial Road on the west—and will cover an area of 1a. 3r. 23p., the ground being purchased by the School Board for the sum of 1,583 $\frac{1}{2}$ l. In addition to this there was also purchased a small piece of land with two semi-detached cottages thereon for 586 $\frac{1}{2}$ l., this forming the south-west corner of the school site. It is intended to utilise these cottages as residences for teachers and caretaker.

The main school buildings are divided into two separate oblong blocks, that facing English Road being a two-storey building, for girls on the ground floor and for boys on the first floor. The girls' department contains two schoolrooms, each 60 feet long by 23 feet wide, and four classrooms, each 25 feet by 25 feet, connected by a corridor having two separate ranges of lavatories and two hat and cloak-rooms. The rooms for head teachers' use are placed between the two floors, with staircases leading thereto. To meet the wishes of the Board of Education the arrangement of the four classrooms can be converted into a central hall, by having sliding partitions and revolving-shutter partitions in the place of brick division walls, so when it may be required, by moving the partitions, these four rooms can be adapted as one room, capable of accommodating a large assemblage of children. The boys' department on the upper floor will be approached by two stone staircases, and the general arrangement and planning of the rooms, &c., is similar to that for girls on the ground floor, including the providing of movable partitions to classrooms. The two departments in this building will provide accommodation as settled by the Board of Education for 480 boys and 480 girls. The infants' school, which is a separate block of buildings, is placed at the north end of site, and the arrangement is one large schoolroom (70 feet by 24 feet), and fitted with sliding partitions, also six classrooms (23 feet 6 inches by 23 feet), a wide corridor that can be used as a marching hall, with narrow corridors as passages to the hat and cloak-rooms, lavatories and rooms for head teachers, &c. This building will give accommodation for 530 infants.

The several rooms will be heated by approved warming grates in open fireplaces and lighted by gas. There are two capacious playgrounds, one for the boys and the other for the joint use of girls and infants. There are also provided covered play-sheds. The property will be enclosed by a brick wall on the north and west sides, and the frontages to Foundry Lane and English Road will have an iron fence, with gate entrances therein to the playgrounds.

The exterior elevations of school buildings are of a very plain character. They will be of red brick, relieved by a little stonework, some coloured brick bands, moulded brick strings, projecting courses to eaves and gables, slated roofs, with red ridge tiles, &c.

The contractors for carrying out the works, at a cost of 17,607 $\frac{1}{2}$ l., are Messrs. Jenkins & Son, of Southampton. The plans were prepared by Mr. John H. Blizard, architect to the School Board, and the whole work is being carried out under his direction, assisted by Mr. S. Jurd, the School Board clerk of works.

## ST. SAVIOUR'S, LIVERPOOL.

ST. SAVIOUR'S CHURCH, Huskisson Street, Liverpool, which was partially destroyed by fire in February of last year, has been reopened after restoration. Internally the new church is entirely different from the old one. The walls of the former building have been left practically as they were before the fire took place. Numerous changes, though, have been made in the details of the edifice. The chancel is now placed at the west end of the church, and the porches and staircases at the east end. One side of the tower has been removed so as to place the necessary weight on powerful steel stanchions and girders; the remainder of the old circular Bible porch now forms an apsidal termination to the chancel. The side porches have been converted into a commodious organ chamber and vestries for the choir and the clergy, the latter being upstairs. The space which formerly existed behind the chancel has been transformed into a baptistery, and the old vestries have been made into porches. By these alterations many advantages are obtained, and as much as 35 feet has been added to the length of the building. During the restoration a capital suggestion was made by some one, with the result that a space beneath the old church, about 10 feet high, can now be utilised as a mission hall. A portion of the earth was removed from inside this subterranean cell, and the floor of the church has been raised about 3 feet and windows have been placed in the walls. This place has been made bright, light and sanitary, and will be serviceable for missionary and other purposes. The raising of the floor has not been done at the expense of the space in the church, for by the use of light steel trusses added to the heavy principals of the old building, the ceiling has been made higher by several feet, and has been curved and beautified with skilfully-moulded beams.



A change at once noticeable is the fact that the church has now no galleries, and instead of having two rows of windows as formerly there is only one row, the old top windows having been lengthened. The church thus seems considerably more spacious than of old, and is lighter and much more cheerful looking. The inside is fitted with electric-lighting apparatus, the suspended lamps from the ceiling—about 100 in number—being of a chaste description. The high walls have been decorated in conformity with the other portions of the interior, and the windows will be suitably ornamented in course of time. The chancel is enclosed by a richly panelled walnut screen, and the whole of the seating and fittings are made of the same wood of a rich Renaissance design. The floor increases in quality as it approaches the east, the materials being white stone, rock asphalt and Sicilian marble. The east window is to be filled at once with stained glass. The pulpit is only a temporary one and the organ is not yet finished. The whole building is warmed and ventilated on Mr. Key's Plenum system, fresh air, cold in summer and warmed in winter, being forced in by electric fans capable of changing the whole of the air, if desired, as often as six times an hour. The architects are Messrs. Willink & Thicknesse.

### LONDON BOARD SCHOOL BUILDINGS.

THE works committee of the London School Board, in their annual report just issued, give an abstract of the work done during the year ended March 25, 1901, and show the progress made in the provision of school accommodation which has been sanctioned by the Board of Education. The details indicate that the School Board are still engaged in extensive and costly building operations. It appears that in the session of 1899-1900 compulsory powers were obtained over sixteen sites for schools in various divisions of London, and additional land for thirteen existing schools, with a view to the enlargement and improvement of the school buildings or playgrounds, and the Board during the past year agreed to purchase various interests in twenty-nine sites at a cost of 79,168*l*. The value of these sites and of all the sites previously purchased or agreed to be purchased up to the end of the year under review is set down at 3,645,601*l*, and the costs in connection with the purchases amount to 492,343*l*. The average cost of the sites for 440 schools, the accounts of which had

been completed at September 29 last, was 7*l*. 2*s*. 6*d*. per child. The total number of permanent schools which had been erected and opened up to Lady Day of last year (exclusive of transferred schools which have been improved but not enlarged) was 444; and during the past year six additional schools and nine enlargements were opened, providing a total accommodation for 7,488 children. The average cost per head of the buildings and furniture of 440 schools has been—school buildings (exclusive of sites), 14*l*. 9*s*. 2*d*, and furniture and fittings (such portion as is chargeable to capital account), 10*s*. 11*d*. Tenders have been accepted during the year for eight new schools, providing accommodation for 7,430 children, and ten enlargements of schools, providing additional accommodation for 2,577 children. In the case of one school, to be erected in the Hackney division, the tender includes the provision of two halls, a gymnasium with dressing-rooms, a chemical laboratory, a physical laboratory, lecture-room, drawing classroom, clay-modelling room, needlework-room, storerooms for chemicals, two teachers' rooms and a manual training centre for forty boys. The Board intend to make application to the Board of Education for the recognition of this school when completed as a higher elementary school. Tenders have also been accepted for the following work:—Two cookery centres, three laundry centres, a housewifery centre, six manual-training centres, seven schools for special instruction, six for sixty children and one for forty; two blocks of semi-detached cottages on the "Anerley" site for the accommodation of thirty deaf boys and thirty deaf girls, also a centre block consisting of school building and a manual training centre, the tender for the whole amounting to 19,000*l*; a blind centre in connection with an existing school and enlarging the blind centre on another site; various alterations and additions to Upton House Industrial school to cost 6,299*l*; adapting a disused school at Poplar for the purposes of a day industrial school at a cost of 4,489*l*; erecting a small infirmary for the residential deaf on the Homerton College site at a cost of 1,000*l*; providing a swimming bath at Lyham Road school, Brixton Hill, for the use of scholars attending this and the surrounding schools, at a cost of 6,496*l*; providing necessary fittings for lighting six schools by electricity; carrying out drainage and sanitary works at eighteen schools, the tenders for the work at fifteen of the schools being 30,749*l*; and other works. At Lady Day last the work in hand included the erection of eighteen schools providing accommodation for 16,966 children; eleven enlargements providing accommoda-

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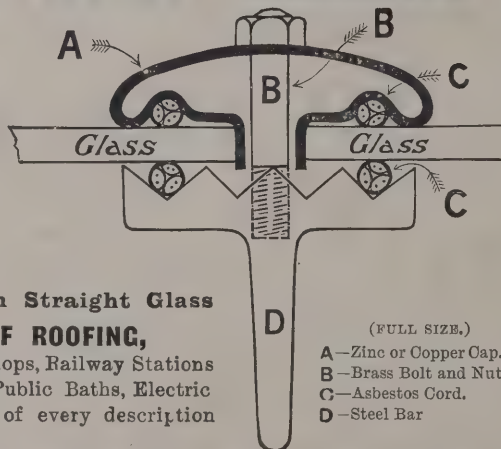
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tion for 3,629 children; thirty-one additional sites had been or were being purchased, the schools to be erected on twenty-two of them to provide accommodation for 17,758 children; fourteen sites for new schools had been scheduled in the session 1900-01, the schools in six of which would give accommodation for 4,150 children; and twenty-two enlargements of schools had been sanctioned by the Board of Education, for which tenders had not been accepted, providing accommodation for 6,555 children. The committee had opened, up to the date of the report, the playgrounds of 252 schools on Saturdays for the use of the children.

#### BUILDERS' BENEVOLENT INSTITUTION.

THE fifty-fourth annual meeting of the Builders' Benevolent Institution was held on Thursday, July 18, at the offices, 35 Southampton Row, Bloomsbury, W.C. Mr. J. T. Bolding presided, supported by Messrs. C. Bussell, E. V. New, Thos. Stirling, T. Stirling, jun., J. Carmichael and other friends of the charity.

The secretary (Major R. A. Brutton) read the annual report, which stated that when the unprecedented pressure of the times upon all classes of society was remembered, and how the great charities of the Metropolis had suffered, it was a subject of congratulation that this Institution had not been more seriously affected. At the same time, the falling-off had been chiefly in the annual subscriptions, which must always be the mainstay of the charity. It was, therefore, hoped that those gentlemen who already subscribed would use their influence with any friends who had not done so. The Institution owed a debt of gratitude to the president, Mr. John Greenwood, C.C., for his efforts in making the annual dinner such a financial success. The committee had again been able to elect all the eligible candidates this year, and it was a source of thankfulness that the members seeking election had not been sufficiently numerous to entail the necessity of a contested election. It was, however, expected that the number of applicants would be greater in the future, in consequence of Rule III., Section 1, altering the age of candidates from sixty to fifty-five, having been sanctioned at the last general meeting. Only three deaths amongst the pensioners had occurred during the year, all of whom were men, while five pensioners had been elected. The annual dinner would be held at the Carpenters' Hall on Thursday, November 14 next, when Mr.

James Carmichael, of Wandsworth, who had consented to be president, would be in the chair.

Mr. Thomas Stirling moved the adoption of the report and accounts, adding that so long as they were on the right side, and elected all the applicants, he believed the subscribers would be well satisfied.

Mr. New seconded the motion, which was unanimously agreed to.

Mr. C. Bussell proposed a cordial vote of thanks to the retiring president, Mr. John Greenwood, for the valuable services rendered to the Charity during his year of office. It must be a satisfaction to Mr. Greenwood to leave the Institution in a somewhat better position than when he took office, and he would move that he be requested to become a member of the committee.

Mr. T. Stirling seconded the motion, which was carried by acclamation.

Votes of thanks were also passed to the vice-presidents, the trustees, the treasurer (Mr. J. Howard Colls), the committee (the retiring members being re-elected), and to the hon. auditors (Messrs. J. T. Bolding and R. J. Ward).

The Chairman next proposed the election of Mr. James Carmichael as president, and congratulated the meeting on being able to get so well known a man connected with the building trade to take the post.

Mr. Stirling seconded the resolution, which was agreed to *nem. con.*

Mr. Carmichael replied, and announced his determination to do his utmost for the Institution.

A vote of thanks to the chairman closed the proceedings.

#### NEW NELSON HALL AND BRANCH PUBLIC LIBRARY.

THE plans of the new Nelson Hall and Branch Library in Leith Walk are now before the Edinburgh Dean of Guild Court. This will be the third building erected by the Nelson Trustees in accordance with their arrangement with the library committee, and when completed it will be the largest and most conspicuous of the branch libraries. Through the kindness of the Hope Trust a fine site has been feued at the corner of Leith Walk and M'Donald Road. To meet the requirements of the feuing elevation the front buildings towards Leith Walk have been made three storeys high, and those towards

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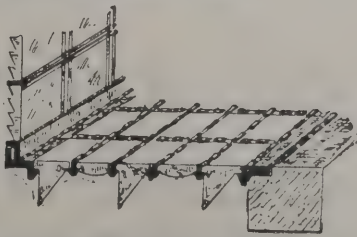
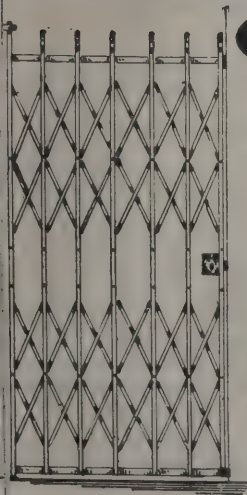
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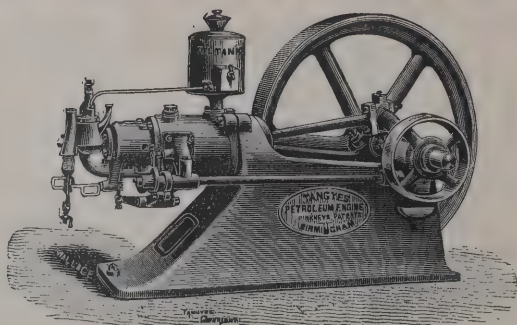


M'Donald Road two storeys. The Nelson Hall and the library, which are behind, are kept one storey. The two upper flats towards Leith Walk contain a house for the librarian and for a caretaker, entered by a separate stair from Leith Walk. The upper floor, towards M'Donald Road, contains a large hall, which it is proposed to fit up as a gymnasium, and will be specially constructed so as to make it one of the finest gymnasiums in Edinburgh. It measures 55 feet by 30 feet wide, and suitable retiring-rooms and lavatories have been provided. Advantage has been taken of the angle of the street to bring out the frontage in a series of projections which break up the building and add greatly to the appearance of the whole. The corner has been emphasised with an octagonal and round tower, which will be a prominent feature in Leith Walk. The handsome doorway, entrance hall, staircase and the large mullioned windows of the various halls have been artistically worked out. The main entrance is placed near the corner in M'Donald Road, and leads into a large entrance hall, from which ready access is obtained to the library and halls. On the plan, right in front of the entrance, is the lending library—46 feet by 30 feet—where accommodation is provided for 20,000 volumes, all within reach of the hand, with ample space for borrowers and indicators. The library will have an open-timbered roof, and will be lighted entirely from above. The librarian is so placed that from his position in the centre of the building he can attend to the public counter and at the same time see into both the reading-room and the Nelson Hall, thus enabling him to superintend the whole building. To the left of the library, occupying the frontage to Leith Walk, is the reading-room, measuring 55 feet by 21 feet. It is separated from the library by a row of columns and arches. The lower part of the tower is formed into a large corner oriel window. This room will be supplied with newspapers, weeklies, magazines, &c. The Nelson Hall measures 78 feet long by 50 feet wide, and is divided by two rows of columns and arches, which in turn carry the open roofs. The main part of this hall will be lighted from the roof, but the front portion will have large mullioned windows to the front. The Nelson Hall will be supplied with a large number of daily newspapers, magazines, and chess, draughts, dominoes, &c. The whole of the building will be heated with hot water and lighted with electric light, and made as attractive as possible. The architect is Mr. H. Ramsay Taylor (of Lessels & Taylor, 7A Young Street), who was also the architect for the branch libraries already built, which have been so successful.

## INTERNATIONAL EXHIBITION AT WOLVERHAMPTON.

A SCHEME has been under consideration for holding an art and industrial exhibition at Wolverhampton next year, on similar lines to that at Glasgow. The matter has now taken a definite shape, as the proposal has met with more enthusiastic support than was at first anticipated. An executive committee was appointed, and they have secured the services of Mr. H. A. Hedley, the manager of the Glasgow Exhibition, to act in a like capacity. When the scheme was first put forward 25,000*l.* was fixed as a guarantee fund, but this has been exceeded, and it now amounts to about 30,000*l.*, derived from promises ranging between 500*l.* and 10*l.*, the lowest limit, while the committee have decided to further raise the aggregate fund, as promises are being received rather freely. These have come in continuously since the general public found that the success of the undertaking was assured. Lord Barnard has granted the free use of a large area of ground as a site, and the town council has also set aside a portion of the West Park containing a large lake and several roads to be utilised as exhibition space. The whole will cover between 30 and 40 acres. Plans for the laying out of the site and the erection of a number of buildings have been prepared by Messrs. Walker & Ramsey, of Glasgow, and are approved. These provide for the erection of an industrial hall, 378 feet by 170 feet, a large machinery hall, concert-halls, restaurants, &c. The list of guarantors and vice-presidents includes a large number of noblemen, members of Parliament, manufacturers and others connected with the Midlands. Sir George Hayter Chubb and others who have been associated with exhibitions are taking an active interest in the movement. It has been determined to make it of an international character, and promises of support and to contribute exhibits have already been received from Canada, Russia and other foreign countries, while there is an overwhelming effort among English manufacturers in numerous trades to contribute towards making the project very successful. Contracts for the work in connection with the buildings will be given out in a short time, while the Corporation electric tramways which are in course of construction to pass the exhibition ground and through a large portion of the town connecting outside places will be completed before next May, ready for the opening ceremony of the Exhibition. A feature which now marks the movement is that manufacturers, merchants and others who held aloof are sending in their names to the guarantee fund in sums of 100*l.* to 250*l.*

## TANGYES OIL ENGINES



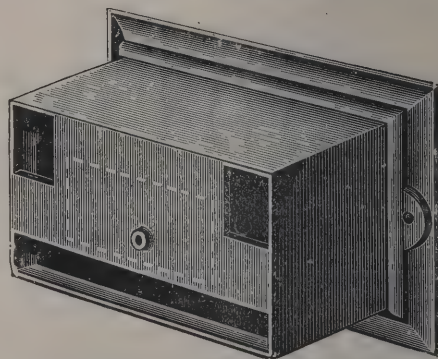
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# The Architect.

## THE WEEK.

THE executive committee of the National Memorial to Queen VICTORIA, consisting of Sir E. J. POYNTER, P.R.A., Sir L. ALMA-TADEMA, R.A., Lord WINDSOR, Viscount ESHER, Sir ARTHUR ELLIS, Mr. A. B. MITFORD, Mr. SIDNEY COLVIN and Mr. WILLIAM EMERSON offered the following suggestions at their meeting on Thursday in last week:—1. The committee recommend that Mr. BROCK'S design for the memorial be accepted, subject to such modifications as may be necessitated by the scheme of the Memorial as a whole. 2. That Mr. ASTON WEBB'S plan for the general treatment of the space in front of Buckingham Palace be accepted subject to certain necessary changes. 3. The committee further recommend that the consideration of the remainder of the Mall scheme be postponed until the amount of the subscription to the National Memorial has been completed. There will, of course, be much disappointment at the phase which the architectural competition has assumed in the recommendations. As the affair now stands, there was no necessity for a competition between architects. All that is proposed at present is to increase the space outside Buckingham Palace by bringing forward the railings, but whether railings will again be used, or a colonnade, is at present undecided. From the first it was realised that the Mall was to be extended to Charing Cross, which has long been a desirable consummation of any improvement in the Park, but at present so important an enterprise is to be set aside. All that can be thought desirable at the present time is the erection of a sculptured group dedicated to HER MAJESTY. On a platform about 8 feet high and 100 feet in diameter, with a fountain on either side, a high pedestal will arise on which a seated statue of the QUEEN will be placed. Below it will be groups symbolising Justice, Truth and Charity, or Maternity. A square column will also arise carrying figures of Victory, Constancy and Courage. The height of the memorial will be 60 feet, but it cannot have the grandiose effect of the Albert Memorial. In one case, however, there is an unarchitectural building as a background, while in the other there is a landscape. No doubt Buckingham Palace is interesting from its associations, but its presence will not enhance the effect of the new arrangements. If the sculptured memorial is successful, as is likely, it will probably aid in increasing the subscriptions, and then we may have architectural surroundings worthy of the subject, but at present architecture has to give way, and might be said to have no independent existence.

THE new Ulster Society of Architects has been of service already in several cases relating to works in Belfast and elsewhere in the North of Ireland. One of them was the asylum buildings at Purdysburn for the Belfast Corporation. The details of the terms with Messrs. GRÆME-WATT & TULLOCH, the architects, were considered, and were reported as unsatisfactory. A resolution had been forwarded to the town clerk on June 12 complaining of this unsatisfactoriness. The points objected to were that no travelling expenses were intended to be paid, that the remuneration was under what is recognised, and that there were various other conditions as regards approval of plans and arbitrary rejection of same on account of their disapproval by the asylum committee, or in case they exceed the architect's approximate estimate by more than 10 per cent., without his having the opportunity to recast them to bring the proposed buildings within the permitted cost limit. The opinion was expressed that when the asylum committee understood that the proposed conditions are unfair and unreasonable, that the majority at least, who only wish to be equally fair to the ratepayers and to those whom they employ, will at once make the modifications which were suggested, as of course it is entirely against the interests of the ratepaying community that any services, especially those requiring great care and skill, the absence of which in architectural work is so disastrous in result, should be inadequately remunerated. The Belfast Corporation are not remarkable for liberality in their dealings with architects, and it does not appear any alteration has

taken place in the conditions of the arrangements for the new asylum buildings.

THE temple on the little island of Ægina must always have interest for English artists. COCKERELL was a member of the party who discovered the ruins in 1811. He pointed out the peculiarity of the sculpture, and urged its purchase. He did not, however, make sufficient allowance for the supineness of the officials in English Government offices. Although the money was voted, and the arrangements were supposed to be complete, the remarkable sculpture found its way to Munich instead of to London, and English students of sculpture have to be contented with casts. The affair is to the official mind a triumph of circumlocutionism, but it has been since outdone by others of a more momentous character. It was concluded that the sculpture of one of the pediments represented the contest over the body of PATROCLUS, while the other showed another expedition against Troy. But there have been various other interpretations of the sculpture. As it was supposed the sculpture was of national importance to the Greeks, it was inferred that the temple was dedicated to ZEUS PANHELLENIUS, and the building became known in modern times as the Panhellenium. It is now doubtful whether another title will not have to be employed. The Bavarians cannot forget a building which will be a memorial of their victory over the English Governmental system, and they have selected the ruins as a site for exploration. An inscription has been recently found which would indicate that the great temple was dedicated to a local goddess named APHAIÀ. This is a declension, but it may have been firmly believed that the vessels which brought slaves and other commerce to and from Ægina would be in danger if they offended the goddess, and accordingly they raised to her a temple overlooking the sea.

VISITORS to Bologna are generally puzzled by the two towers, the Asinelli and the Garisenda. If judged impartially they are not better examples of brickwork than can be seen by the thousand in the factories of Lancashire. They have suffered from settlements, and have long ceased to possess verticality. The Garisenda especially is so much out of plumb one wonders why it has not collapsed. But Italy exercises so much glamour over the judgment, we may occasionally hear travellers speak of the towers as if they were most picturesque constructions which have an important function in general views of the city. The Garisenda has, however, literary interest, for DANTE refers to it in his "Inferno," comparing the giant who stoops to seize him and VIRGIL to the tower at a time when it was cloud-capped. The inclination of the Garisenda is due to a sudden sinking of the soil, but it has stood so well there must be some pity for it, for as far as can be judged it can hardly escape from a collapse. The soil which so long was unaffected by earth movements is now sinking, and produces cracks in the walls of the structure, which is square on plan and about 180 feet in height. The mortar is falling out of the joints. It is perhaps excusable for the authorities of the old scholarly city, which was known as the Alma Mater Studiorum, to imagine that the tower cannot be overthrown, and to assume that its security can be insured by the application of a little rough-cast, but a structure that is 10 feet out of the perpendicular, and is nearly a thousand years old demands a more efficacious remedy.

THE law officers have come to the conclusion that the gold ornaments found in Ireland, and which were purchased by the Trustees of the British Museum, must be treated as treasure trove and belong to the Crown. The Treasury therefore proposes to send a request to the Trustees for the surrender of the ornaments. It does not follow that the law officers are infallible, and the Trustees must already have obtained legal opinions leading to an opposite conclusion in order to justify their purchase and retention of the ornaments. As we have already said, the place for such a collection should be in the great museum of the empire, which is visited by people from all parts of the world. Respect for the law, however, prevails among most Englishmen, and if it can be demonstrated that the ornaments should be surrendered, we may be sure the Trustees will not persist in keeping them, but the removal will cause general regret in this country.



## A FICTION OF THE FINE ARTS.

WHEN all the arts are united, as is commonly the case, as if they were alike not only in their characteristics but in their principles, it is overlooked that architecture differs from the majority of them in regard to what is most essential, and that the difference can never be reconciled. The majority of the arts are simply various forms of fiction. The old rhapsodist who recited scenes in the Trojan war and the painter who attempts to depict those scenes have a common aim, and, as it were, are impelled by the same motive, which is one of deception. HOMER has so convinced the world of the truth of his narrative, and we place in consequence so much reliance upon his imaginative efforts, we have come to esteem his poems as the best basis for the history of Greece during one important period. Judging by what we see in our own time, we may conclude there were Grecian paintings which were accepted by the multitude as presenting types of the heroes which were equivalent to actual portraits. The effort of PHIDIAS, for example, to express in marble the old poet's description of ZEUS is still admired with reverence, as if in some mysterious way it were an embodiment of truth. Or, if we take works of a very different class, which were produced hundreds of years afterwards, there can be no denying that a great many of DICKENS'S characters are supposed to be so lifelike, they have the effect of actual beings on many persons, and even on people who only know of them by hearsay. MR. PICKWICK and his friends are more real to us than the people who were privileged to be the first readers of the adventures. What is more remarkable is the way the illusion has been supported by the illustrations in the novels. HABLÖT BROWNE, who was for so many years DICKENS'S artist, supplemented the written descriptions to such an extent that a modern artist who takes a subject from DICKENS is compelled to become indebted to the old etchings. BROWNE was of a very gentle disposition, and he was not adapted to be successful in representing many of DICKENS'S melodramatic creations; but the bias in favour of the untruthful in art has been so developed in man, he prefers whatever makes the strongest impression on his mind. For many readers BROWNE'S figures have superseded the original descriptions.

A remarkable instance of the power which illusion possesses is to be seen every day in Brussels. The collection of paintings in the Wiertz Museum exemplifies a persistent effort on the part of the painter to deceive. He has so far succeeded that not only is the gallery never empty during the hours it is open, but many strangers from distant countries never fail whenever they visit the Belgian capital to make a pilgrimage to the Musée, as if to renew the pleasure of being duped. It may be said the pictures are not to be considered as works of art in the ordinary sense of the words, and there are many Belgian painters and amateurs who would gladly see the gallery closed and the pictures destroyed, although they know that a room devoted to works by GALLAIT, DE KEYSER, PORTAELS or other modern Belgian masters would not be so continuously attractive to the crowd. But however low the paintings by WIERTZ may be classed, it must be allowed that his offence was the execution on a wholesale scale of effects which from the earliest time were occasionally attempted by painters. The old traditions about birds pecking at the grapes of ZEUXIS, and the acknowledgment by the same ZEUXIS that he attempted to draw aside a curtain which was painted by PARRHASIUS, are enough to suggest the esteem in which deception was held at a time when the human mind was believed to have attained its utmost development. ANNIBALE CARRACCI, we are told, considered BASSANO to be a great painter, not only on account of his vigorous works, but because he was able to imitate "the miracles" of the Greeks by deceiving beasts as well as men through his imitations. What is more, ANNIBALE was not ashamed to own that he endeavoured to take in his hand a book which he believed to be a genuine printed and bound volume, but which was only a stroke of legerdemain on the part of BASSANO. With such examples before us—and many of the same class will be found recorded in the biographies of painters—it would be vain to deny that able artists have taken pleasure in carrying imitation to excess so that spectators might be startled.

From slight and occasional attempts illusions in paint-

ing have grown into a system. At the present time everyone knows there are various schools of realists, or combinations of artists and writers, whose aim is to reproduce nature, however repulsive, with fidelity, in the belief that they are ministering to truth. For many a year painters of panoramas endeavoured to attain that end by the introduction in foregrounds of many natural or genuine objects. But the trick became so manifest it ceased to deceive, and the public preferred paintings in which reality was secured without any aid of the kind. In literature the effort to be realistic has produced books in which old-fashioned decency is not respected, and unnecessary details are heaped up in order to gain the effect of veracity. Once upon a time writers were thought to give whatever was best and most beautiful in life, but those primitive days have vanished, and now it would appear that over many cities and classes of life ugliness reigns supreme. The aim of the author is to reveal all the horrors of reality to those people who decline the trouble of exploration.

What relation can architecture have with the falsities which inspire and pervade the other arts? It may be a fault when room paper representing large slabs of marble is placed on the walls of the hall or the staircase of a humble house, or when the deal doors are grained to look like oak and mahogany. It is also blameworthy in the eyes of rigourists when veneers of marble or plates of pottery are used to conceal materials of another kind. It is also to be deprecated whenever a gate lodge is a copy of a Greek temple, or when a peaceful suburban villa assumes the form of a baronial castle, as was at one time common, or when a ladies' school is made to resemble a miniature abbey. But no one, unless the owners, can be taken in by that class of imitation which has not even the merit of being jocular. They are not to be compared with the musician's efforts when he professes to conjure up by sounds alone a battle, a storm, a fox hunt or a football-match. It is, however, satisfactory to know that the endeavour to substitute one material for another in buildings is yearly becoming more rare in this country. In the course of the century it may be thought very bad taste to adopt even harmless subterfuges in houses.

Whether in the other arts there will be an equal devotion to truth is less certain. It is not so long since a head in which the eyes appeared to open and close at regular intervals attracted crowds who found pleasure in the feat. A piece of white satin with exaggerated sheen is sure to have a circle of admirers in any Academy exhibition, and would secure a high price in the auction-room. It is true all displays of that kind are evidence of dexterity, which in painting is a desirable quality. But what the multitude admire is the power to which they must submit. If a sculptor will condescend to model a veiled vestal or a beggar-boy in rags he can reckon on the purchase of his work. The modern attempts to revive coloured sculpture, made up of several materials, have the same tendency, viz. the astonishment of the public through their ignorance of artistic processes.

Painters and sculptors are not always to be blamed if they flatter the public by appearing to believe that illusion is art. In literature they can see that success is to be gained by what appears to be no more than reports of commonplace talk. The drama also, which is supposed to mirror the very age and body of the time, depends for a profitable run in a large measure on the furniture, the pottery, the carpets supplied by various firms in the neighbourhood of the theatre, and unless actual things are present before their eyes the spectators appear to be incompetent to fancy what they are like from the property-man's work.

The cause of the revolution is to be attributed mainly to the growth of science, which operates in works where imagination used to reign, as it does in the material world. Science is an aid to truth, but it does not enable us to believe we have before us a queen who is "in shape no bigger than an agate stone on the forefinger of an alderman," or a lost cherub whose stature reaches the sky and lies floating many a rood. The Darwinites say that in course of time the progress of civilisation, bringing increased means of locomotion, digestible food and other conveniences, will inevitably convert man into a bald-headed, toothless, weakly creature, for there will be no longer any need of muscle. In the same way science also appears



to be fast leading us to a time when art and literature will consist of documents which will have to be made as rigorously exact as any which are now the subject of lawsuits. Testing will be one of the principal duties of life. The imitative arts will be hardly likely to profit by the change, but there is no reason why architecture should suffer. Then, as now, it may be classed by philosophers with the imitative arts, but it will continue to belong to a different category. In more senses than one it is a creation of man for which nature furnishes no model, and as an art is as far removed from the fictions of the painter and the sculptor as from those of the novelist.

The differences which separated architecture from the other arts were known in Greece in its most intellectual days, and when the arts flourished exceedingly. From the Socratic dialogues we learn that the philosopher's test of art was its correspondence with the end for which it was designed. A golden shield which did not exactly fit the wearer he declared to be ugly. The most beautiful house, he said, was the one that was most convenient, which was so planned that a man might enjoy every season of the year within it, and which would be secure against thieves. He recommended, therefore, that the part of the house towards the south should be much higher than the part which faced the north. Pictures and statues, on the other hand, were not considered to be aids to happiness like the house, and the best use he could discover for them was to exercise an educational influence in contrasting by means of representations men who were honest and amiable with those who were perverse and hateful. In modern times the difference between the two classes of art is overcome by the supposition that the end of all the arts is to give pleasure, and that a house with a handsome façade can become as effective as a picture or a piece of sculpture. But SOCRATES, although he was able to sleep all night outside a house, knew that ordinary men sought for comfort, and that it could become an auxiliary in forming a moral character. Although a sculptor, he knew that a house which was without draughts in winter and contained parts that were cool in summer was preferable to any work of the ordinary artist. The experience of many centuries has confirmed his views, and the main purpose of architecture is overlooked whenever it is judged by the rules which are applicable to statues and pictures, and injury is done to it when it is not allowed to stand supremely apart and to demonstrate its beauty without other aid. That was the light in which SOCRATES saw a building. It pleased him by its convenience, and he declared that no amount of painted or sculptured decoration could compensate for a deficiency in architectural qualities.

#### THE BIBLIOGRAPHY OF HERALDRY.

THE Board of Education have issued an addition to the useful series of classified catalogues of the National Art Library by one relating to heraldry. As a rule students of the science of arms have to depend on public libraries for their authorities, owing to the costliness of the books, which prevent more than a few from being found in an ordinary book-case. Dealers possess sufficient knowledge to be aware that heraldry mainly concerns gentlemen, and they assume that anyone who can claim a long descent or a coat of arms should be able to pay liberally for books which are peculiarly interesting to them. The subject can never be a popular one, and the number of copies of a work on heraldry must therefore be limited; consequently higher prices rule than with the generality of books.

The old-fashioned votaries of heraldry firmly believed that it was at least as old as freemasonry. SHAKESPEARE, who often makes jokes out of the sacred truths of the science, ridicules those who were unable to believe such sublime knowledge as relates to masques, flasks, martlets, rustres, &c., could arise in modern times, by making one of his gravediggers describe ADAM as the first gentleman who bore arms. There appears, however, to be no doubt that in an early age Greek warriors used figures on their shields which modern artists represent as having heraldic characteristics. They may have been intended to indicate fighting men belonging to particular clans, or they may have been

derived from more ancient figures, which, like those on Chinese shields, were credited with striking terror into the hearts of adversaries. Other inquirers would have us believe that heraldry was one of the fruits of the Crusades. The investigation of the subject has given rise to many pleasant disquisitions, and it may be concluded that heraldry itself has undoubtedly sufficient antiquity in its favour to make it fascinating to those whose thoughts are occupied with family history. A modern science is best adapted for those whose pedigrees are not to be traced in the Heralds' College, and who contrive to be useful and happy without hereditary arms.

Heraldry must have existed in a systematic state when RICHARD III. founded the Heralds' College in the parish of All Hallows the Less in the year 1483. Indeed, if we are to accept the authority of a French book dated about 1520, heraldry was respected in England as early as the age of King ARTHUR, for in the South Kensington collection we can see engravings of the arms of the Knights of the Round Table. They are as accurate as many later assumptions. The earliest English writer on the science is believed to be NICOLAS UPTON, who wrote a treatise, "De Militari Officio," in the time of HENRY V., and which was translated by JULIANA BARNES, or BERNERS, in the famous "Boke of St. Albans," of which a modern reproduction of the edition of 1486 is in the Art Library. Heraldry at the time was supposed to exercise educational influence, for the erudite nun professed to be able to teach "how gentylmen shall be knowen from ungentylmen." "Un Traité du Blason du XV<sup>e</sup> Siècle" was written by DOUET D'ARCO. There are several English works on heraldry belonging to the sixteenth century, one being Sir JOHN FERNE's "The Blazon of Gentry, divided into two parts; the first named the Glorie of Generositie; the second Lacyes Nobilitie: comprehending discourses of Armes and of Gentry. Wherein is treated of the beginning, parts and degrees of Gentleness, with her laws: of the bearing and blazon of cote-armors, of the laws of armes and of combats." The title is more high-sounding than is usual in English books. SYLVANUS MORGAN, another writer like FERNE, whose statements are not to be taken on trust, suggests by the title-page the widening of the boundaries of knowledge in the seventeenth century, and the desire of authors to meet the scholar's requirements regardless of the strain which was put upon their imagination. His book is called "The Sphere of Gentry, deduced from the principles of nature: an historical and genealogical work of arms and blazon, in four books. . . . In which is contained the genealogies of the Patriarchs and Heroes, standards of the Jews, hieroglyphics of the Egyptians, symbols of the Grecians, antiquities of the Romans, arms and ensigns of the English nation . . . down to King CHARLES II." ABEL BOYER called his book "The Great Theater of Honour and Nobility." MARC ANTHONY PORN, whose real name was ANTOINE PYRON DU MARTE, a refugee who was a master at Eton, gave the simple title of "The Elements of Heraldry" to his book; but he was complying with English taste, for the French titles are often grandiloquent. Thus one is called "La Science héroïque," another "La Science des hommes de qualité." The Germans resemble the English in their titles, but an author is to be excused if he departed a little in order to suggest the greatness of the science. The Art Library contains 126 publications which can be reckoned as treatises, the last being a paper recently read before the Architectural Association on "Heraldry and Heraldic Ornament," by Mr. H. V. C. SMITH.

Special subjects are more easily treated, and there is not a colour, tincture, ermine, charge, line, label or border which could not be made the subject of a brochure or a volume. There are, for instance, in the Library a dozen separate publications relating to the fleur-de-lis, which some speculators now take to mean "the flower of LOUIS." Next, we have the general collections of arms. The oldest record relating to a roll of arms refers to the nobility who took part in a tournament at Compiègne in 1238, which is now in the Brussels Library. The importance of heraldry is shown by a book on the Council of Constance, published in 1536, in which the arms of those who took part in it are displayed, as if they were of as much importance as the doctrines of WYCLIFFE and HUSS. The collection relating to Great Britain and Ireland is very



extensive, but it mainly applies to England. For in spite of all that is believed about the antiquity of Irish families, heraldry is not much esteemed in the island, and much that passes under the name is very amusing to an expert. The Irish heraldic works in the Library consist of a peerage, an essay on sculptured stones in the county Antrim, descriptions of Cork and Kerry, an account of an Anglo-Norman Church, and of the islet of Devenish in Loch Erne. There are many essays on particular families, in which armorial bearings are introduced. Indeed, the English works form a most interesting assemblage.

Family history with civic and national history are prized by the Belgians. The heraldic works are therefore numerous. Such a book as M. DE VIGNE'S "*Recherches historiques sur les costumes civils et militaires des gildes, et des corporations de métiers, leurs drapeaux, leurs armes, leurs blasons, &c.*," is characteristic of the modern spirit. In France armorial subjects are looked at from a different point of view. The Revolution was a fatal blow to heraldry, but there is interest still taken in the old nobility with their mouldy warrants of superiority. But if numbers of publications can be taken as a test, Germany and Austria-Hungary comes next to Great Britain in the extent of its heraldic bibliography. Turning eastwards, we find Cyprus possessed an armorial. Arms were recognised in Chaldea, but it is remarkable that there is only one reference to India—a cutting from a German newspaper. The arms of the United States have inspired only a single volume. In Japan there appears to be a harvest waiting the heraldic inquirer. Among other subjects which comprise distinct divisions are ecclesiastical and sacred heraldry, orders of chivalry, devices, badges, monograms, crests, mottoes, shield-shapes and supporters, standards, flags, banners, armorial bindings, armorial book-plates, exhibitions, bibliography, periodicals. In addition there is an index to subjects, authors and heraldic artists.

There may be cynics who will believe that the catalogue and the books it records are only aids for the promotion of snobbery. Heraldry has many enemies who look on it as the science of fools with long memories, but they should bear in mind that the representation of arms is required in many kinds of decoration, and a false quantity or a misspelling are trivial lapses compared with the substitution of one kind of hatching for another or for the points which stand for a gold ground. To be a master of the science requires daily practice, but few designers can afford to spend so much time over escutcheons. To take up so delicate a subject is often a very intricate task, and needs reference to many books. That, no doubt, is the primary purpose of the valuable South Kensington collection. But for amateurs who have leisure there are not many more delightful studies. It appeals to human feelings which are innate in all. It is possible, like CORIOLANUS, to try to become master of oneself and to ignore all other kin, but thought cannot help going back through the long line of predecessors which the humblest must possess. Designers and amateurs will find the new catalogue facilitates their researches.

#### A FINE ARTS COMMISSION.

THE following letter from Sir E. J. Poynter has appeared in the *Times* :—

Lord Stanmore's motion in the House of Lords for "a Royal Commission similar in character and object to the Fine Arts Commission of 1842" raised an important question, but it came, as he justly foresaw, to nothing; his lordship "knew that the Government would not do what he asked." The prediction was safe enough. The Prime Minister himself confessed that such a motion was not likely to find a very large sympathy among those who govern the country, and he expressed an opinion that if the work of the Commission was not continued after the lamented and too early death of the Prince Consort it was that "there was no one, there could be no one, fit to take up the work" thus inaugurated and encouraged for the twenty years during which the Commission was in being. The Prince Consort was, no doubt, in an exceptional position for the happy fulfilment of such a task, not only on account of the exceptional enthusiasm which he felt in the encouragement of the fine arts, but because he was too high placed for the administration of the snub with which Governments are too apt to meet the efforts of less exalted individuals in the same direction. But it does not seem indisputable that the work

should necessarily have been dropped when the Commission came to an end; an effort so well begun and so valuable in the interests of the higher forms of fine art and for the decoration of the building on which so much money had been lavished to make it worthy of the nation might very well have been carried on under the successive First Commissioners of Works, one of whose proper functions may be said to be to propose and administer a sum to be voted by Parliament for such purposes; it is, indeed, hardly just to the memory of a most distinguished chief of the Office of Works to state that there was no one fit to succeed to the position which the Prince Consort took in this matter. But Sir Henry Layard was not the Prince Consort; a modest attempt on his part during his brief tenure of the office to continue the decoration of St. Stephen's Hall, at an expenditure of something under 5,000*l.* spread over four years, seems to have inspired the Government with such terror that he was promptly offered a diplomatic post and sent to expend his magnificent energies as ambassador at Madrid; and, in order apparently to accentuate the reasons for his dismissal to what was no doubt a higher, but to a man of Sir Henry Layard's tastes and character a less glorious, position, the place was filled by the notorious Mr. Ayrton, who could, no doubt, be trusted to treat all such non-sensical ideas as the encouragement of the fine arts with the graceful contempt which he displayed for "market-gardeners" in the person of Sir Joseph Hooker.

I refer to this episode of past history because it may account to a considerable extent for the Prince Consort having no successor in his admirable attempt to bring about a renaissance of the higher decorative forms of art in England. That the result was somewhat of a disappointment is not surprising; as Lord Stanmore justly pointed out, the experiment of decorative fresco-painting on a large scale was new to this country, and that there should have been some failures is hardly to be wondered at, but I venture to say that, in spite of the ridicule which was poured on the achievements of the Commission, in consequence no doubt of a serious want of success in some instances, the result as a whole was not unworthy of the effort. Many of the paintings suffered from want of experience on the part of our artists in the material employed, and others no doubt were inadequate for their position through their being entrusted to painters to whom the treatment of great historic subjects was not familiar or congenial. But I have no hesitation in asserting that the series of paintings by Dyce in the Robing-room of the House of Lords, only too little known to artists and the public, will stand comparison for beauty of design and purity of colour, no less than for accomplished workmanship, with the best Italian decorative work of the fifteenth century. Again, the two great paintings by Maclise, full as they are no doubt of strange faults, are at least a serious attempt on the part of the artist to invest with appropriate dignity of style the two greatest episodes of English history; they are the work of a prolific, if somewhat academic, designer endowed with a fiery energy, not seeing his way clearly through a mist of bad and effete tradition, but grappling with unwearied labour with enormous difficulties and displaying qualities well worthy of study and imitation.

But the scoffers indulged themselves freely at the expense of the Commission, and it was partly no doubt due to the indiscriminate ridicule with which its efforts were met that that apathy to which the Prime Minister referred arose in the mind of the public. Ridicule is, however, no test of the merit of a work of art. Witness the ridicule lavished on works, now famous, of Millais and Burne-Jones in their earlier days. To some people all art is ridiculous, and there is no work of art, however great, which does not lie open to criticism from one point of view or another. A most eminent scientific man found the Madonna del San Sisto ridiculous in an argument which I endeavoured to sustain with him, not because he considered it an inadequate treatment of so great a subject, but because, the necessary conventions of art being unintelligible to him, he had discovered that in the radiant light with which Raphael has surrounded the Madonna and Child it would be impossible to distinguish their faces. The ridicule therefore which was showered on the efforts of our painters of the fifties may be set aside as of no account. The moment perhaps was inauspicious for the general production of great work. The best men of the late generation had not come forward at the commencement of the Commission. Leighton, Millais, Burne-Jones and Albert Moore were still at school, and up to the end of the sittings of the Commission only one work had been entrusted to Watts—a work which subsequently no doubt suffered great deterioration from the imperfect knowledge of fresco-painting which prevailed at the time, but which deserved a better fate than (in common with six other panels in the upper lobby) to be pasted over with wall-paper. Why, indeed, as Lord Stanmore asked the House of Lords, should not some effort have been made to restore these paintings, like those in the Lords' Chamber, instead of subjecting them to this ignominious treatment?

It was precisely since the labours of the Commission terminated that our best masters of decorative painting came



into prominence, and yet during these forty years not one of their works has been in requisition for the decoration of the Palace of Westminster. Two mosaics have been placed in St. Stephen's Hall, one in the time of Sir Henry Layard, as part of his general scheme for its decoration, and another, after an interval of thirty years, under the régime of Mr. Plunket. This and the papering over of the seven pictures already executed in the upper lobby are the solitary contributions which successive Governments have made during forty years towards completing the scheme of the Royal Commission presided over by the Prince Consort.

Is Lord Stanmore really asking for any abnormal or excessive effort on the part of the Government in moving that a body should be appointed having power over the expenditure of a small annual amount to carry on with some continuity the very reasonable desires of the Prince Consort's Commission? At present such efforts are purely spasmodic and capricious, depending on the individual taste of the First Commissioner of Works for the time being, subject to stern repression by the Treasury. No doubt Sir Henry Layard's fate has acted as a deterrent on subsequent First Commissioners. Further, is it certainly a good thing, as Lord Rosebery suggested, that the Government does little for art? It appears to me that a Government, by commissioning such paintings as those by Dyce and MacIise, to which I have referred, does what it is not in the power of private individuals to effect. Municipal bodies doubtless can, and do occasionally, make a generous movement in the encouragement of monumental works; Madox Brown, for instance, was for years engaged on, and fortunately lived to complete the remarkable series of paintings commissioned for the Town Hall at Manchester. Such undertakings may be considered to have resulted from the initiative of the Royal Commission of 1842. The Government is, in fact, in a position to set the example in these matters, and I am of opinion that it is of immense advantage to the practice of the fine arts that they should exercise their powers in this respect. The mere fact that an artist, especially if he be young, receives a commission from the State gives a stimulus to his energies which no lesser form of patronage can supply; and when a series of works such as those for the decoration of Westminster Palace brings various painters into competition with each other the sense of emulation comes in to call out their best energies, while the scale on which such works are required and the class of subject with which they have to deal are important factors in the production of great work. The artist feels also a certain pride in the thought that he is emulating the achievements of the great masters of past times, and he has the consciousness, which puts him on his mettle, that his commission is of national importance and will stand before the eyes of the nation for its judgment.

The following question has nothing to do with the subject of this letter, but as there will be a meeting of the County Council when the subject of the widening of Piccadilly will again come before it, I am tempted to ask what real necessity there is for widening Piccadilly along the side of the Green Park? Any enlargement of the road between Hyde Park Corner and Down Street will seriously interfere with the most attractive part of the Park, and whatever blocks of traffic occur arise from the cross traffic at Hamilton Place and Berkeley Street, not from undue narrowness of the road.

#### OXFORD.\*

LINCOLN COLLEGE was founded in 1429 by Richard Fleming, Bishop of Lincoln, who was a native of Yorkshire, and received his education at Oxford. In his graduate days he was a follower of Wycliffe, but subsequently, regarding the movement with alarm, he decided to found this College to refute Wycliffe's doctrines. He obtained his Charter from Henry VI, dated October 13, 1427, incorporating the Churches of All Saints, St. Mildred and St. Michael, which he united into a Collegiate Church under the title of "The College of the Blessed Mary and All Saints, Lincoln, in the University of Oxford." He died suddenly on January 25, 1430-31, before his plans were completed. The present Tower and rooms over the Gateway were alone finished, the students occupying Little Deep Hall in St. Mildred's Lane (now Brasenose Lane). John Forest, Dean of Wells, continued the foundation, and before 1437 had built the Hall, Chapel (now the Library), and rooms for the Fellows and students. The old Kitchen, which is supposed to have belonged to Winchester Hall, was repaired by Dean Forest, and is still used by the College. A second Charter, confirming the rights of the College, was obtained from Edward IV., dated January 23, 1461-62. The site was considerably increased by the purchase of other Halls adjoining in 1463, and in the following year the executors of Bishop Thomas Beckington gave 200*l.* for building

the Rector's house, on the west front of which may be seen his rebus, T, and a beacon set in a barrel. In 1475 Thomas Rotherham, Bishop of Lincoln, Visitor of the College, and Lord High Chancellor, greatly increased the endowment, and completed the front quadrangle by building the south side. He also obtained an enlarged Charter from Edward IV., dated June 16, 1478, and gave a new and more complete set of Statutes framed on those of the Founder. Other benefactions followed, among them being Dagville's Hall in 1488, now the Mitre Hotel. In 1610 Sir Thomas Rotherham, a descendant of the Lord High Chancellor, built the west side of the Chapel quadrangle, John Williams, Bishop of Lincoln, adding the east side and the Chapel in 1628-31. The battlements round the front quadrangle were put up in 1850. Dr. John Radcliffe, the Founder of the Radcliffe Library, and John Wesley, whose rooms are said to be those over the passage leading from the front to the Chapel quadrangle, were Fellows of the College.

The Hall was erected in 1436 by John Forest, Dean of Wells. It is a handsome chamber with chestnut timber roof and louver. In 1697-1701 Nathaniel, Lord Crewe, Bishop of Oxford and Durham, repaired the Hall, adding the present wainscoting and covering the old roof with a waggon roof of plaster. This was removed in 1889 under the direction of Mr. T. G. Jackson, R.A., and the windows and other portions were restored to their original design. On the walls are portraits of the Founder, Bishop Rotherham, Sir Nathaniel Lloyd, Lord Keeper Williams, Lord Crewe, Mark Pattison (late Rector) by A. Macdonald, Rev. W. W. Merry, D.D. (present Rector), and others. The Buttery is of the same date as the Hall.

The Library, formerly the Chapel of Dean Forest's foundation, was converted to its present purpose in 1656 by John, Lord Crewe of Steane (father of Nathaniel). Several MSS., chiefly theological, were bequeathed to the Library by Bishop Fleming; twelve were given by Thomas Gascoigne in 1432, and Dean Fleming, nephew of the Founder, in 1456 gave thirty-eight others, mostly Latin authors. Fortunately many of these valuable works escaped the ravages of Edward IV.'s Commissioners. Other benefactions followed, among them a bequest by Robert Deighton of the works of St. Augustine, St. Gregory, St. Ambrose, St. Jerome and St. Chrysostom; by Dr. G. Watts, in 1656; Sir Nathaniel Lloyd, at whose expense the Library was fitted up in the early part of the eighteenth century; and the Rev. Sir George Wheeler. Gascoigne's "Dictionarium Theologicum" and a manuscript of Wycliffe's Bible are among the much-valued treasures of the Library.

The Chapel, built in 1628-31 by John Williams, Bishop of Lincoln, Archbishop of York, and Lord Keeper, was consecrated on September 15, 1631. It was repaired and beautified in 1686, at the cost of Rector FitzHerbert Adams. The ceiling, the handsome screen and the front of the stalls, with the beautiful carved statuettes of Moses, Aaron, the four Evangelists, St. Peter and St. Paul, are of cedar wood. The stained-glass windows are particularly fine. They were brought from Italy in 1629 and given to the College by Bishop Williams. The east window represents events from the life of our Saviour with the antetypes in the Old Testament; those on the south side represent the twelve Apostles, and on the north twelve of the Prophets. These windows are said to have been painted by Abbott, brother of the Archbishop of that name. Wesley's pulpit stands in the ante-chapel.

Ant. Wood says of the early Chapel of the College:—"St. Mildred's Church was first used by the Society as their Chapel, but being in great decay was pulled down and an Oratory, with the chambers underneath, was built with the stones thereof, partly on the site of said Church, by John Forest in 1436. It was continued in use until 1631, and in 1656 was converted into the Library."

Exeter College, originally known as Stapelton Hall, was founded in 1314 by Walter de Stapelton, Bishop of Exeter, for thirteen scholars from the counties of Devon and Cornwall. Bishop Stapelton held at various times the positions of Chaplain to the Pope, Lord High Chancellor, and Secretary of State to Edward II. His loyalty to the King led to his untimely death, he being murdered by the London mob in front of St. Paul's Cathedral in 1326, before his College was completed. He first acquired Hert Hall, now the site of Hertford College, but in 1315 removed his foundation to St. Stephen's Hall, the present site. A second Founder arose in Edmund Stafford, Bishop of Exeter, Keeper of the Privy Seal, and Chancellor of England. He altered the name to Exeter College, framed new Statutes embodying the plans of his predecessor, and added to and improved the existing buildings. In 1565 the College was incorporated by Charter of Queen Elizabeth, when Sir William Petre, Secretary of State and Privy Councillor to Henry VIII, Edward VI. and Queens Mary and Elizabeth, became a third Founder and munificent Benefactor. The buildings have been subjected to many alterations from time to time, and of the early work all that remains is the old Gate Tower erected by William Palmer, Rector, in 1432, which now forms part of the Rector's House, the Hall and Perriam's buildings on the east side of the Quadrangle.

\* A paper read by Mr. Frank E. Spiers before the members of the Upper Norwood Athenæum at Oxford on July 13.



The Hall, which stands on or near the site of St. Mildred's Church, was built in 1618, chiefly at the cost of Sir John Acland. It has a fine high-pitched timber roof, and an exceedingly good Jacobean screen. On the walls are portraits of the Founder, Walter de Stapelton, Charles I., Sir William Petre, Kt., LL.D., 1571, Dr. Prideaux, 1612, Sir John Acland, Bart., 1618, Lord Chancellor Shaftesbury, 1672, Archbishop Secker, 1768, Lord Coleridge, Seldon, the antiquary, Sir Charles Lyell, geologist, and many others.

The Founder's Chapel is supposed to have been on the site of the present Library in 'the Fellows' garden. A new Chapel was built in 1624 in the front quadrangle, but being condemned as unsafe the present Chapel was erected in its place in 1856-58 from designs by Sir G. G. Scott, R.A., it being to a great extent a copy of "Sainte-Chapelle" in Paris, and in every way an exquisite building. Statues of Bishop Stapelton and Sir William Petre are on either side of the entrance. It has a fine stone vaulted roof, 84 feet high, and arcades in carved oak, the length of the building being 91 feet by 30 feet wide. The apsidal east end is embellished with mosaics by Salvati. The beautiful tapestry which adorns the south side was executed in 1890, at the Merton Abbey Works, by the late William Morris, from designs by Sir Edward Burne-Jones, A.R.A., and represents "The Adoration of the Magi." The bronze Eagle is from the old Chapel, and was presented to the College in 1637. By the entrance is a fine carved pedestal alms-box of the fifteenth century.

The Library, standing on the site of the Founder's Chapel, is situated in the Fellows' Garden, and was built in 1856 from designs by Sir G. G. Scott in the Early Gothic style. It contains some good manuscripts of the fourteenth century given by Bishop Rede, of Chichester, astronomical and mathematical works given by Simon de Bredon in 1372, and other books of much value and interest, among them being a highly-prized Latin Psalter that belonged to Henry VII., in which are recorded the births of the Tudor family and an account of the battle of Bosworth Field.

In the Fellows' garden is a grand old chestnut tree, known as Heber's chestnut, it having shaded the windows of his rooms in Brasenose College, and Kennicot's fig tree, brought from Smyrna in the reign of Charles II., and still growing vigorously on the old buildings.

Trinity College was founded in 1555 and was dedicated to "The Holy and Undivided Trinity" by Sir Thomas Pope, Knight, Treasurer of the Court of Augmentations, Privy Councillor to Henry VIII. and Queen Mary, and custodian of the Princess Elizabeth at Hatfield. It stands on the site of Durham College, founded by the Benedictine Monks of Durham in 1286, and was the first College founded in Oxford after the Dissolution of Monasteries. Sir Thomas was born at Deddington in Oxfordshire in 1508, and educated at Banbury and Eton. He obtained the Royal License to found his College on March 1, 1554-55. He repaired the old monastic buildings, and it was not until 1618 that any new buildings were erected, when Sir William Pope, the first Earl of Downe, a relation of the Founder, built the present Chapel Quadrangle. Dr. Kettel, President from 1598 to 1643, rebuilt the Hall, added several outbuildings and "cock lofts," as Ant. Wood describes them, and the picturesque building in Broad Street on the site of "Perilous" Hall, known as Kettel Hall. Dr. Ralph Bathurst, President from 1664 to 1706, built the north side of the Garden quadrangle in 1665 and the west side in 1682 from designs by Wren, and later the Chapel and Tower Gateway. He was the first to introduce Classic architecture into the College buildings of Oxford. The south side of the inner quadrangle was added in 1728. The new buildings in the front quadrangle, including the President's lodgings, were built in 1883-87 from designs by Mr. T. G. Jackson, R.A.

The Chapel, with the Tower Gateway, surmounted by four figures, of Divinity, Physic, Geometry and Astronomy, was built by Dr. Ralph Bathurst, in 1691-94, on the site of the fourteenth-century Chapel, from designs suggested by Sir Christopher Wren and carried out by Dean Aldridge. It was consecrated by John Hough, Bishop of Oxford, on April 12, 1694. The Altar-piece and Screen are of cedar and lime, and are exquisitely carved, the work of Grinling Gibbons. The ceiling was painted by Peter Buchet, a French artist, and represents "The Ascension." On the north of the Altar is the tomb of the Founder, in alabaster, a very fine work, with his recumbent effigy in complete armour, and that of his wife. The stained-glass windows are modern, one on the south side having been recently filled with glass from Munich to the memory of the Rev. Isaac Williams, a Fellow, and seven others representing the Durham College Saints, given by the Rev. H. G. Woods, late President. An elaborate silver-gilt Chalice from St. Albans Abbey, given by the Founder, is highly treasured.

The Library is the original building of the Benedictine Monks, was erected about 1417, and formerly contained the valuable collection of books bequeathed to Durham College in

1344 by Richard de Bury, Bishop of Durham and author of "Philobiblion." It contains a curious manuscript of "Euclid" of the twelfth or thirteenth century and a valuable collection of topographical and antiquarian works, bequeathed by Dr. James Ingram in 1850. The bookcases were fitted up in 1605. The stained-glass windows on the east side date from the fifteenth century and were taken from the old Chapel; they bear the figures of Edward III., Philippa, the Evangelists, St. Cuthbert and St. Thomas à Becket with FitzUrge's dagger in his forehead.

The Hall was built in 1618-20, and is said to be on the site of the old Refectory. Over the entrance is a statue of the Founder, Sir Thomas Pope. The ceiling and wainscoting were put up about 1777, but the ceiling was reconstructed early in the last century. On the walls are portraits of the Founder and Lady Elizabeth Paulet, his third wife, Archbishop Sheldon, Dr. Kettel (President 1598 to 1643), Dr. Bathurst (President 1664 to 1706), by Kneller, William Pitt, Earl of Chatham, Roundell Palmer, D.C.L., Earl Selborne and Lord High Chancellor (1880), Cardinal Newman (1877), Dr. Stubbs, late Bishop of Oxford, and others.

The Gardens are well kept, their chief attraction being the celebrated avenue of limes known as the Gothic Walk.

Balliol College was founded about 1260 by John de Balliol, of Barnard Castle, Durham, father of John Balliol, King of Scotland, and the Lady Dervorguilla, his wife, daughter of Alan, Prince of Galloway. The origin of the foundation is as follows:—Balliol having had trouble with the Bishop of Durham, and having treated him with some indignity, to condone his offence suffered scourging at the hands of the Bishop before the entrance of Durham Cathedral, and, further, assigned a sum of fixed maintenance to be continued for ever to sixteen poor scholars studying at Oxford. He died in 1269, before his plans were completed, and charged his wife to continue the maintenance and endow the community. The College was dedicated to "The honour of the Holy Trinity, the Virgin Mary, St. Catherine and the whole Court of Heaven." It was not until 1282 that the House of Balliol was permanently endowed and received its Statutes, which bear the seal of the Foundress. Dervorguilla died on January 21, 1290, at Castle Barnard, and was buried at Sweetheart Abbey (Dulce-Cor), in Galloway, a Cistercian monastery she had built and endowed. Nothing is left of the original buildings, though the ground plan has been to a great extent preserved. The south front, built in the reign of Henry VI., was pulled down in 1867, and rebuilt from designs by Mr. Waterhouse. The buildings at the south-west corner of the College were erected in 1769 by Mr. Fisher, Master, the rooms facing St. Mary Magdalene Church in 1825 from designs by Mr. George Basevi, and the buildings north of this, facing the Martyrs' memorial, in 1855 by Mr. Salvin, architect.

A License was granted in 1293 by the Bishop of Lincoln to hold Divine Service in an Oratory in the College, and about this time the first Chapel was erected on the site of the present dining-room of the Master's house; it was rebuilt in the fifteenth century. The oriel window in the front quadrangle will indicate the position. A new Chapel was erected in 1521-29, the site selected being to the east of the Library. It was a handsome building, but in 1856 was removed, and the present Chapel built on its site at a cost of 8,000*l.* as a memorial to Dr. Jenkins, the late Master, who died in 1854, Mr. Butterfield, F.S.A., being the architect. It is a building of red and white stone in bands, in the Decorated style. The east end is embellished with Derbyshire alabaster, on the north side being the Jowett memorial by Mr. E. Onslow Ford, R.A., an exquisite miniature recumbent effigy of the last Master, who died in 1870. The Screen is of wrought-iron and stone and bears the memorial inscription to Dr. Jenkins. Some of the windows date from the fourteenth century, and were in the first Chapel; two representing The Passion, Resurrection and Ascension are of the time of Henry VIII., and were removed from the east window of the former Chapel; two with Saints are probably of the same period; and four, dated 1637, are fine specimens of the work of Abraham Van Ling (two of these are in the ante-chapel). The bronze Eagle was given by Edward Wilson in the reign of Charles II.

The Library adjoins the Chapel, the west part having been built by Thomas Chase, Master, in 1428-31, and the east by Robert Abdy, Master, in 1477-80. It contains choice and precious MSS. given by Bishop Gray, of Ely, and Gascoigne, Chancellor of the University, books on astronomy and mathematics bequeathed by Simon de Bredon, Galen's works left by Stephen de Cornubia, early bibles and other theological and miscellaneous works. One of the most valued treasures in the Library is the original copy of the Statutes bearing Dervorguilla's seal. There is also some good sixteenth-century glass from the old Chapel in windows of the lower room.

The old Hall dates from the early part of the fifteenth century, and is probably the oldest part of the College remaining. It is now used as a reading-room. In the windows some fine glass dated 1536.



The new Hall on the north side of the garden quadrangle is a very fine building 90 feet long by 36 wide. It was built in 1877 from designs by Mr. A. Waterhouse, R.A., in the Decorated style. It contains portraits of the Founder and Foundress, John Wycliff (Master, 1360-66), Cardinal Manning, Archbishop Tait (Tutor), Viscount Peel (the present Visitor of the College), by Herkomer, Dr. Jenkins (Master, 1819-54), Dr. Jowett (Master, 1870-93), by G. F. Watts, Rev. W. Rogers ("Hang Theology" Rogers), Sir Robert Maurier, Robert Browning, J. L. Strachan Davidson, M.A. (Senior Dean), by Herkomer, and many others; there is also a bust of Lord Bowen.

Roger Bacon, Duns Scotus and Occham were trained at Balliol; Humphrey, Duke of Gloucester, studied here, and John Wycliffe was Master. John Evelyn, Adam Smith (1740-47), Southey, Lockhart, Algernon C. Swinburne, Robert Browning, Andrew Lang and many others have shed a lustre on the College by their learning and the high distinction they have attained in after life.

The University Galleries were built in 1845 from designs by C. R. Cockerell, R.A. In the entrance gallery are ancient marbles, including the Arundel and Pomfret collections. In the rooms beyond, antique casts from the archaic period to the fifth century, and in the basement inscribed marbles and the Chantry collection of casts. The galleries above contain a valuable and interesting collection of paintings and drawings by Guardi, Canaletto, Adrian van Ostade, Teniers, Vandyke, Hogarth, Sir Joshua Reynolds, Turner, Herkomer, Millais, Holman Hunt, D. G. Rossetti and others. A series of 190 original drawings by Michel Angelo and Raphael, copies of Raphael's cartoons, water-colour drawings by Turner, sketches by George Jones, R.A., the Douce collection of early German and Italian prints, and the Chambers Hall collection of etchings and drawings by Rembrandt and others. Here is also the Ruskin Drawing School and an Art Reference Library.

*The Ashmolean Museum.*—In 1895 additional rooms were added at the back of the University Galleries for the reception of portions of the collection in the Ashmolean Museum. It will not be out of place here to give a brief history of this celebrated collection. John Tradescant, a Dutch merchant, being banished from Holland early in the seventeenth century, settled in London. He was learned in botany and horticulture, and became gardener to James I., who sent him to the East and to the islands of the Mediterranean to collect plants. He founded a museum in South Lambeth known as "Tradescant's Ark," which contained objects of natural history, antiquities and curiosities, and was the earliest collection of the kind probably in existence. He died in 1638, and was succeeded by his son, who continued the exhibition, and, by the patronage of many persons of note, including Charles II., Queen Mary, Laud and others, added considerably to it. A catalogue of the Museum Tradescantianum was published in 1656. At his death in 1667 he bequeathed his collection to his friend, Elias Ashmole, who had lodged with him for many years. Ashmole was an antiquary, and had for many years been a collector of old manuscripts, pictures, coins and other rarities. He offered to present the whole collection to the University if they would build a museum to receive it. The offer was accepted, and on May 24, 1683, the Museum Ashmoleanum, in Broad Street, was opened. Valuable additions were made to the collection from time to time. In 1895 it was distributed: the Ashmole MSS. and coins, Sir William Dugdale's and Anthony Wood's libraries went to the Bodleian; the ethnological (excepting Tradescant's) and the natural history objects to the University Museum in the Parks, and the remainder to the new fireproof rooms, where they are now arranged. The present collection comprises (1) the Tradescant ivories, Mediæval arms and ornaments, historical relics and the earliest ethnological collection in Europe; (2) Egyptian and Oriental antiquities; (3) Classical antiquities, including Greek vases, Greek and Roman pottery, jewellery, terra-cottas and ancient gems; (4) Prehistoric antiquities, Greek and Roman, British of the Stone, Bronze and Early Iron Ages, Irish weapons, &c.; (5) Anglo-Saxon relics, many from cemeteries in the neighbourhood of Oxford and at Fairford, and the beautiful specimen of enamelled gold-work found in 1693 in the Isle of Athelney, and presented to the Museum by Thomas Palmer in 1718, known as "King Alfred's Jewel," it bearing the inscription "ÆLFRED MEE NEHT GEVVRCAN" ("Alfred ordered me to be made"); (6) Oxford antiquities and historical relics; (7) Classical and Renaissance bronzes and terra-cottas, Italian majolicas bequeathed by Dr. C. D. E. Fortnum, foreign rings, watches, fictile ivories, &c.

The Sheldonian Theatre was erected in 1664-69 at the cost of Archbishop Sheldon, Chancellor of the University, from designs by Sir Christopher Wren. Its form is an ellipse, the interior area being eighty feet by seventy feet. The ceiling was painted by Robert Streater, Court painter to Charles II., and represents "The Triumph of Religion, Art and Science over Envy, Rapine and Ignorance." It has been recently

thoroughly restored and cleaned under the direction of Mr. Arthur H. Church, M.A., F.R.S., F.S.A., Professor of Chemistry at the Royal Academy. The organ, by Willis, was erected in 1877, the front having been designed by Mr. T. G. Jackson. On the walls are portraits of the Founder, Sir Christopher Wren, Nathaniel Lord Crewe and the Duke of Ormond. Above is a large chamber that was originally used as the University Printing Press, and the building is surmounted by a cupola from which a very fine view of the buildings of Oxford may be obtained. Here is held the Encenia or Commemoration of the Founders and Benefactors of the University, when the Creweian oration is delivered, the prize compositions are recited, and the Honorary Degrees of D.C.L. are conferred by the Vice-Chancellor. The building will accommodate upwards of three thousand persons.

St. Mary Magdalene Church dates from before the Norman Conquest. Robert D'Oili, in 1074, gave it to the Collegiate Church of St. George, which he had founded in Oxford Castle, and being in a ruinous state, in 1080 it was restored by him. It was transferred by his nephew, Robert D'Oili, the younger, to Oseney Abbey in 1129, who held it until the Dissolution, when Henry VIII. made it over to Christ Church, and it has ever since remained under their patronage. The Church has undergone many changes from time to time, but owing to the manner of the restorations it is difficult to tell what old work remains, if we except perhaps the lower portion of the tower with its large rough-hewn stones. Hugh, of Lincoln, whose work is also seen in St. Mary's and St. Giles's churches, rebuilt the nave in about 1194, and added the north and south aisles, the latter being founded as a chantry, dedicated to the Virgin Mary. The north aisle was repaired and refitted in 1280 by the Lady Dervorguilla, of Balliol, and dedicated to St. Catherine, as an Oratory for the students of her College, and was used by them until the Oratory in the College was built. Balliol still possesses some rights in the Church. The Chapel on the extreme south of the Church, with crypt beneath and elegant parapet of trefoil work, was built in 1320 and dedicated to "Our Lady of Mount Carmel," as a Chapel for the Carmelites or Whitefriars—who in 1314 had been granted Beaumont Palace as a residence by Edward II.—and which they used until 1541, when the side arches were opened up and the Chapel thrown into the Church. The tower was rebuilt in 1511-31, with stones brought from Rewley Abbey, which was then being demolished. The small figure of the Magdalen on the west side of the tower is also said to have been brought from Rewley Abbey. The north aisle was rebuilt in 1841-42 from designs by Scott and Moffat as part of the memorial to Ridley, Latimer and Cranmer, and is now known as the Martyrs' aisle. In it is preserved the door of the cell in Bocardo Prison, over the north gate of the city, in which the Martyrs were confined prior to their execution. The tower was restored in 1875, and many alterations and improvements have been made to the interior of the Church since. The font is an exceedingly good specimen of Decorated work. A very fine carved oak jewel chest of the time of Henry VIII. stands in the Martyrs' aisle. The carved oak reredos, with figures of the Saints connected with the history of the Church, was erected in 1894 from designs by Mr. W. H. Moore, architect, of Oxford. There are old brasses to the memory of Philippa Caxton, 1514, Jane FitzHerbert, 1574, a palimpsest, General Smithers, 1580, and Dr. William Smith, Fellow of Merton, 1580. The register dates from 1602. A peculiarity of the Church is that its width is greater than its length.

In conclusion, I have to acknowledge the valuable information I have obtained from the following works:—"The Colleges of Oxford" and "Lincoln College," by Andrew Clark, M.A.; "Balliol College," by H. W. Carless Davis, M.A.; "Early History of Balliol College," by the Baroness de Paravicini; "Oxford and its Colleges," by J. Wells, M.A.; "Historical Handbook of Oxford," by James T. Moore, and the very excellent guide-books by James Parker and E. C. Alden; and personally to the Rector of Lincoln, Mr. W. H. Stevenson, M.A., of Exeter, the President of Trinity, the Master of Balliol, Mr. J. L. Strachan-Davidson, M.A., Rev. Horace E. Clayton, Vicar of St. Mary Magdalene Church, and Mr. Alexander Macdonald, Keeper of the University Galleries, for facilities given the Society to see over their buildings, and for information and assistance given me in preparing my paper.

**The Design** submitted in a recent limited competition for the United Methodist Free church and schools, Westcliffe-on-Sea, by Messrs. George Baines, F.R.I.B.A., and Reginald Palmer Baines, architects, 5 Clement's Inn, Strand, W.C., has been adopted by the committee, and the first portion of the scheme, including church, vestries, &c., is to be proceeded with at once.



## NOTES AND COMMENTS.

ACCORDING to a former secretary of the Italian Embassy in Paris, France is unique in paying higher wages to women as models than to men. By Italian artists masculine and feminine models are paid at the same rate. In Japan, where at last the use of models is becoming more general, the price paid in the principal art school is 6 sen a day for a young child, 40 for a young woman and 60 for a young man—a sen being about an English halfpenny in value. The sum paid to female models in the Ecole des Beaux-Arts in Paris is 36 francs a week for four hours posing on each week-day. The men receive 30 francs and children 15 francs for the same number of hours. In some schools the prices vary according to the time of employment. From eight o'clock in the morning until noon the tariff is 20 or 24 francs a week, and 18 to 20 francs for sittings for four hours in the afternoon. Those who pose from eight to ten at night are paid 12 francs a week. As a rule artists pay a woman 5 francs for four hours and a man 4 francs. There is a regular market of models in Paris every Monday morning from eight to ten, for they may be engaged in the Grande-Chaumière, but in the Place Pigalle models take up positions near the railing of the fountain every day.

A CURIOUS dispute relating to a building is now before the Chancery Division of the High Court. Lord WINDSOR granted a conveyance of part of his property at Barnet Green, Worcestershire. From the purchaser some of the land was bought by Mr. A. J. LEESON. In the deed was a stipulation that no building was to be erected on the land within 60 feet of the boundary. Mr. LEESON explained that he had obtained from Lord WINDSOR's representative permission to build on the land according to the arrangements shown upon a plan which was submitted for approval. Application was made, however, in the Court for an order on Mr. LEESON, his architect, contractor, &c., to restrain them from erecting any building on the ground without written authority. Mr. Justice KEKEWICH, who heard the application, recognised its difficulty, for his Lordship said if he granted the injunction it would stop the building, and put the defendant in a very awkward position, because he had entered into a contract for building and might be liable to damages. If, on the other hand, he did not grant an injunction defendant would go on building at his own risk, and he would have an opportunity of hearing a little more about the matter later on. He thought the better plan would be to leave the parties to take such steps as they were advised, and to make no order except that the costs of the motion be costs in the action.

ALTHOUGH MILLET, the painter of the *Angelus* and other scenes of peasant life, was supposed to have renounced the vanities which were believed to be fatal to artists in Paris, he was not less anxious about his fame than any fashionable portraitist. Some curious letters from him exemplifying his desire to be valued as a master have appeared in the last part of the *Gazette des Beaux-Arts*. They were written to ALFRED SENSIER, a journalist, and contain suggestions about articles to be written in favour of MILLET. It was pointed out by the painter that his peasants differed from COURBET's, because he possessed a more close acquaintance with life in the fields and huts. He looked on himself as belonging to the class of men who were decreed long ago to eat their bread in the sweat of their brows. The explanation of his (MILLET's) position in art was more deserving of attention by a skilled and honest writer than any of those subjects which trouble opinion instead of guiding it. MILLET said he was without any pretension to be taken for a standard-bearer in art, but he had also resolved to avoid enrolling himself under another man's standard. He was not desirous to be assimilated with anybody, or to walk in others' footsteps, and he had within him the motive power to secure consistency. The honest acknowledgment of his feelings will make many understand MILLET's simplicity and resolution.

It does not take much at the present time to put a stop to building in a town, and local authorities should remember that fact when they are arranging by-laws. In South Shields a proposal that in small houses there should be a space of 20 feet between the staircase and the wall of

the back-yard has raised an obstacle to the entering into building contracts, causing many men to be without employment. At the present time it appears there is no building estate in South Shields in which the distance between the two points is 20 feet. What is desired by the builders is that the measurement should be taken as the distance to the centre of the back street. It is the duty of a local authority to endeavour to raise the character of the town, and it would be an advantage if a distance of 20 feet between the staircase and the end wall could be found in all houses; but land has been purchased and various arrangements made about building on the assumption that a lesser distance will be approved. It ought to be a general rule that when such important alterations are in contemplation notices should be given in order that builders and speculators may not be taken unawares.

A SUM of 35% is of little importance to a firm such as Messrs. JOHN AIRD & SON, but for the principle involved the claim was worth contesting. The case should be taken as a warning by all contractors who have to dig trenches in roads or streets. In April last Messrs. AIRD were laying gas mains in Brighton. According to the Act relating to such work, trenches are to be fenced and guarded. It happened, however, that one of the trenches was only fenced on three sides. On the day in question a farrier's son brought back a cob to its owner, but as the people were not ready to receive it he obtained permission to ride it to Messrs. AIRD's office in order to deliver a bill. There was no necessity for the messenger to become an equestrian in order to give in a bill or to ride bare-backed. He pulled up at the trench. The horse got restive and bounded into the trench at the unfenced side. Now there could be no doubt that the lad was a trespasser, for it is not usual to deliver bills in an open trench when there is an office. On the other hand, there could be no question about the trench being unfenced during a space of five minutes when the accident occurred. The jury gave a verdict to the owner of the horse, and judgment was entered for 35%, the amount claimed, with costs. The moral to be drawn from the proceedings is that it is risky to neglect putting a pole to fence a trench for even a couple of minutes.

THERE will be grand doings in Dublin from August 19 to 26, for it has been arranged that representatives of "the sea-divided Gael" are to meet for the consideration of subjects relating to themselves, as well as to Celtic art and literature. Brittany is to send a numerous deputation, and political and other contests have been suspended in order that the envoys may be worthy of the position of the Bretons. The principal object of the meeting is to demonstrate that the Celt is irrepressible, and can preserve his racial characteristics in spite of all the efforts of the rival Anglo-Saxon and Germanic races. It is to be regretted that before so opportune an occasion presented itself such critics as MATTHEW ARNOLD and ERNEST RENAN have passed away, for their counsel would have been invaluable. During the whole of the nineteenth century there were no men who did so much to claim consideration for the Celtic element in art and literature.

## ILLUSTRATIONS.

SCREEN, JESUS CHAPEL, WORCESTER CATHEDRAL.

LONDON AND COUNTY BANK, LITTLEHAMPTON.

THIS bank, which is the principal architectural work in the town, is of Portland stone and red brick, roofed in green slates, copper roof to turret. The bank fittings, screens, &c., are of fumigated oak, the ceilings being of carton pierre. The building was erected by Mr. WALTER WALLIS, of Balham, from the designs of Mr. FREDERICK WHEELER, F.R.I.B.A., 6 Staple Inn, W.C., and Horsham.

THE LIBRARY, FREEMASONS' HALL.

NEW HOUSE, SHARNDON, NEAR MAYFIELD.

NOS. 6, 8 AND 10 WIGMORE STREET, LONDON, W.

CATHEDRAL SERIES.—CHICHESTER: TRIFORIUM, SOUTH-WEST TOWER. LOOKING UP THE SOUTH-WEST TOWER.



# BRITISH ROYAL PAVILION, PARIS EXHIBITION, 1900.\*

THE arrangement adopted in the Exhibition of 1900, of grouping the exhibits by classes, instead of, as had previously been done, by countries, entirely altered the rôle of the national pavilions. In former exhibitions the pavilions were little more than ornate kiosks, which served as the administrative offices of the national commissions. In 1900, there being no comprehensive national sections, and consequently no positions appropriate for the pavilions amidst the exhibits, the administration of the Exhibition resolved to group them together, so as to form a street—the Rue des Nations—and required that the buildings should be of a more important character than it had previously been the custom to erect. Their views having been transmitted to the Royal Commission, it was decided to entrust the execution of the project to a special committee, and the following members consented to serve:—Major-General Sir Arthur E. A. Ellis, K.C.V.O., chairman; Baron Ferdinand de Rothschild, Sir William Agnew, Bart., Sir John Murray Scott, Bart., Professor G. Aitchison, R.A., president of the Royal Institute of British Architects, Mr. C. Purdon Clarke, C.I.E., and Colonel Sir Herbert Jekyll, K.C.M.G., secretary of the Royal Commission.

The committee met for the first time on May 18, 1898, and Mr. H. Thomson Lyon, F.S.A., was appointed honorary secretary.

In January of the following year the committee had to deplore the loss, by death of one of its members, Baron Ferdinand de Rothschild. The names of Sir Charles Tennant, Bart., and Mr. Montague Guest were subsequently added to the list of the committee.

The reference to the committee was as follows:—

"A site measuring 25 m. by 28 m. 50 on the Quai d'Orsay has been reserved for the British pavilion.

"The main conditions imposed by the French authorities are:—1. That the building should be characteristic in style; 2. That it should be attractive to the public; 3. That it should not be used as an office.

"It is proposed that the British pavilion should take the form of an Elizabethan or Jacobean house, fitted up and furnished like an English country house of the present day, and with selected furniture of British and Irish manufacture of different periods, and with a few fine works of art.

"Decorators and manufacturers of furniture and building appliances would be given opportunities of contributing, and their contributions would be regarded as exhibits.

"It is further proposed to take as a model for the exterior a house at Bradford-on-Avon, built at the beginning of the seventeenth century. The interior would be arranged to meet the special requirements of the case.

"When the Prince of Wales is in Paris the pavilion would be reserved for the use of His Royal Highness during the hours the Exhibition is open. On other days it would be open to the public under regulations to be decided upon.

"The attic storey might be approached by a separate staircase and made available for the use of the jury and of members of the Royal Commission.

"There would be a restaurant in the basement.

"It is proposed to empower the committee to appoint an architect and an hon. secretary, and to direct them to prepare a report, with plans and estimates, for the consideration of the executive committee.

"The committee should be authorised to engage the services of a French architect, who would be associated with his English colleague."

The committee, with the advice of Professor Aitchison, secured the services of Mr. E. L. Lutyens as architect.

The site of the pavilion presented unusual difficulties. A tunnel passed through the centre, the covering of which was not sufficiently strong to bear the weight of a building such as it was proposed to erect, and on the river side the newly-constructed quay was of too unstable a character for ordinary foundations. The great value of the loan collection, which it was intended to place in the pavilion, led the committee to decide that the building must be as nearly fireproof as possible, and Sir Benjamin Baker, K.C.M.G., who was consulted, kindly favoured them with his assistance by designing a steel structure resting on piles 30 feet in length on the quay side, and, spanning over the tunnel without touching it, on to the solid ground beyond.

The preparation of plans was at once commenced by the architect, and the co-operation of leading firms of decorators and furnishers of domestic appliances was sought. On January 24, 1899, the committee were able to submit their proposed plans to the Administration, whose assent was received on February 11, 1899, but the formalities were not completed, and the ground was not formally handed over to the British Commission till the month of May. The loss of three months,

due to the delays of the Administration, was of serious consequence, as it made it impossible to finish the building before the commencement of winter, and added materially to the expense.

At this time the pressure in the steel trade in England made it a matter of the utmost difficulty to secure the execution of orders, and as the construction of the pavilion presented many peculiarities and time did not admit of the preparation of detailed specifications, the committee determined to avail themselves of the services of Messrs. John Aird & Son, who had kindly signified their willingness to erect the building at cost price.

The work was pushed forward as rapidly as possible, Messrs. Aird keeping a permanent representative at the works of the Thames Ironworks Company, who supplied the steel framework, to insure the prompt despatch of the different portions as they were completed. Essential portions, however, were not delivered within the stipulated time, and mistakes in manufacture were made which necessitated alterations on the spot, so that the framework was not completed until January, 1900.

The decorators also were somewhat behindhand, the decorating trade was extremely busy at this period, and there was a not unnatural tendency on the part of exhibitors to set aside exhibition work in favour of other contracts. The Commission used their influence as far as they could, but they felt that undue pressure might lead to the withdrawal of exhibitors, whom it would be impossible to replace at so late a stage. The exterior of the building was completed by April 15, the interior soon afterwards, and the works of art were placed in position by May 19. The press were admitted on the 23rd and the official inauguration took place on the following day.

The pavilion, which stood on an arched terrace rising from the lower quay, represented a stone Jacobean country house of two storeys and an attic. The north or river side was an adaptation from the south façade of The Hall, Bradford-on-Avon, built at the beginning of the seventeenth century, the south side was adapted from another house of the same period, and the remaining sides were designed in the same style. The river face was broken by three deep bays surmounted by gables, and the south side also by three bays terminating in turrets. The principal entrance was in the centre of the south side, and was approached by a double winding staircase. Sculptured balustrades and heraldic animals ornamented the roof, from which rose stacks of twisted brick chimneys. The framework of the building was constructed of steel and weighed 310 tons, and the external walls were composed of plaster over expanded and corrugated sheet metal. The floors were of concrete, so that, with the exception of the panelling and staircases, practically no wood was used other than the battens necessary for attaching the internal ornamental work. The exterior was painted to represent weathered stone, and, although there was some difficulty at first in obtaining the proper colouring, the effect when completed was sufficiently realistic. Lead rain-water pipes with ornamented heads were fixed on each side of the building.

Externally the pavilion suffered in appearance from two causes. It happened to be situated between two others of much greater height, so that it was somewhat dwarfed, and it lost much by being divorced from its natural surroundings of park and terraced garden, but it had a quiet dignity of its own, and in spite of the unfortunate accident of its position, it compared favourably with its more florid neighbours.

The interior may be best described following the route taken by visitors. Entering by the south porch in the Rue des Nations, the entrance hall was reached. This apartment, 38 feet in length, with a projecting bay at the south-west angle, was paved with large squares of black and white marble. The walls were panelled in oak to a height of 4 feet, and above the wainscoting were hung four pieces of tapestry, designed by the late Sir E. Burne-Jones, which were most kindly lent to the committee by Mr. G. McCulloch, and were for the purpose removed from the walls of the room in his own house which they served to decorate. This tapestry was greatly admired by French artists. The spaces between the tapestries were filled with trophies of English arms and armour, lent by Mr. Seymour Lucas, R.A. The room was furnished with original oak tables of the period lent by Mr. W. Robinson, and a modern carved and inlaid chair lent by Mr. W. Strang Steel. Stained-glass windows, designed to match the tapestry, were lent by Messrs. Morris & Co.

Opening out of the hall was the library, which was completely decorated and furnished by manufacturers of the city of Bath, under the directions of Major Davis, F.S.A., city architect. From the hall visitors passed through a panelled corridor containing a collection of mezzotints (lent by Lord Cheylesmore) to the saloon. To the right of the saloon was the dining-room, and to the left the drawing-room. These three rooms were all panelled in oak and had decorated plaster ceilings. The walls of the drawing-room were hung with red silk damask above the oak dado, and the ceiling with its heavy

\* A report by Major-General Sir Arthur E. A. Ellis, K.C.V.O.



pendentives was a reproduction of one at Broughton Castle. The windows were partly filled with stained glass, and Messrs. John Broadwood & Sons exhibited in this room a grand piano-forte, the outer case of which was designed by Mr. Lutyens.

A door at the further end of the drawing-room led to the principal staircase, the floor of which was paved with Opus Alexandrinum. The staircase, with its screen in two tiers of triple arcades, was made of oak, and the windows were filled in with stained glass of heraldic design.

On the first floor the long gallery, 70 feet in length, was an adaptation of the cartoon gallery at Knole. From the long gallery an archway opened into the china closet, which contained a collection of old English porcelain, and passages gave access to a bathroom, two completely furnished bedrooms and a dressing-room. After passing through these, the visitors descended by the secondary staircase and quitted the building by the west door.

A door on the east side opened into a small lobby, which was used as a *poste restante* for British visitors. This lobby gave access to the stairs leading to the Commercial Information Offices on the upper floor and to the south-east room on the ground floor, which was fitted up as a writing-room for the use of the Royal Commission.

The principal rooms were fitted up and furnished by the following exhibitors:—Messrs. Arrowsmith & Co., entrance hall; Henry Bertram & Son, dining-room; George Jennings, lavatory; Collinson & Lock, saloon; Gillow & Co., drawing-rooms; John Thompson & Co, grand staircase; S. J. Waring & Sons, long gallery and china closet; Doulton & Co, Ltd., bathroom; Bromsgrove Guild of the Applied Arts, south-east bedroom; Johnson & Appleyards, Ltd., south bedroom and dressing-room.

The other exhibitors who contributed were:—Ames Lyde, Elsum & Co., casements, door furniture, lanterns; Anderson, Anderson & Anderson, indiarubber door mat; G. P. Bankart, ceiling in entrance hall and south-east bedroom; W. A. S. Benson & Co., electric light fittings; Burt & Potts, casements and glass of saloon and exit stairs; Chubb & Sons, all interior locks; Elkington & Co., electrotypes reproductions of the Knole silver sconces, chandeliers and mirror frames; Gooddy, Cripps & Sons, Ltd., marble pavement in entrance hall; J. & W. Guthrie and Andrew Wells, Ltd, windows in stained glass in dining-room; Henry Hope & Sons, Ltd., metal casements in south-east bedrooms; Arthur Lee & Bros., Ltd., marble tile pavement in staircase hall; Longden & Co., enamelled bronze fire-dogs in entrance hall; National Accident Prevention Window Company, casements in entrance hall; Needs & Co., exterior locks and safes; J. Pain & Sons, flags; Royal School of Art Needlework, embroidered hangings and furniture covers in south bedroom and dressing-room; W. Smith, casements and stained-glass windows on grand staircase; Starkie Gardner & Co., fire-dogs, hinges and door furniture, electrolier; Treloar & Sons, fibre door mat; Wall Paper Manufacturers, Ltd., Anaglypta ceiling of grand staircase; George Wragge, leaded and stained windows and casements in drawing-room.

Visitors were much impressed by the excellence of the materials and workmanship of the internal fittings, which were in striking contrast to the temporary character of the imitations which did duty in most of the other pavilions. The absence of ostentation, the sober richness of the oak woodwork, the appropriateness of the decorations, the sense of style, the air of comfort, and the palpable solidity of the whole structure were peculiarly English, and made a marked impression, especially upon the French visitors, who were loud in their praises.

It was the intention of the committee to use the pavilion for the display of the best procurable specimens of British furniture and works of art, and they deemed it expedient to confine the collection to pictures of the eighteenth century and early part of the nineteenth, partly in view of the limited space at their disposal, and partly on account of the exceptional interest which the British school of that period excites in France at the present time. The only exception which they made was in favour of the works of Sir E. Burne-Jones, five important examples of which were shown together in the saloon. The collection, of which a complete list is annexed, comprised forty-five pictures of Hogarth, Sir Joshua Reynolds, Gainsborough, Romney, Morland, Raeburn, Hoppner, Sir Thos. Lawrence, Opie, Constable, Bonington and Turner. This collection was obtained by loan. H.R.H. the Prince of Wales took a strong personal interest in the project, and addressed letters, signed by himself, to the owners of valuable pictures requesting them to lend their works for the period of the Exhibition. But for this action on the part of His Royal Highness it is doubtful whether it would have been possible to form so remarkable a collection in the circumstances which prevailed at the moment. The committee were very sensible of the generosity of those who consented to deprive themselves of their treasures for no less than seven months. They omitted no precaution to insure the safety of the pictures committed to their care. They adopted a system of construction which

they believed to be absolutely fireproof. They forbade any form of heating apparatus in the house, and the use of artificial light. They caused the pictures to be packed and transported in the safest manner, and they insured them for a large sum. These and other precautions which they thought it expedient to take were doubtless reassuring to the lenders; but the committee were none the less grateful to them, and desire to take this opportunity of recording their thanks for the assistance and co-operation of those through whose liberality they were enabled to make a display of British art which was admitted to be the most striking feature of the British section, and one of the most attractive in the whole Exhibition. Her late Majesty the Queen was graciously pleased to contribute two portraits of the highest importance to the collection, a circumstance which was keenly appreciated by French visitors, to whom the pavilion and its contents were little less than a revelation.

The collection, packing and transport of the collection were carried out under the supervision of Messrs. Thomas Agnew & Sons. The pictures were collected from their owners and received at Messrs. Hudson's repository at Wilton Road in a room exclusively reserved for the purpose. They were there packed in cases and placed in three box vans and despatched to Paris by passenger train via Folkestone and Boulogne, a foreman of Messrs. Hudson's travelling through the whole way without leaving them. The pictures arrived in Paris on May 1, and the hanging of them was completed, under the personal supervision of Sir William Agnew, to whom the committee are specially indebted, by May 19.

The cases were stored in the basement of the building to prevent the possibility of delay at the close of the Exhibition, and the pictures were finally despatched from Paris on November 12 in the same manner that they had been sent there. It is gratifying to be able to record that the loan collection was returned to its owners without a single item of damage. The whole collection was insured against all possible risks from the time the works left the possession of their owners until they were restored to their care. The premiums represented a considerable proportion of the expenditure in connection with the pavilion, as the sums insured amounted to no less than 241,080*l*.

With the consent of the Home Secretary, the Chief Commissioner of the Metropolitan Police placed an inspector and six constables at the disposal of the Royal Commission for duty in the royal pavilion. On May 19 the detachment under Inspector Hogbin, of B Division, arrived in Paris, took over the charge of the building and its contents, and maintained a continuous service night and day from that date until the works of art were despatched on their return journey on November 12. A flat was secured in the immediate neighbourhood of the Exhibition, where the police were lodged together. Several of the constables spoke French well, and their unfailing courtesy and patience in dealing with the large crowds who passed continuously through the pavilion evoked general admiration. The police wore their ordinary uniforms, and were a source of much interest to foreigners, while their familiar appearance seemed to give great satisfaction to English visitors. In addition to his other duties, Inspector Hogbin undertook the superintendence of the cleaning of the building.

Besides the English police, French guardians were employed for watching and cleaning. Although more were employed at the beginning, it was found later on that four guardians and a brigadier sufficed. A mason and carpenter were also engaged to execute necessary repairs and alterations and to act as guardians when not otherwise occupied. They all did their work in a most satisfactory way, and credit must be given to the brigadier, Monsieur Louis Lantheaume, a retired police officer, for the tactful manner in which he regulated the duties of his men and prevented friction between them and the other employés. In addition, the Corporation of the city of Bath kept an attendant in the library to explain their exhibits, and Messrs. Waring & Sons, Messrs. Johnson & Appleyards, and Messrs. John Broadwood & Sons had representatives more or less continuously in the pavilion.

The arrangements for the admission of the public were as follows:—The pavilion was open every day, except Wednesdays, from 10 to 12.30 A.M., to visitors provided with cards of admission, obtainable on application at the offices of the Royal Commission in the Avenue de la Bourdonnais. The fact of having to go outside the Exhibition was sufficient to deter the bulk of the public from applying for cards, and the number who thus visited the pavilion in the mornings did not, as a rule, exceed four hundred. Permanent tickets giving admittance in the morning were also issued. The restricted numbers and absence of crowding in the morning were much appreciated by those who desired to make a serious study of the loan collection and exhibits. In the afternoon the pavilion was open without restriction every day, except Wednesday and Sunday, from two till six. The public were admitted in batches of fifty, and it was found possible to admit as many as six thousand visitors a day without overcrowding. Although



there was usually a considerable queue of visitors outside the door, it was seldom necessary to keep them waiting more than three minutes. The total number of visitors during the continuance of the Exhibition was 608,976. After practical experience of the working of these arrangements, it is doubtful if they could have been improved upon. Although the pavilion was closed to the general public between 12.30 and 2 o'clock, the hon. secretary was in attendance to show special visitors over the building, and on Sunday afternoon the police inspector (and usually the hon. secretary) remained on duty for the same purpose.

The committee being debarred by the terms of their insurance, and the pledge given to the owners of works of art, from permitting any fires or heating apparatus within the building, it became impossible to use the basement for a restaurant, as was done in the other pavilions. A portion of the basement was utilised as a fire station, and Messrs. Merryweather & Sons installed there one of their latest pattern steam fire engines, which was kept ready for instant use, so that in case of any failure of pressure in the fire mains, the engine could be run out on the quay and draw its supply from the river. Fire hydrants with hose attached were placed on each floor of the pavilion, with hand pumps and buckets at numerous points. Appliances were also provided for adapting the English to the French hose junctions. All these appliances were under the charge of two English firemen, one of whom was on duty night and day. The whole staff were instructed in the use of the simpler apparatus. Messrs. Merryweather's engineers, Mr. Lock and afterwards Mr. Allen, were frequently in attendance, and were at all times ready to give any assistance that might be required.

Following the example of the International Fine Art Section, the pavilion was not lit at night, but electric lamps were placed in all rooms to obviate the necessity of the watchmen carrying lanterns at night, and also in the stairs and passages, as these required artificial lighting towards dusk during the closing months of the Exhibition. As the exterior architecture of the building did not lend itself to illumination by rows of lamps, as in the case of most of the other pavilions, Bengal flames were burnt on the terrace so as to light up the river front whenever general illuminations were ordered.

All the foreign pavilions were closed one day a week for cleaning and repairs, and as Wednesday was the day selected for the Royal Pavilion, the British Commissioner took the opportunity, with the approval of the committee, of giving receptions from time to time. The number of guests varied from three to seven hundred on each occasion mentioned in the following list:—

May 23.—Press view.

May 24.—Official inauguration.

June 13.—British Chamber of Commerce in Paris and members of the British colony resident in Paris.

June 27.—Members of the International Jury on Fine Art.

July 25.—The Welsh choir visiting Paris.

August 22.—A reception given by the President and Council of the Institution of Electrical Engineers to their American and Continental colleagues.

September 5.—Delegates of the Associated Chambers of Commerce of Great Britain.

September 19.—Iron and Steel Institute of Great Britain and members of the International Railway Congress.

October 3.—British exhibitors.

October 24.—Farewell reception.

The formation of a Commercial Information Office, under the direction of a joint committee of the Royal Commission and of the British Chamber of Commerce in Paris having been decided on, an order was received on April 25 to construct a set of offices for its use in the upper storey of the pavilion. This work was carried out by French contractors under the supervision of the hon. secretary of the Royal Pavilion committee, and was completed, including decoration and furnishing, by June 1. Rooms were also placed at the disposal of jurors for their consultations, a courtesy which was much appreciated, and similar accommodation was afforded to committees of the various congresses.

An extract from the British official catalogue, giving a list of exhibitors and of the loan collection, preceded by a brief description of the building, was prepared, and many thousands of these were distributed gratuitously to visitors.

All exhibits in the Royal Pavilion were eligible for awards in the same manner as those shown in other parts of this Exhibition, and the awards to the pavilion exhibitors were satisfactory on the whole. A grand prix was awarded to the architect, Mr. E. L. Lutyens.

The close of the Exhibition was postponed from November 5 to November 12, but owing to arrangements made with lenders it was not possible to keep the pavilion open after the date originally fixed, and the doors were finally closed on Sunday, November 4. The loan collections were despatched a few days later.

On November 13 the exhibitors began to remove their

exhibits, and on December 19 the hon. secretary was able to hand over the shell of the building to Messrs. John Aird & Son, who undertook to remove it and to make good the ground without expense to the committee, retaining the materials for their own use. They further undertook to refund such portion of the octroi dues already paid as could be recovered.

The task of the committee was long and arduous, and was not free from anxiety. They met many times in 1898, 1899, 1900, and their final meeting took place on March 23, 1901. In addition to the formal meetings there were frequently conferences between the members to deal with the numerous and varied difficulties which arose from time to time. They desire to place on record their obligation to Messrs. John Aird & Son for their kindness in undertaking the construction of the building at cost price, and to Sir Benjamin Baker, K.C.M.G., for supervising the design of the steel framework of the structure. To the Department of Science and Art they are indebted for the loan of the reproductions of silver furniture, fire-dogs and chandeliers at Windsor and Knole, as well as for the use of moulds for the ornamental ceilings. To Lord Sackville the thanks of the committee are due for his kindness in allowing the details of the cartoon gallery and staircase at Knole to be copied, and, lastly, to Mr. J. Moulton, the present owner of The Hall, Bradford-on-Avon, for permission to copy the façade of his house, and for the facilities which he afforded for the preparation of the necessary drawings and measurements.

The committee have no reason to be dissatisfied with the result of their labours. The British Pavilion enjoyed perhaps a larger measure of popularity than any of the others, and visitors showed their appreciation by returning again and again.

## ROYAL ARCHÆOLOGICAL INSTITUTE.

THE annual meeting of the Royal Archæological Institute was held last week in Nottingham. The mayor (Mr. F. R. Radford) welcomed the members. He said they would be able to visit Southwell, St. Mary's, Worksop, and Blyth. There were the caves in the Hermitage Grounds. The splendid Elizabethan pile of Wollaton, and Mary Stuart's prison-mansion at Hardwick would awaken memories of the Tudors. Newark and Wiverton would testify to the strife of the Stuart period. Within their own streets he thought that they would find some links with the past still remaining. Their walls and gates had long since disappeared, and even recently the rock dwellings at Sneinton had given way to new railway lines and new roads. But in their modern developments they tried to be not unmindful of old traditions. In the castle the municipality preserved the remains of the stronghold which had borne its part in history from the Danes, the Saxons and William the Conqueror, on through Plantagenet, Tudor and Stuart days, down to the troubled times of the great broadening of the constitution by the first Reform Act.

### Presidential Address.

Lord Hawkesbury, in delivering his presidential address, said it was a great pleasure to him to meet the members on that occasion, and to assure them that he felt highly flattered when the desire was expressed that he would preside over that meeting. Nottinghamshire was very rich in archæological treasures, and there was plenty of food for the historian. They had also the advantage, which some counties had not, of a very excellent county history. Thoroton's work was most excellent, but much remained to be done. For those who had come to Nottingham for the first time, perhaps he might be allowed to enumerate the monastic houses in the limits of the county. Altogether there were about thirty-nine, if the smaller ones were included, as well as the colleges and hospitals. Thirteen were houses of importance. There were no less than five houses of the Augustinian Order—Felley, Newstead, Shelford, Thurgarton and Worksop. There were two Benedictine houses (Blyth and Walling Wells), one Carthusian (Beauvale), one Cistercian (Rufford Abbey), one Cluniac (Lenton Priory), one Gilbertine (Mattersey), and two Premonstratensian (Brodholme and Welbeck). Felley was founded in 1156, and dedicated to the Virgin Mary. Newstead, all Nottinghamshire men would agree, was one of the greatest archæological treasures in the county, and he regretted that it had not been found possible to include it in the programme of their excursions. Newstead was founded by Henry II. in 1190. In those early days the monks were sometimes called of "Sherwood," afterwards "of Newstead," or *de novo loco*. In the second year of Henry VIII. Newstead was granted to Sir John Byron, whose descendants possessed it until 1818, when it was sold by Lord Byron, the poet, on his leaving England, to Mr. Wildman, and subsequently it came to the family of Mr. Webb, whose daughter was its present possessor. Shelford Priory, on the side of the Trent, was founded in the reign of Henry II., and at the Dissolution was granted to an ancestor of the first Earl of Chesterfield. On the death of the seventh earl it passed



to his sister, Lady Carnarvon, whose family still possessed it. Thurgarton, founded about 1130, they would see on the morrow. It was a very interesting remnant, though there was not much of it. The fifth and last of the Augustinian houses was that of Worksop, which was founded in the third year of Henry I. At the Dissolution it was granted in exchange to Francis, fifth Earl of Shrewsbury. Part of it still stood. It was restored about sixty years ago by Sir Gilbert Scott, being one of the earliest of the large churches that he restored. When they saw it they would agree that he (Lord Hawkesbury) might well be proud of his native parish church. This and Thurgarton were under consideration in 1858, when it was proposed to found a new see for this county. Passing to Lenton Priory his Lordship observed that it was founded by William Peveril in the reign of Henry I. It was richly endowed with lands given by people of this neighbourhood, and was dedicated to the Holy Trinity. Part of it was still to be seen in the church of Old Lenton. Of the Benedictine houses Blyth was founded in 1088 and Walling Wells in the time of Stephen. Beauvale, a Carthusian house, was founded in 1344, and Rufford Abbey, which belonged to the Cistercian Order, was founded by the Earl of Lincoln in 1148, for monks brought from Rievaulx. The Gilbertine Priory of Mattersey was founded in 1192. Welbeck was begun in 1153, and was finished in the reign of Henry II. At the Dissolution the site was granted to Richard Whalley of Screveton, and afterwards it came into the possession of Charles Cavendish, the younger son of the celebrated Bess of Hardwick, his son being the Duke of Newcastle, and it passed by marriage to the second Duke of Portland. With regard to Welbeck, the present Duke had told him that since the unfortunate fire which a few months ago destroyed that part of the house known as Lady Oxford's wing, they had come across some vaulting in the lower part of the wing, and he hoped that an expert friend of his might go over and see whether it was a portion of the old abbey. The smaller monastic houses of Bingham, Bradebusk, Clifton, Fiskerton, Marshe, Newark, were referred to, Nottingham (where there were eight), Rodington, Sibthorpe, Southwell, Stoke-by-Newark and Tuxford. The county was equally rich in churches. St. Mary's, Nottingham, was at one time thought of as the seat of the bishop, but finally Southwell was chosen. The county had sustained a great loss by fire in the early part of this year at Sturton. The tower, however, was preserved, although the beautiful old church was completely gutted, including the screen and monuments. The Domestic architecture of the county was equally rich. After mentioning that the stone for building Wollaton Hall was brought on pack-horses from the Ancaster quarries, the speaker concluded by hoping that during the week the weather would be propitious, and that no contretemps would occur to prevent their enjoyment of the beauties in the county of Nottingham.

Sir Henry Howorth proposed a vote of thanks to the Mayor and to Lord Hawkesbury, which was seconded by Mr. E. W. Brabrook.

#### *St. Mary's Church.*

The first visit was to St. Mary's Church, where, prior to an inspection of the building, a paper by Mr. W. Stevenson was read. The site on the top of a precipitous hill, he said, told its own tale of antiquity. Long before Edward the Confessor's time it was a wealthy foundation, endowed with land and houses. In the later days of William the Conqueror, when the rectory was in the holding of Aitard the priest, the church and all its belongings were recorded in the great book of Domesday as being worth 100s. In early times it ministered to the adjoining manors of the Castle and Sneinton, which, combined, formed the central wapentake of the county. With the Norman Conquest the lordship of the old English kings became the lordship of a Norman vassal—the mysterious William Peveril, who was seated with iron hand on the adjoining castle rock. He founded the alien priory of Lenton, and as part of the endowment gave this church, by consent of Henry I., with its lands, tithes and appurtenances. The current of its history was here turned, and for fully 400 years the church, with those in the adjoining manors, was in the dead hands of the prior and convent. This, the richest, they took to themselves, and reduced the rectory to a vicarage. The earliest recorded vicar was Johannes de Ely, in 1290, but it was a vicarage before 1234. The last of the long line of priors of Lenton, patrons and rectors of the church, was Nicholas Heth, who, with his brethren, was hanged on the gallows of Nottingham in 1538 for the part they played in the great revolt called "The Pilgrimage of Grace." Queen Elizabeth sold the patronage and rectorial property into lay hands, since which the tithes had been commuted into real estate. The churches which occupied the site down to the Norman Conquest were doubtless largely constructed of wood. The town was burnt in 1140, when it was recorded that the churches were burnt along with great numbers of people who had taken refuge therein. There were some deep caves in the rock under the church, partly accessible to-day. It was again burnt in 1153, and a third time in 1174.

There was evidence of an arcaded church in stone being built about 1175, and the rebuilding of a portion of it about a century later, the evidence of this being some late Norman capitals in the foundation of the church, and the remains of an Early English column in the base of one of the piers of the north arcade. These early churches were further represented in the top course of the foundations of the present nave and transept walls. The date of the erection of the present church was somewhat uncertain, there being no documentary evidence. During the continuance of the plague called "The Black Death," six vicars were appointed in five years—from 1347 to 1351. John Leland, the antiquary, was in the church in 1540, and described it as "excellent, new and uniform in work." He (Mr. Stevenson) inclined to the opinion that the date of the erection was about 1380. The church, with the exception of the restored portions, was built of local stone, which, as a building stone, was not quarried in the county at the present time. A controversy had long existed with regard to the chancel, the details of which, though evidently by the same architect, were very poor. Some advanced the opinion that it was later than the west part of the church. He submitted they overlooked the fact that the body of the church would be erected by the munificence of the county gentry and the princely merchants of the town; whereas the erection of the chancel would be dependent upon the patron and rector, the prior of Lenton. He did not think he was far wrong in laying the poverty of the chancel at the door of the prior of Lenton. There was no sedilia, piscina, aumbrey, credence or Easter sepulchre in the church. Inserted in the south wall of the chancel was a fragment of sculpture in alabaster. The subject was a Pope consecrating a bishop. It was found beneath the floor of the church some years ago, and was, no doubt, a portion of the original reredos. Nottingham was an important centre for sculptors in alabaster, and a large business was done all over the country in heads of John the Baptist. Little could be said of the contents of the church. The iconoclasts of the last century destroyed the tombs, spared by the fanatics of the Civil War, of which Nottingham was an important centre, and the church has passed through the fire of a number of "restorations," each in its turn being deemed an improvement. The Mediaeval tombs pictured by our early historians were witnesses of improvement. To them it had largely meant improving off the scene. The first and second earls of Clare, who figured on the side of the king in the Civil War, were buried in the east side of the south transept, but their great tomb, with its storeyed urn and its four mournful obelisks, was gone. The inscribed panels now constituted tablets on the immediate east wall. The west end of the church was entirely rebuilt in 1725 in the Classic style, almost as severe as Newgate Prison, London. The arcades gave evidence that the old front was leaning or falling westward. This endured to his time, and was taken down in the middle of the last century. The present west end, as a restoration of the original one, dated from that period.

#### *St. Peter's Church.*

At St. Peter's Church Mr. Robert Evans acted as cicerone. He said it was to be regretted that there were so few records existing relating to this interesting church, one of the three churches of the three parishes of Nottingham. It was evident from what could now be seen that a much older building had existed on this site. He referred chiefly to the southern arcade, which various authorities spoke of as late twelfth-century work. The early English church of that period had the outline of the roof clearly defined on the eastern face of the tower wall, and there were other evidences in the wall over the arcade referred to. He asked them to note the second pier from the west, which was a massive piece of masonry. From this point the remains of a screen were found during the recent renewals of the floor, probably forming a parclose, and the remains were stumps of the main posts carrying the screen. The remaining piers of the south arcade were of characteristic detail and good proportions. Turning to the northern arcade, several changes had been made. The early English work had all but disappeared, the arches having been raised and some late fourteenth-century work substituted. This again had been mutilated by the erection of a gallery extending over the whole of the north aisle and across the west end of the nave, which galleries were removed in 1884. The clerestory windows were of a debased character, the former ones being traceried and of Perpendicular work. The nave roof was a fine example of the period. It was said that the Strelley family, an old Derbyshire and Notts family, were chiefly concerned in bearing the cost of this work during the Archbishopric of Kempe. Sir Robert Strelley married Isabella, a daughter of the house of Kempe, who died in March, 1488. The roof of the south aisle was of similar detail. Perhaps one of the most interesting discoveries recently made had been the staircase to the rood-screen. When some rather loose masonry had been removed some of the lower and some of the upper steps were found intact, the intermediate steps having been



supplied as now seen. To the left, on the top landing, was a large slab on end, having five incised crosses like unto ancient altars, and probably this was part of one of the old chapels of All Saints or St. Mary's. In the tower there was a fine, well-constructed groined ceiling. Over the opening in the centre was a covering, on which was depicted the emblem of St. Peter, viz. the cross keys and head of a pastoral staff. A few remains of mural decorations, chiefly lettering, were to be seen, chiefly on the wall at the east end of the south aisle. Deering recorded that, about 1739, a vault was being formed at the east end of the north aisle for the Smith family, when a stone coffin was found, as also an encaustic tile bearing the symbols of St. Peter and St. Paul. The bones found in this excavation were believed to be those of John de Plumtree, founder of the hospital bearing that name. The present chancel was, as would be seen, a modern restoration, the chancel of the old church having been destroyed during the Civil Wars at the time when Colonel Hutchinson was governor of Nottingham Castle. Another chancel was built soon after, the north and south walls projecting inwards and partly covering the piers of the great arch, and the ceiling coming nearly as low down as the pier caps. When the building was removed the foundations of the original chancel were discovered and the present walls erected thereon. The Spiritual Court of the Archdeaconry was held up to a recent period at the western end of the south aisle. This court was formerly held in the chapel of All Saints, on the site of the present vestry. Of the tablets or monuments there was but little to be said. Amongst them would be found one to William Cressey, a judge of the King's Bench, Ireland, who died in 1645; one to William Ayscough, 1719, of whom Deering wrote that he first introduced printing into Nottingham in 1710, though some doubt attached to the statement. There was a marble monument in the south aisle to Alderman Trigge, a benefactor to the poor of the parish. The oldest monuments were those to the Lockes and Saunders, 1636. In the restoration of the floor of the church a few years ago, many incised slabs were found covering vaults and graves. A careful plan of these was made and a copy for reference now hangs in the vestry. The dates on the old bells were 1672, 1666, 1635, 1685, with appropriate inscriptions, such as "God save the King" and "God save His Church." These bells had been recast since 1780. The sacramental plate was not very ancient, but quite worthy of inspection. This reminded him that, about twenty-three years ago, his late friend, George Freeth, informed him that he had seen a document by which "in May 7 Edward VI., John Colinson, then mayor, Sir G. Clifton and other King's Commissioners, delivered to Nicholas Cooke, parson of the parish church of St. Peter's, Nottingham, and Thomas Goldrynge and Richard Burton, churchwarden, two chalices, one gilt the other parcelgylte, with two pattens for the same, for the administration of the Holy Communion, and also five bells of one accord, and a saints' bell all hanging in the steeple of the same church, with a clock in the same, to be safely kept, employed, unembesilled and unsold until the King's Majesties pleasure." Their registers were interesting and worth inspecting. In the year 1572 and four succeeding years there were on an average eighteen baptisms and fourteen burials per annum, the population of the town then being about 2,400. Two hundred years later it was 30,000. There were some interesting records of the Guild of St. Mary and St. George, dated about 1440. They were chiefly accounts of the guild, and could be seen in the vestry. In a contribution of Mr. W. H. Stevenson to the *Nottingham Guardian* in April 1880 an interesting translation had been given relating to an enforcement of the rectory and appurtenances in the time of William of Ruddington, rector of St. Peter's, but it was too long to quote on that occasion. The charities connected with the church for the benefit of the poor were bequeathed by Robert Sherwin, 1638; Anthony Ackham, 1638; William Skeffington, 1634; Manners, Jackson Boycroft, Robinson, Wyer, Rowan, Sanderson and others of the present value of nearly 240*l.* per annum.

#### *The Castle.*

The next place visited was the Castle, where Mr. E. Green read a paper recalling the salient features of interest in connection with Nottingham's ancient fortress, from the earliest times of the Danish invasions down to the date of its being dismantled during the period of the Commonwealth. Up to the time of William the Conqueror, Mr. Green pointed out, the Castle consisted merely of moated ground. There was no mention of a castle in Domesday. The first absolute date which he could find was 1131, when two shillings were spent on the chapel. Mr. Green dealt extensively with the part which the Castle played in the Civil War, and mentioned the different accounts given of the raising of his standard by Charles I. In 1651 the Parliament commenced destroying all castles, and that year an order was received by the mayor ordering the Castle to be destroyed by November 16, which was accordingly done.

The members inspected the various objects of archaeological interest, including the lodge and Mortimer's Hole. Sketches of the Mediæval building were furnished to each member of the party.

At the evening meeting a paper was read by Mr. A. F. Leach, F.S.A., on "The Ancient Schools of Nottinghamshire," and a paper on "The Church Bells of Nottinghamshire," by the Rev. Canon Raven, D.D., F.S.A., was taken as read.

#### *Southwell and Thurgarton.*

On the second day a party, under the presidency of Sir Henry Howorth, made a journey to Southwell. The ruined Manor House, known as the Episcopal Palace, was visited. The Rev. R. E. Smith, minor canon of Southwell Cathedral, acted as guide. Proceeding up the grand staircase of the partially restored ruin, the members assembled in the banqueting-hall. Canon Smith pointed out that there was little or nothing in the way of ancient records to guide the student of antiquities in the compilation of the history of the place, and the only aids to conjecture as to its original form of architecture lay in such fragments as remained of this fine Domestic building. As to the date of erection, the time could be placed with certainty in the fifteenth century, the work having been undertaken by succeeding archbishops of York of that period, a fact which was commemorated in the partial restoration of the building by the large window at the western end of the hall in which they were assembled, wherein were emblazoned the arms respectively of Archbishops Jno. Kempe, Geo. Nevile, Wolsey and Thos. de Corleridge. The restoration of the ruin, so far as it had been carried out, had been done through the private munificence of the late Dr. Trollope, Bishop-Suffragan of Nottingham, who also bought the plot of land adjoining and presented the whole to the see of Southwell. Dr. Trollope had also presented the portraits which adorned the walls and the window he had referred to, which was generally admitted to be one of the finest specimens of heraldic glass extant. The roof of the hall, prior to restoration, was almost the same as now, very little of it requiring renewal, but across the hall a wall of later addition had had to be removed to bring back the original form of the chamber. The portion of the hall on the western side of this partition had been used for various purposes—at one time as a court for the local justices, and at another time as a school—whilst the other end was part of a private house, there being a large stack of chimneys in the centre, which had to be removed during the work of restoration. The supposition that the archbishops of York were at one time in settled residence at Southwell was proved by the fact that no less than four of them had died there between the tenth century and the reign of Queen Elizabeth. The Chapter of Southwell was safeguarded in the enjoyment of various privileges by Papal bull from all outside interference, even by the archbishops. Indeed, the chapter was one of the most independent in the country, discharging duties of civil as well as ecclesiastical jurisdiction, and even down to fairly recent times the magistrates of the locality were nominated by the Archbishop of York instead of by the Lord-Lieutenant of the county.

#### *Southwell Cathedral.*

The party next proceeded to the cathedral. The exterior was examined, under the guidance of the Rev. G. M. Livett.

Commencing at the west front, Mr. Livett observed that there might be differences of opinion as to the effect of the restoration of the spires on the western towers from an æsthetic point of view, but the restorers were in all probability correct in the opinion that the towers had been thus brought back to their original form, and the slight cant in the spires was on the authority of a sepia drawing of the edifice by Turner, a copy of which he handed round for inspection. They would notice that the towers grew more ornate towards the top, the idea being to attract the eye upwards in order that the horizontal lines of the structure might not hold down the line of vision too much. The two windows, in Norman style, in the lower stage of the towers ought not to be there, and the innovation was made without authority. Where these windows were now placed there were two very beautiful Decorated windows of the fourteenth century. Of these the one in the north tower was removed in the early part of the past century, when it was thought necessary to strengthen the tower, and the other was taken away about forty or fifty years ago, the pair being replaced by copies of the other Norman windows at the side. Prior to the replacement of the spires there had been pinnacles of a type copied from the central tower, though how long they had been there it was almost impossible to say, the pinnacles existing at the time of the restoration under the direction of Mr. Christian having replaced others of identical pattern destroyed by fire in 1711. It was probable that similar pinnacles had flanked the gables of the transepts. An interesting point about the general design of this fine Norman building was its austerity; indeed, it was almost Rhine-like with its long lines and rude cable mouldings, but the large Decorated central window should be taken away, mentally, to gain an



idea of the original appearance of the west front. He would draw particular attention to the circular clerestory windows, which were very rare in England.

Canon Smith explained, in regard to the "little stone beasts" which formerly adorned the apices of the gables of the transepts that they had been recovered, respectively, from Lord Aveland's park, near Stamford, and the other from a garden at East Bridgford. One of these was replaced upon the gable of the south transept, but the other was discovered after a modern carving had been put in position, and was now to be seen in the triforium of the transept.

Sir Henry Howorth commented upon the tendency of architects to alter the form of buildings which they restored, with the result that all sorts of falsities and incongruities were perpetrated, and he did not think that this point could receive more appropriate illustration than in the west front of Southwell Cathedral, with its added central window. As President of the Institute he wished to say that archaeologists did not complain of the taste or good intentions of restorers, but they asked that during restoration ancient buildings should not be altered, but simply repaired, in order that they might be preserved in their beautiful entirety to posterity.

Mr. Livett next conducted the party to the chapter-house, a hexagonal building. Proceeding to the east end of the choir Mr. Livett drew attention to the change which had been made in the level of the clerestory string, as shown by traces on the eastern side of the central tower. After pointing out the unique feature in the lower flight of the eastern windows of four windows of the same height, Mr. Livett passed on to the east side of the south transept, where the traces upon the external wall of the former existence of an apsidal chapel were examined. At the western end of the south side of the nave it was pointed out that another chapel, formerly used as a grammar school, had been removed in the process of restoration. In reply to a question Mr. Livett said it was believed that the nebulous moulding in the parapet of the clerestory was original Norman, though it was a most unusual form.

The cathedral was then entered, and while the party enjoyed a brief rest in the nave, Mr. Livett gave an outline of the characteristics of the interior. He said it could be claimed for Southwell Cathedral that it was a very good example of Middle Norman architecture. A curious feature in the design of the interior was that there seemed to be nothing to take the eye upward except the four magnificent arches which supported the lantern tower. As to the period of the erection of the original church, it was a commonly accepted tradition that it was founded by Paulinus, the active missionary of Augustine, who was known, upon the authority of the Venerable Bede, to have baptized converts in the river Trent at no great distance from Southwell. This tradition had received considerable corroboration in the discovery by Mr. William Stevenson, jun., of documentary proof that the shrine of the Saxon St. Eadburh was at Southwell. The foundation of the church was due to the fact that in the early period he had referred to arms were put out by the mother churches to carry on the work, which was increasing beyond their capacity. As to the constitution of the chapter, he might say that there were originally sixteen prebendaries of Southwell, who were canons *ipso facto*, and there would also be about ten priests to perform duties in the chantries. A curious feature in the constitution of the chapter was that there was no dean, the canon who was in his turn residentiary usually presiding during the period of his residence. Until the old diocese of York was subdivided Southwell Minster retained its cathedral status, a position which was restored to it upon the erection of the see of Southwell, when it again became the mother church of a diocese.

The north transept was next inspected, and Mr. J. T. Micklethwaite gave an account of the tomb, with recumbent effigy in alabaster, of Archbishop Sandys, of York, one of the strictest of the Puritan faction of bishops, who died in 1588. In answer to a question as to the original dimensions of the choir, Mr. Micklethwaite said it was probable that the choir had once extended two bays further west, which would bring it westward of the transepts. Mr. Peers described the origin of the Anglo-Saxon fragments to be seen in the north-western corner of the north transept. Mr. Livett then described the choir, drawing attention to the beauty of the rood-screen—a charming example of the Decorated period—and to the fine groining on the western side. The grace of the eastern side of the screen, of which the carving was beautifully restored early in the past century by an Italian artist, was also pointed out, several members concurring in the opinion that the architect responsible for the restoration of the cathedral might have committed an error of judgment in removing the prebendal stalls, which flanked the choir and corresponded in design to the six still remaining. The combination in the choir of the triforium with the clerestory was much admired, but Mr. Micklethwaite commented upon the bad arrangement of the gas-fittings, which are disfiguring the stonework and probably decaying the masonry. The brass eagle lectern, of Flemish work, which was recovered from

a Nottingham pawnshop after being discovered, with its bowl full of documents, in a pond at Newstead, was inspected with great interest, as also were the sedilia to the right of the altar. After this an adjournment was made to the chapter-house. Mr. Livett named 1294 as the date of its erection, and enlarged upon its claims to be regarded as an almost faultless example of the Decorated period, the foliated carving of the capitals being probably unsurpassed, an observation which applied equally to the corresponding carving in the passage which gave access to the chapter-house. This concluded the inspection of the cathedral, and, on behalf of the members of the Institute Sir Henry Howorth thanked Mr. Livett for the ability and geniality with which he had acted as cicerone.

#### Thurgarton.

At Thurgarton the priory church was inspected under the guidance of the Rev. J. Standish. An Augustinian priory was founded by Thurston, Archbishop of York, and in later times it was enriched by additional endowments, Ralph d'Aincourt founding a chantry there in 1431. In 1537, at the time of the Dissolution, a prior and ten canons resigned to the king, the annual income being at that time of the value of 258*l*. The original priory church must have been a singularly fine structure, cruciform in design, and with a nave of seven bays, but of this edifice only the western half of the nave of the north-west tower, of thirteenth-century work, remained, the church having been restored in its present form by Gilbert Scott in 1854. Mr. W. H. St. John Hope also addressed a few remarks to those present upon the constitution of the priory. The crypt, which is the only remaining fragment of the priory, was also inspected.

#### The Calverton Carvings.

At the evening meeting the Rev. A. D. Hill read a paper on "Some Ancient Carvings at Calverton, Nottinghamshire." He said St. Wilfred's Church at Calverton appeared to have been rebuilt in the thirteenth century out of old material, and consisted of a chancel, a nave of the somewhat unusual form of a wide parallelogram, 42 feet 8 inches long and 37 feet 2 inches wide, of one span, and with no traces of any arcades, and a western tower, forming the only entrance to the church. Of the reused stones, the most interesting were to be found high up in the third stage of the tower, embedded as a horizontal course in the inner face of the west wall and bearing representations of the various occupations of the months of the year. Despised by the rebuilders, one at least of the masons at work upon the church felt a tender regard for the old carved stones, for he had built into his work, where few would see and none injure them, eight of the pictured representations which, perhaps, had served to instruct his dull wit and inspire his strong right hand in the old church of his boyhood. Seven of these stones were voussoir shaped, and must have formed part of a band of ornament 9 inches wide on the architrave of an arch with a radius of about 5 feet to their outer edge. The eighth stone had parallel sides, and might have formed part of a vertical continuation of the same band down the jambs of the arch. A ninth stone, also rectangular, was to be seen near the ground in the outer north side of the tower. Each panel had its own border, and a semicircular arch of the above dimensions would give room for the twelve months, with interspaces which might have borne the signs of the zodiac. No. 1 stone (January) was represented by a man seated at a trestle table, which groaned beneath the good cheer of a boar's head and a goose on flat, round dishes, a loaf and a flagon curiously inadequate to replenish the enormous drinking horn which the feaster held in his right hand. His left arm rested on the table and held a knife; his hawk, which the speaker took to be an indication of rank, stood on the edge of the table. No. 2 (February) dull and raw, was humorously illustrated by a man in a hooded cloak and sleeved tunic, seated on a low chair with scroll back and arms, and stretching out his left hand and heavily booted feet to the warmth of a crackling fire kindled out of doors beneath a tree, evidently an evergreen. His favourite bird was also enjoying the blaze, regardless of the danger to his feathers. On No. 3 was a man engaged in pruning a tree or vine with a large knife. At Brookland this subject was allotted to March, and at Burnham to April. No. 4 was a man holding in both hands an implement which might be a hoe, or a crook stick, which he seemed to be using among growing crops. At first this was supposed to represent ploughing, but on clearing away some mortar the upright portion appeared to represent a plant. In No. 5 August was represented by a man stripped to the waist reaping corn with a sickle. A neatly banded sheath stood upright behind him. Nos. 6 and 7 seemed to belong to a single month—September—and represented two men threshing corn with flails. No. 8 was a larger rectangular stone 9 inches by 13 inches, which did not fit into the series of months, and which he suggested might have belonged to the vertical band on the jamb. It was divided into two panels by a horizontal line. The upper compartments showed a knight on horseback, holding the reins in one hand



and stretching out the other with his hawk on it. The lower compartment represented a dog, the body like a greyhound, with a long tufted tail and a large head. It had a hare or rabbit in its mouth. No. 9, being in the outer face of the wall, was so much weather-worn that its subject was nearly indistinguishable. It was about 9 inches by 10 inches, and probably belonged, like the last, to the jamb. Two figures, facing each other with outstretched arms, appeared to be raising something between them, which might, however, be a third figure at a higher level. It might represent the Ascension of the Lord, though it hardly seemed to him (the speaker) to be intended for a religious subject.

#### Alabaster Work.

Mr. W. H. St. John Hope then read a paper on "The Early Working of Alabaster in England." He said that in the *Archæological Journal* for 1853 was a paper by Mr. E. Richardson on this subject, which included practically all that was then known about alabaster. Meantime other evidence had come to hand which throws further light on the industry. Since part of this evidence showed that Nottingham was for a considerable time an important centre for the alabaster trade, the present seemed a fitting occasion for laying the new evidence before them. In the Mediæval period the Nottingham "alabaster men," as well as those of York and Lincoln, of whom they also had evidence, wrought for the most part imagery and tables for reredoses and the like. Nottingham was already famous for reredos work in the reign of Edward III., but he could produce further documentary evidence of quite a century later. For certainly fifty years the image-makers and alabaster men of Nottingham were busily engaged upon images and tables, among which "St. John's Heads" were specially prominent, and these were sent away for sale in large numbers and hawked about the country. He laid some stress on the "St. John's Heads," because the evidence was so cumulative that the examples that remained had come from a common centre, which he claimed was Nottingham. There was evidence of the removal of the trade to Burton and other centres, and with the introduction of coarser stuff, monuments of new forms came into fashion.

Votes of thanks were passed to the authors of the papers, which we have derived from the excellent reports in the *Nottingham Guardian*.

(To be concluded.)

#### LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

THE annual general meeting of the London and Middlesex Archæological Society was held at the London Institution, Finsbury Circus, on Friday. Mr. E. W. Brabrook, treasurer, presided and moved the adoption of the Council's forty-sixth annual report, which showed that, as at the last annual meeting, the members numbered 161. During the year the meetings had been very successful. The Council appealed for an increase of membership, pointing out that there was a noticeable revival of archæological interest among all classes of society in London. The motion was adopted. Dr. Freshfield was re-elected president, and Mr. Charles Welch, replying to a vote of thanks, called attention to the work done by the Society, which by fostering the love of antiquities among all classes of the people indirectly contributed largely to the preservation of objects of interest.

#### NATIONAL PORTRAIT GALLERY.

THE following portraits have been acquired by the Trustees of the National Portrait Gallery during the past few months:—

##### By Donation.

The Right Hon. Sir George Grey, P.C., K.C.B., 1812-98, the eminent colonial statesman; a posthumous portrait, painted by Hubert von Herkomer, R.A., and presented by the Sir George Grey Memorial Committee through the Hon. William P. Reeves, Agent-General for New Zealand. In this case the usual rule as to the expiration of ten years from the date of decease was suspended in recognition of Sir George Grey's great services to the Empire.

Her late Majesty Queen Victoria, an original sketch by Sir David Wilkie, R.A.; presented by the Lord Ronald Sutherland Gower, a Trustee of the Gallery.

George Granville Leveson-Gower, first Duke of Sutherland, K.G., 1758-1833, amateur and patron of art, and, as Earl Gower, noted as being the last Ambassador from the Court of St. James's to the French Court under Louis XVI.; painted by Thomas Phillips, R.A., and presented by the Rev. S. A. Thompson-Yates.

Geoffrey Plantagenet, Count of Brittany, 1158-61, son of Henry II. and heir to the throne of England; a reproduction from an ancient enamel portrait in the Museum at Le Mans, in France; presented by MM. Goupil et Cie.

##### By Purchase.

Benjamin Disraeli, Earl of Beaconsfield, K.G., 1804-81; a miniature portrait, painted in 1829 by Kenneth Macleay, R.S.A.

Sir James Dyer, 1512-82, Speaker of the House of Commons and Chief Justice of the Common Pleas; an old panel portrait, artist uncertain.

George Heming Mason, A.R.A., 1818-72, the well-known painter; painted by Valentine C. Prinsep, R.A.

Cuthbert, Lord Collingwood, 1750-1810, the eminent naval commander; a marble bust, artist uncertain.

George Cruikshank, 1792-1878, artist and caricaturist; a plaster cast from a bust by W. Behnes, R.A.

Edward VI.; a curious portrait in perspective on panel, which was formerly in the collection of Charles I.

A portrait of Sir Anthony Vandyke, by himself, and a small portrait of Prince Charles Edward Stuart have been deposited on loan in the National Portrait Gallery by the Trustees and Director of the National Gallery.

#### SIR T. DREW AND THE NATIONAL MEMORIAL.

IN a letter to the *Irish Times*, Sir Thomas Drew, P.R.H.A., writes:—

The *Irish Times*, at an early stage, showed an interest in the competition by architects for a scheme for the Queen Victoria Memorial in London, and greatly encouraged an Irish one to do his best in a representative character.

The announcement in the London Press given in the *Irish Times* might give the impression that the whole question of the competition is closed. I do not think that the official communication by Lord Esher to myself, of which I enclose a copy, may be so read.

The scheme formulated by the committee, for which designs were invited, consisted of "two main features, namely (1) the monument opposite Buckingham Palace, and (2) the arch or gate next Spring Gardens, to be connected by means of an architectural rearrangement of the Mall, with groups of sculpture at intervals, the whole forming a processional road, &c."

No. 2, practically a separate design, and concerned with Charing Cross more than Buckingham Palace, half a mile distant, was the project involving most skill and inventiveness on the part of the competing architects. Sufficient funds have not yet been subscribed, and Lord Esher's communication states that its consideration is postponed—neither adjudicated on nor abandoned. A statement in the Press that the thoroughfare from Trafalgar Square through Spring Gardens to the Mall must be opened before the Coronation, would suggest that the ultimate design of this project cannot long be deferred for consideration, and it is still an open one.

The money as yet subscribed towards the whole scheme, some £30,000, is no more than to justify the order for the monument already commissioned from Mr. Brock. It is no surprise, and no more than was anticipated, that the very able architect, Mr. Aston Webb, should be selected to advise as to so much as an architect is wanted for at present. It is thus stated in the instructions to competitors:—

"The central group, or groups, are to be the work of a sculptor nominated by the committee, and will have to be arranged in collaboration with him; therefore, any design suggested for these must be considered as only tentative."

The four competitors with Mr. Aston Webb would probably agree that for the special service immediately required the committee have made the most convenient selection in Mr. Aston Webb to collaborate with Mr. Brock, and shape definitely a merely tentative arrangement of roads and approaches round the Palace. It is understood that he of all the five architects is most conversant, from his connection with the official mind of public departments which would be concerned in improvements of Buckingham Palace and its avenues.

It will be observed that the course of placing first in order of merit any one of the competitive designs for the entire project conceived is carefully avoided, and under the circumstances, prudently and reasonably so. That is but postponed for further consideration or public opinion.

(COPY.)

H.M. Office of Works, Westminster, S.W.: July 25, 1901.

My dear Sir,—The committee have selected Mr. Aston Webb's ground plan for the front of Buckingham Palace, and have determined to postpone the consideration of the remainder of the Mall scheme until the amount of the subscriptions to the Memorial Fund has been ascertained.

I must thank you, however, most sincerely for your very fine drawings and plans.—I remain, yours sincerely,

ESHER.

Sir Thomas Drew, P.R.H.A.



## HAMPSTEAD ROAD IMPROVEMENT.

**A**T the weekly meeting of the London County Council on Tuesday the following recommendations of the improvements committee were adopted:—“(1) That, subject to a contribution by the Council of the metropolitan borough of St. Pancras of one-eighth of the net cost of the improvement, application be made to Parliament in the session of 1902 for powers to widen Hampstead Road between Euston Road and Tolmers Square, as shown upon the plan presented to the improvements committee on May 1, 1901; (2) that a clause be inserted in the Bill to provide that the carrying out of the improvement by the Council shall be proceeded with immediately on the Council of the metropolitan borough of St. Pancras giving its statutory consent to the construction of a tramway from the present terminus in Hampstead Road across Euston Road and along Tottenham Court Road to a point near Oxford Street; (3) that exemption from the operation of the 92nd section of the Lands Clauses Consolidation Act, 1845, be sought to enable the Council to acquire, if necessary, only portions of the properties Nos. 26 and 42 Hampstead Road, instead of the Council being required to purchase the whole of the properties in question; (4) that provision be made in the Bill for part of the cost of the improvement to be recovered by means of an improvement charge; (5) that, in connection with the foregoing improvement, the usual practice be adopted of inserting in the Bill a clause to provide that improvements made in lands or premises after July 23, 1901, when the scheme was made public, shall not be taken into account in assessing compensation, if such improvements be made with a view to obtaining compensation or increasing that payable by the Council.”

The net cost of the improvement is estimated at 225,500*l*.

## GENERAL.

**The King** has been pleased to become patron of the Society of Art Masters. When Prince of Wales he honoured the Society by accepting the post of honorary president.

**Lord Kelvin** has presented a beautiful loving cup of antique design to the Clothworkers' Company at the close of his year of office as Master.

**Professor Constantin Cretius**, the German painter and member of the Academy of Arts, died at Berlin on Friday last at the age of eighty-seven.

**Messrs. Greenhalgh & Brockbank**, of Southend, have been appointed architects for the additions to the poor law buildings of the Romford Union.

**The Wallace Collection** will be open on Bank-Holiday, August 5, at 10 o'clock, instead of as usual on Mondays at 12.

**Mr. E. Roscoe Mullins** has been lately commissioned by the Thahore Saheb of Morvi, whose equestrian statue he has now on hand, to execute a statue for him of Queen Victoria. Mr. Mullins has also been commissioned to execute a statue of Her late Majesty for the municipality of Port Elizabeth.

**Mr. Onslow Ford, R.A.**, has presented to the trustees of the Alexandra Palace a cast of his statue of Her late Majesty.

**The Platform** at Winchester for the reception of the bronze figure of Alfred the Great, by Mr. Thornycroft, R.A., is now resting on solid foundations, Mr. Driscoll, of Chiswick, and his men having dug down 23 feet till firm gravel or “ballast” was reached. This done, and the water exhausted by a powerful pump, the concrete has been poured in, and three of the four angles are secured against all sinking, while the fourth angle will shortly be also made fast.

**Mr. Arthur John Evans**, keeper of the Ashmolean Museum, Oxford, whose discovery of the Palace of Knossos has excited universal interest, has received the degree of LL.D. of the University of Edinburgh.

**Mr. Sidney Cooper, R.A.**, had the honour on Tuesday of being presented to the King, as the oldest member of the Royal Academy of Arts, and received from His Majesty the Royal Victorian Order of the Third Class.

**Mr. R. Comber Miller**, mayor of Chichester, has written a poem entitled “David the Broiderer,” which is to be sold for the benefit of the fund for the National Memorial to Queen Victoria.

**The Commons and Footpaths Preservation Society** reported at their last meeting that the Society had received a number of objections to the enclosure of Stonehenge and to the proposed diversion of the right of way running through the remains. Letters from Professor W. M. Flinders Petrie and others were read, urging that steps should be taken to secure the protection of free public access to the stones, and opposing any alteration of the existing roadway. It was resolved to approach the local authorities on the subject, and to make full inquiries as to the effect of the enclosure and proposed alteration.

**The Portsmouth Town Council** have decided to apply for powers to purchase the local waterworks at a cost of a million and a quarter. It is proposed to raise the necessary funds by means of corporation stock, extinguishable by the payment of 42,000*l*. a year for eighty years. The drainage and sanitary committee rejected on Tuesday the borough engineer's scheme for dealing with the drainage of Southsea and coping with the back-flooding nuisance. The scheme would have cost about 130,000*l*., and as an alternative Mr. Murch was instructed to further report upon the scheme he prepared in the early part of last year.

**Mr. A. E. Gough** has been appointed architect of the Lincoln Bracebridge lunatic asylum, which is to be erected at Canwick at a cost of 75,000*l*. Mr. Gough has been authorised to engage a surveyor to arrange the purchase of 60 acres of freehold land, and to proceed with the preparation of the specifications and obtaining bills of quantities for the several works comprised in the approved plans.

**On Saturday** the whole of the south side, from the roof to the ground, of a new Wesleyan chapel that is being built in Fore Street, Totnes, collapsed. Fortunately the workmen had not arrived, and no one was hurt. The chapel was being built at a cost of over 2,000*l*. A recent storm is supposed to be the cause of the collapse.

**The Office of Works** do not propose to erect the stand over the communion table of Westminster Abbey for the forthcoming coronation, as was at first feared.

**The Arbitrators** appointed to consider the amount of compensation to be awarded for the collapse of the passerelle at the Paris Exhibition have decided that the Exhibition authorities are liable. Sums from 40*l*. to 400*l*., in addition to some small annuities of from 8*l*. to 20*l*., are allowed.

**The Ground** occupied by the Paris fortifications is to be levelled and a boulevard constructed at an expense of two million francs. It is believed the Government being unable to dispose of it in one lot to the Municipality will sell it by instalments for building land, the municipality undertaking the expense of roads.

**Mr. Herbert Hammond** has completed his model for the statue of Her late Majesty Queen Victoria, which Lord Ashton is presenting to the town of Lancaster. It will be of white marble, rising to a height of 36 feet. It has been decided to place the statue in Williamson Park, overlooking the borough.

**A Statuette of Apollo** in bronze, standing on a round base of red marble, has been found by the divers at Antikythera. It is perfect with the exception of the right hand, which is wanting, but the divers, in spite of its small size, hope to recover it.

**A Claim** for compensation for damage to Bow Church, Cheapside, from the construction of the Central London Railway, came before the Common Serjeant and a special jury at Guildhall on Tuesday. The jury having adjourned to view the church, it was announced on their return that the case had been settled for 1,000*l*. and costs.

**The London County Council** have voted 15,000*l*. to cover the cost of the foundation of several blocks of working-class dwellings to be erected on the site of Reid's Brewery in Clerkenwell Road, which has been purchased by the Council to provide a portion of the accommodation for those displaced through the Holborn to Strand improvement.

**The Visiting Committee** of the East Sussex Council decided some time ago to proceed with plans and specifications for laying-out and planting the recreation grounds, gardens, &c., of the new asylum, and for that purpose appointed as landscape gardener Mr. William Goldring, of Kew, who has had much experience in works of a similar nature, to advise and prepare plans, specifications and estimates. In the estimate already approved by the County Council there was included a sum of 3,000*l*. for laying-out and planting, and as it would be advisable to undertake a considerable amount of planting early in the autumn, the County Council have authorised the committee to proceed with the work.

**An Important Scheme** for demolishing insanitary property and rebuilding artisans' dwellings on the cleared sites has been formulated by a special committee of the Council of Liverpool. The whole scheme involves a million and a quarter of money, which it is proposed to provide by a sinking fund extending over sixty years, involving an annual charge on the rates of nearly 40,000*l*. The number of houses to be demolished is over 6,000, and rebuilding is to go on at the rate of 700 dwellings yearly, the tenants preferred being those evicted.

**The London County Council** have decided to pay at once a deposit of 3,500*l*., or 5 per cent. on the purchase price of the Marble Hill property. The deposit is paid by the Council only to save the property from being built upon, and the completion of the purchase is conditional upon substantial contributions being received from other local authorities.



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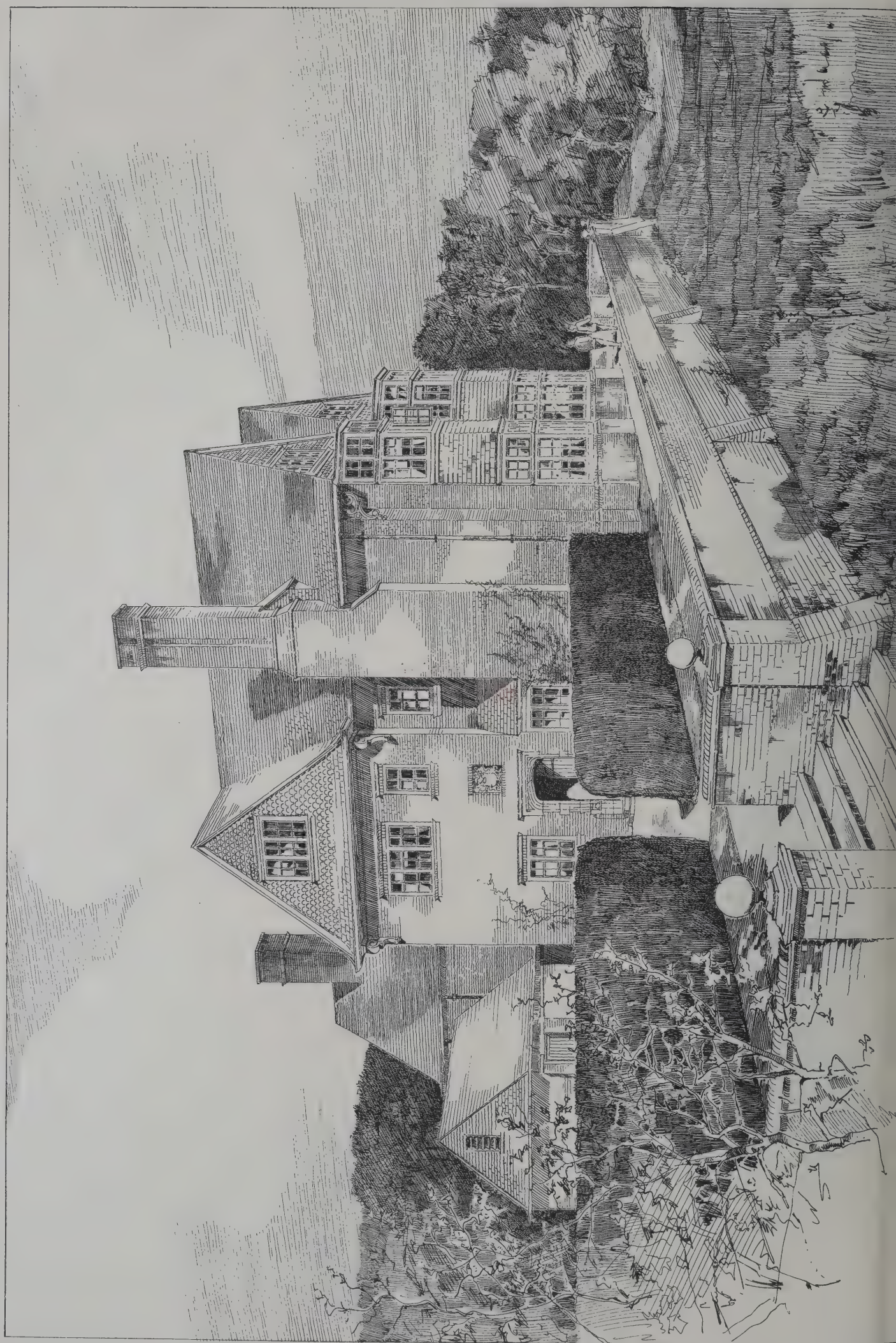
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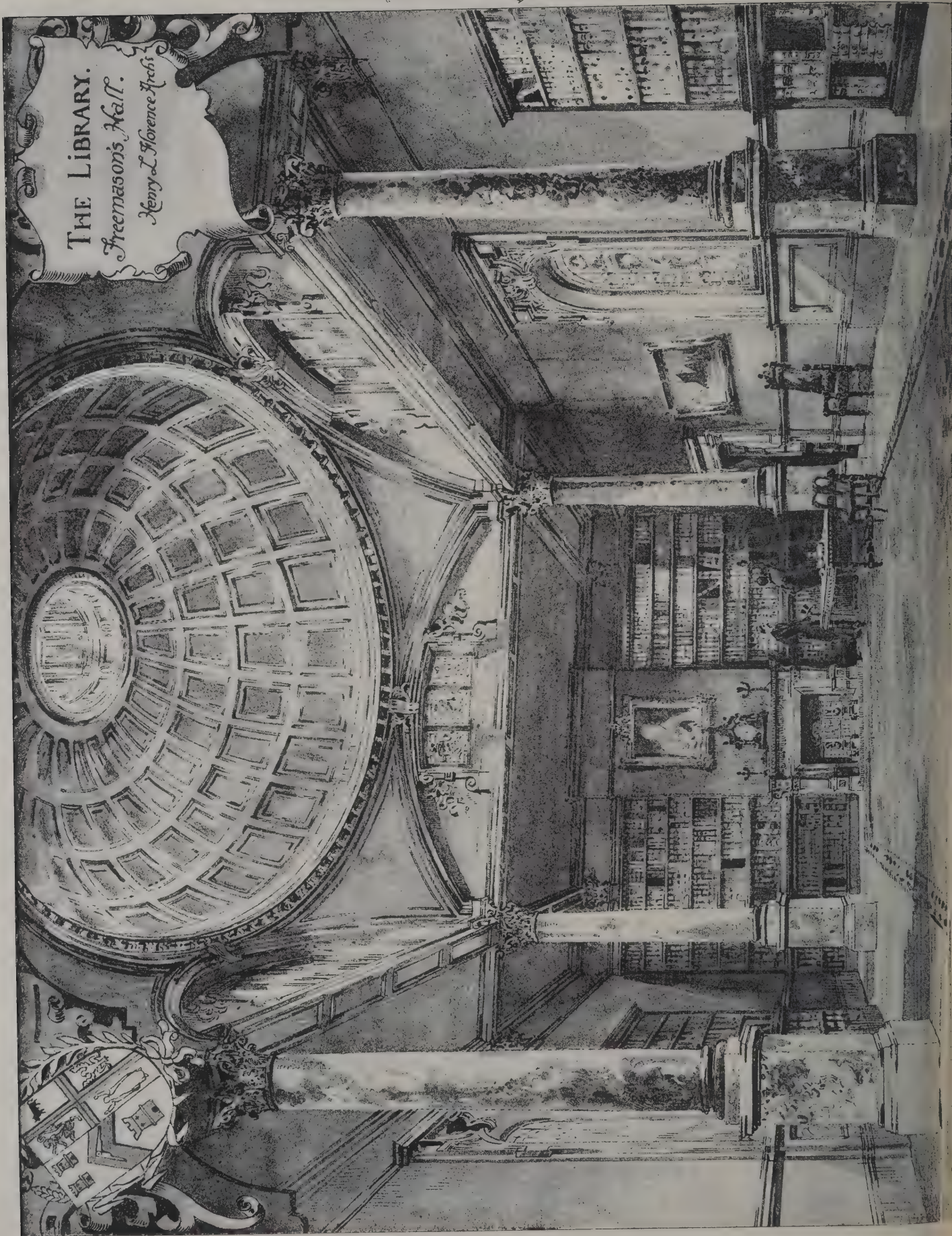
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The Architect, Aug 2nd 1901.







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SCREEN, JESUS CHAPEL, WORCESTER CATHEDRAL.

R. A. BRIGGS, Architect.



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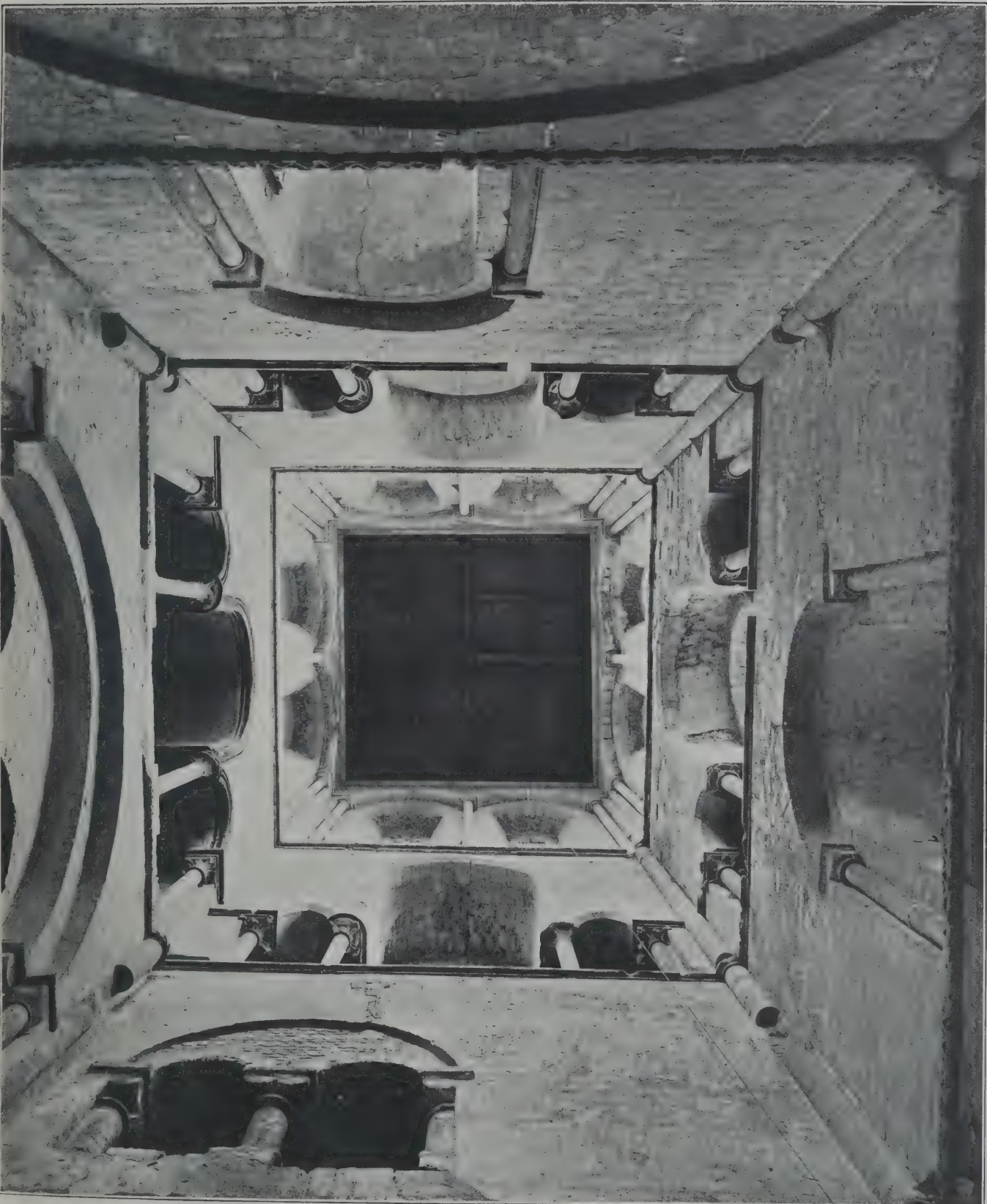








The Architect, August 2, 1901.



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CATHEDRAL SERIES, No. 346.—CHICHESTER: LOOKING UP THE SOUTH-WEST TOWER.







THE

## Architect and Contract Reporter

## EDITORIAL NOTICES.

*In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

## TENDERS, ETC.

*\*\*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

## COMPETITIONS OPEN.

**BLACKPOOL.**—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

**CAMBERWELL.**—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

**CHELSEA.**—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

**PENZANCE.**—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

**SHEFFIELD.**—Aug. 31.—Plans and estimates are invited for the alteration of Eccleshall Church. The Rev. T. Houghton, Eccleshall Vicarage, Sheffield.

**WALES.**—Designs are invited for a chapel to be built at the top of Cathedral Road, Cardiff, at a cost not to exceed 5,000*l.* Mr. Thomas Evans, 102 Cathedral Road, Cardiff.

**WALTON-ON-THAMES.**—Designs are invited for new municipal buildings, fire-station and surveyor's residence. Premiums of 30, 20 and 10 guineas will be given to the three designs respectively considered the most suitable. Mr. Percy H. Webb, clerk to the Council, will supply all information.

## CONTRACTS OPEN.

**ARGENTINE REPUBLIC.**—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

**ASHTON-IN-MAKERFIELD.**—Aug. 3.—For erection of additional retort-house, new coal stores, weighbridge office and culverting brook at the gasworks. Mr. Albert Sykes, clerk to the Council, Council Offices, Ashton-in-Makerfield.

**BATLEY.**—Aug. 21.—For erection of buildings and chimney-shaft for the Corporation electricity works. Mr. J. H. Craik, town clerk, Batley.

**BENWELL.**—Aug. 12.—For erection of the new Benwell Board school. Mr. J. W. Thompson, architect, 63 Gray Street, Newcastle-on-Tyne.

**BIRKENHEAD.**—Aug. 3.—For erection of Board offices, &c., in Birkenhead. Mr. E. Kirby, architect, 5 Cook Street, Liverpool.

**CHELMSFORD.**—Aug. 5.—For repairs, painting, &c., of the Ivy block and the laundry at the union house, Wood Street. Mr. W. W. Duffield, 96 High Street, Chelmsford.

**CHELMSFORD.**—Aug. 15.—For erection of one pair of labourers' cottages at the Hall Farm, Purleigh, and one pair of labourers' cottages at Skinners Wick Farm, Tolleshunt d'Arcy. Mr. F. Whitmore, architect, 17 Duke Street, Chelmsford.

**CHESTER.**—For alterations and additions to business premises, Newgate Street. Messrs. John H. Davies & Sons, architects, Newgate Street, Chester.

**DOWNHAM MARKET.**—For erection of a house at the gas-works. Messrs. Jarvis & Son, King's Lynn, Norfolk.

**DURHAM.**—Aug. 6.—For addition of a clerestory to the parish church of Ackworth, near Pontefract. Mr. C. Hodgson Fowler, architect, The College, Durham.

**FULHAM.**—Aug. 15.—For alterations and additions to the workhouse, Fulham Palace Road, Hammersmith, W. Mr. A. Saxon Snell, architect, 22 Southampton Buildings, Chancery Lane, W.C.

**GRAVESEND.**—Aug. 12.—For erection of electric-lighting and destructor buildings and chimney shaft near the canal basin. Mr. F. T. Grant, borough surveyor, Town Hall, Gravesend.

**GREAT MARLOW.**—Aug. 13.—For alterations and additions to the station buildings at Great Marlow, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

**HALIFAX.**—Aug. 5.—For erection of a boundary wall at Caddy Field. Mr. James Lord, borough engineer, Town Hall, Halifax.

**HEREFORD.**—Aug. 13.—For erection of two officers' cottages and four attendants' cottages on the estate of the Hereford County and City Lunatic Asylum. Mr. Alfred Dryland, county surveyor, Shire Hall, Hereford.

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**HORNCASTLE.**—Aug. 5.—For taking-down and rebuilding the bridge over a stream at Poolham, Woodhall. Mr. Henry White, surveyor, Horncastle.

**HORNINGSHAM.**—For erection of a vicarage, Horningsham, Wilts. Mr. Hans F. Price, architect, Weston-super-Mare.

**HOYLAKE.**—Aug. 12.—For erection of stables, cartsheds, engine-house, blacksmith's shop, general shops and stores on site adjoining the electric-lighting station at Hoylake. Mr. Thomas Foster, engineer, District Council Offices, Hoylake.

**HULL.**—For alterations and additions to 8 George Street. Messrs. Freeman, Son & Gaskell, architects, Carr Lane, Hull.

**IRELAND.**—Aug. 5.—For erection of the first section of a hydro at Strickland's Glen, Bangor. Mr. John Russell, C.E., architect, 22 Waring Street, Belfast.

**IRELAND.**—Aug. 6.—For erection of an addition to the infirmary (male side) at the workhouse. Messrs. Young & Mackenzie, engineers, &c., Belfast.

**IRELAND.**—Aug. 6.—For erection of five labourers' cottages at Loughlinstown, Rathdown. Mr. Henry Powell, C.E., architect, Loughlinstown.

**KING'S LYNN.**—Aug. 3.—For alterations and additions to the Naval Reserve public-house, St. Ann Street, Lynn. Mr. Herb. Tilson, architect, Railway Road, King's Lynn.

**KING'S LYNN.**—Aug. 8.—For erection of an infirmary building at the rear of the existing workhouse, Exton's Road, King's Lynn. Messrs. Charles Smith & Son, architects, Reading.

**LEEDS.**—Aug. 8.—For erection of a school-hall, &c., to new Congregational church, Shaftesbury Avenue, Roundhay. Mr. W. H. Beevers, architect, 26 Bond Street, Leeds.

**LEIGH.**—Aug. 5.—For covering a tar and liquor well at the gasworks. Mr. Peregrine Thomas, town clerk, Town Hall, Leigh, Lancs.

**MALTON.**—For erection of a water-gas plant at the gas-works, Malton, Yorks. Mr. Henry Tobey, engineer and secretary, Castlegate, Malton.

**NELSON.**—Aug. 24.—For erection of the new electric-light station in Charles Street, Nelson, for the electricity and tramways committee. Mr. B. Ball, A.M.I.C.E., borough surveyor, Town Hall, Nelson.

**NEWPORT.**—Aug. 5.—For erection of a library, technical institute, &c., at Newport, Isle of Wight. Mr. F. Newman, county surveyor, St. Thomas Street, Ryde, Isle of Wight.

**NORMANTON-ON-SOAR.**—Aug. 7.—For additions and alterations to the Normanton-on-Soar Board school. Messrs. Barrowcliff & Allcock, architects, Loughborough.

**PADDINGTON.**—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

**RADCLIFFE.**—For reconstruction, renewals, foundations, &c., to houses and shops and other property in Blackburn, Railway and Foundry Streets, Radcliffe, Lancs. Messrs. James Sellars & Son, architects, Union Chambers, Bury.

**RASTRICK.**—For erection of a mistal at Nunnery farm. Messrs. Jackson & Fox, architects, 7 Rawson Street, Halifax.

**REDRUTH.**—Aug. 15.—For erection of offices and stores as additions to existing business premises. Mr. Sampson Hill, architect, Green Lane, Redruth.

**ROCHESTER.**—Aug. 21.—For erection of a cabman's shelter at the Rochester Banks station of the South-Eastern and Chatham Railways. Mr. William Banks, city surveyor, Guildhall, Rochester.

**RUGBY.**—For alterations and additions to private hotel, Albert Street. Mr. J. T. Franklin, architect, 40. Bridget Street, Rugby.

**SALE.**—Aug. 9.—For erection of a meteorological and clock tower. Mr. A. G. M'Beath, architect, 2 Montague Road, Sale.

**SALFORD.**—Aug. 8.—For erection of thirty-two shops and dwelling-houses in Regent Road, on the site of the old infantry barracks. Mr. Henry Lord, architect, 42 Deansgate, Manchester.

**SALTBURN.**—Aug. 9.—For erection of a house on the Marine Parade. Mr. Edward A. Whipham, architect, 59 High Street, Stockton-on-Tees.

**SCOTLAND.**—For erection of a public school at Redding, Grangemouth. Mr. Alexander Gould, architect, Vicar Street, Falkirk.

**SCOTLAND.**—Aug. 3.—For additions and alterations at the Manse of Crimond. Mr. J. B. Dickie, 51 Queen Street, Peterhead.

**SCOTLAND.**—Aug. 5.—For erection of Ayr new town hall. Mr. J. K. Hunter, architect, 51 Sandgate, Ayr.

**SCOTLAND.**—Aug. 7.—For proposed extension of engine-room at the electricity station, Hunter Place, Greenock. Mr. W. M. Nelson, burgh electrical engineer, Electricity Works, Hunter Place, Greenock.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.



SCOTLAND.—Aug. 10.—For construction of municipal buildings, Musselburgh. Messrs. Lyle & Constable, architects, 3 Hill Street, Edinburgh.

SCOTLAND.—Aug. 12.—For alterations to the existing buildings behind Heriot-Watt College, Edinburgh, to convert them into accommodation for art classes, &c. Mr. John Anderson, superintendent of works, 20 York Place, Edinburgh.

SCOTLAND.—Aug. 12.—For erection of the new public library, Stirling. Messrs. Lessels & Taylor, architects, 7A Young Street, Edinburgh.

SEAHAM HARBOUR.—Aug. 12.—For erection of offices, dwelling-house, workshop, &c., at Seaham Harbour. Messrs. Wm. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland.

SOUTH KENSINGTON.—Aug. 14.—For erection of the superstructure of the Royal College of Science, South Kensington. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

SPILSBY.—Aug. 5.—For erection of two villa residences, Hundley Road. Mr. Robert Shaw, The Shades, Spilsby.

TEIGNMOUTH.—Aug. 6.—For alterations and additions to the isolation hospital. Mr. C. Jones, surveyor, Town Hall, Teignmouth.

TORQUAY.—Aug. 6.—For execution of the undermentioned works and for the supply and erection of the following plant for the Corporation, viz. removal and refixing of station meter, washer, &c., chimney, retort-bench, pipe-condensers, exhausters, mechanical washer-scrubber, purifiers (elevated). Mr. Fredk. S. Hex, town clerk, Town Hall, Torquay.

TRURO.—For erection of business premises in Truro. Mr. Silvanus Trevel, architect, Truro.

WALES.—Aug. 3.—For erection of additions to jeweller's shop and business premises, St. Mary's Street, Cardiff. Messrs. Veall & Sant, solicitors, 6 Arcade Chambers, High Street, Cardiff.

WALES.—Aug. 3.—For erection of extensive premises at High Street, Merthyr Tydfil. Mr. E. M. Bruce Vaughan, architect, Cardiff.

WALES.—Aug. 3.—For rebuilding Horeb Independent chapel, Loughor. Mr. Thomas Arnold, Castle Buildings, Llanelly.

WALES.—Aug. 5.—For erection of school and house wings and alterations to the College, Llandoverly. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

WALES.—Aug. 6.—For erection of 100 houses at Pen-y-darren, Merthyr, in connection with a scheme under the Housing of the Working Classes Act, 1890. Mr. John Vaughan, clerk, Town Hall, Merthyr.

WALES.—Aug. 7.—For erection of new Board schools at Ely, near Cardiff, for boys, girls and infants. Mr. Edgar Down, architect, 31 High Street, Cardiff.

WALES.—Aug. 8.—For erection of club premises for the Baden Powell Conservative Club, Ynysir. Mr. A. J. Pope, Baden Powell Conservative Club, Ynysir.

WALES.—Aug. 8.—For repairs, papering, painting, &c., at the Windsor hotel, Pontyclun. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Aug. 12.—For erection of a small stone arched bridge to carry the road over the brook above the Pentre, Abergavenny. Mr. John Gill, surveyor, 4 Brecon Road, Abergavenny.

WALES.—Aug. 13.—For alterations and additions to the schoolmaster's house at Maindy, near Cardiff. Mr. G. E. Halliday, architect, 14 High Street, Cardiff.

WALES.—Aug. 19.—For erection of a new two-storeyed school in Meyrick Street, Pembroke Dock. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WALES.—Aug. 19.—For erection of a school, Whitchurch, near Cardiff. Messrs. Robert & Sidney Williams, architects, Borough Chambers, Wharton Street, Cardiff.

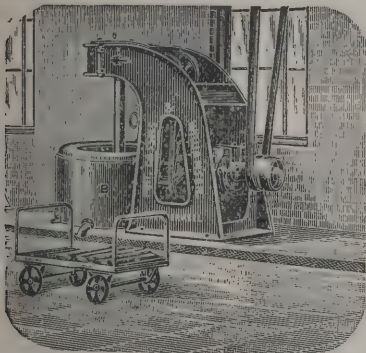
WALSALL.—Aug. 24.—For erection of municipal offices and town hall in Lichfield Street. Mr. J. S. Gibson, architect, 4 Gray's Inn Square, W.C.

WALTON-ON-THAMES.—Aug. 17.—For erection of stables, cart sheds, cottage and other buildings, at the depot site in Crutchfield Lane, Walton-on-Thames. Mr. C. J. Jenkin, surveyor, Council Offices, Walton-on-Thames.

WEST DIDSURY.—Aug. 19.—For erection of a caretaker's house at the proposed Marie Louise Gardens, West Didsbury, Lancs. Mr. J. Cartwright, Peel Chambers, Market Place, Bury.

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**WEST HARTLEPOOL.**—Aug. 7.—For erection of stabling for twenty horses, three loose-boxes, &c., at West Hartlepool, for the North-Eastern Railway Company. Mr. William Bell, architect, York.

**WILLESDEN.**—Aug. 6.—For additions to the public library, High Road. Mr. O. Claude Robson, Public Offices, Dyne Road, Kilburn, N.W.

**WOLVERHAMPTON.**—Aug. 9.—For alterations, &c., to the Monmore Green Board schools. Mr. T. H. Fleeming, architect, 102 Darlington Street, Wolverhampton.

**WORPLESDON.**—For erection of a pair of cottages. Mr. G. Howard, Prey Heath, Worpleston, near Guildford.

SEASIDE visitors who make use of the excellent service afforded by the Belle steamers would do well to send for the Company's Official Guide, which will be sent post free. The guide contains much interesting and useful information of a descriptive character concerning the daily trips to the various ports where the famous Belle steamers call. The guide is admirably illustrated throughout, and has also a capital map of the route. The guide is well worth perusing, it is thoroughly explicit, and graphically descriptive. Its price is only one penny.

At a meeting of Hawick District committee of the County Council it was reported that the estimates for the joint fever hospital, including furnishings, for the town and district amounted to about 12,000*l.*, being about double the sum originally stated. Various suggestions were made, such as that an iron hospital might be got at a cost of about 3,000*l.*, or that, in view of the decrease in the population, the number of beds in the proposed hospital should be reduced from 24 to 18. On the motion of the chairman the committee decided to suggest to the Town Council that the plans and specifications should be revised by a competent architect with a view to having the cost considerably reduced.

## TENDERS.

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ALLEN & CO., Queen's Engineering Works, Bedford (accepted) . . . . . 2,055 0 0  
A. Koppel . . . . . 1,385 0 0

For erection of an entrance lodge, tool-house buildings, and cart-shed at the recreation ground, Longbridge Road, Barking. Mr. C. F. DAWSON, surveyor.  
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J. & H. Cocks . . . . . 1,254 0 0

### BARNSTAPLE.

For construction of a sewer, manholes, &c., at Pilton Causeway. Mr. ARNOLD THORNE, borough surveyor.  
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W. Sanders . . . . . 190 0 0  
W. Slee . . . . . 185 0 0  
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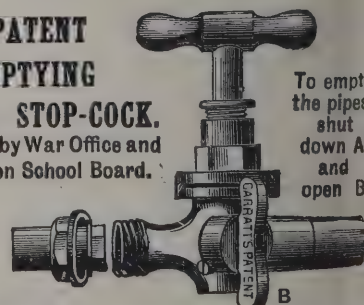
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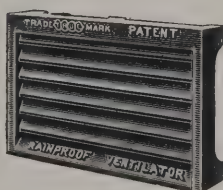
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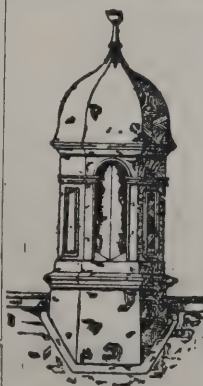
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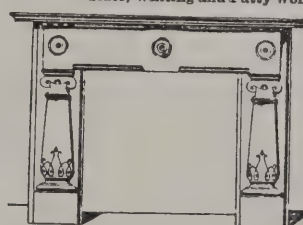
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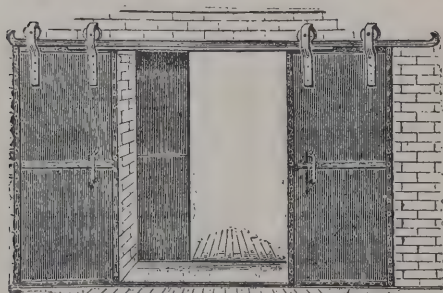
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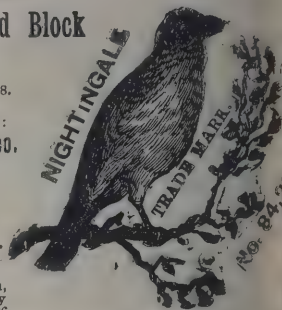
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| E. Lawrance & Sons          | 8,206  | 0 | 0 |
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| C. Leather & Sons   | 1,472  | 0  | 0 |
| T. J. Hawkins & Co. | 1,424  | 10 | 0 |
| J. Mitson & Co.     | 1,400  | 0  | 0 |
| J. & W. T. Hunter   | 1,286  | 0  | 0 |
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| J. Garrett & Son      | 2,495  | 0 | 0 |
| A. Acworth            | 2,213  | 0 | 0 |
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| G. Kemp               | 2,118  | 0 | 0 |
| J. & C. Bowyer *      | 2,031  | 0 | 0 |

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|                         |      |   |   |
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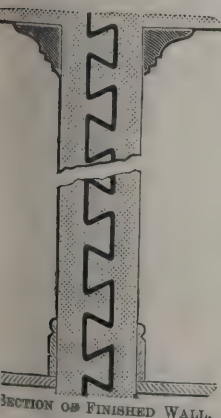
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| T. L. Green . . . . .      | £1,247 | 0 | 0 |
| E. Proctor . . . . .       | 1,208  | 0 | 0 |
| W. Gregar & Son* . . . . . | 1,177  | 0 | 0 |

\* Recommended for acceptance.

## LONDON SCHOOL BOARD—continued.

For sanitary and drainage works, Malmesbury Road school, Bow.

|                                   |        |   |   |
|-----------------------------------|--------|---|---|
| L. H. & R. Roberts . . . . .      | £3,097 | 0 | 0 |
| E. Lawrance & Sons . . . . .      | 2,985  | 0 | 0 |
| Johnson & Co. . . . .             | 2,916  | 0 | 0 |
| C. W. Killingback . . . . .       | 2,894  | 0 | 0 |
| G. S. S. Williams & Son . . . . . | 2,894  | 0 | 0 |
| Stevens Bros. . . . .             | 2,744  | 0 | 0 |
| J. T. Robey* . . . . .            | 2,280  | 0 | 0 |

\* Recommended for acceptance.

For partitions, &amp;c., in infants' department, Credon Road school, South Bermondsey.

|                              |      |   |   |
|------------------------------|------|---|---|
| G. Kemp . . . . .            | £730 | 0 | 0 |
| Rice & Son . . . . .         | 698  | 0 | 0 |
| J. C. Chalkley . . . . .     | 673  | 0 | 0 |
| J. F. Ford . . . . .         | 622  | 0 | 0 |
| H. Groves . . . . .          | 539  | 0 | 0 |
| H. LINE (accepted) . . . . . | 515  | 0 | 0 |

For forming physical laboratory, balance-room, &amp;c., Ashburnham school, Upcerne Road, Chelsea.

|                                             |      |   |   |
|---------------------------------------------|------|---|---|
| W. R. & A. Hide . . . . .                   | £327 | 0 | 0 |
| Maxwell Bros., Ltd. . . . .                 | 324  | 0 | 0 |
| Lathey Bros. . . . .                        | 318  | 0 | 0 |
| W. Hammond . . . . .                        | 304  | 0 | 0 |
| E. B. Tucker . . . . .                      | 222  | 0 | 0 |
| GENERAL BUILDERS, LTD. (accepted) . . . . . | 213  | 0 | 0 |

For new zinc flat roof over cloakroom, &amp;c., Abbey Street school, Bethnal Green.

|                                  |      |   |   |
|----------------------------------|------|---|---|
| J. Haydon . . . . .              | £318 | 0 | 0 |
| Vigor & Co. . . . .              | 289  | 0 | 0 |
| J. F. Holliday . . . . .         | 228  | 0 | 0 |
| D. Gibb & Co. . . . .            | 225  | 0 | 0 |
| F. & F. J. Wood . . . . .        | 219  | 0 | 0 |
| J. T. ROBEY (accepted) . . . . . | 184  | 0 | 0 |

For rehanging sashes of windows in old portion of school, Blundell Street school, Islington.

|                                           |      |    |   |
|-------------------------------------------|------|----|---|
| C. Dearing & Son . . . . .                | £246 | 0  | 0 |
| Stevens Bros. . . . .                     | 226  | 0  | 0 |
| C. & W. Hunnings . . . . .                | 224  | 17 | 6 |
| G. S. S. Williams & Son . . . . .         | 196  | 10 | 0 |
| F. W. Harris . . . . .                    | 169  | 0  | 0 |
| THOMPSON & BEVERIDGE (accepted) . . . . . | 153  | 0  | 0 |

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Basements, Stables, Coach-Houses, Slaughter-Houses,  
Breweries, Lavatories, Tennis Courts, &c.Full particulars can be obtained from the Offices,  
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ASPHALTE ROOFING & SARKING,  
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"PERFECTION SYSTEM"

PATENT GLAZING

WORKS: BRIGHOUSE, YORKS.

LONDON OFFICE: 11 VICTORIA STREET, WESTMINSTER, S.W.



LONDON SCHOOL BOARD—continued.

|                                                         |      |    |   |
|---------------------------------------------------------|------|----|---|
| For heating works, Marlborough Road school, Chelsea.    |      |    |   |
| W. G. Cannon & Sons                                     | £995 | 0  | 0 |
| Wippell Bros. & Row                                     | 973  | 10 | 0 |
| J. & F. May                                             | 930  | 0  | 0 |
| J. Williams & Sons, Ltd.                                | 899  | 0  | 0 |
| G. Davis                                                | 800  | 0  | 0 |
| Wenham & Waters, Ltd.                                   | 780  | 0  | 0 |
| G. & E. Bradley                                         | 700  | 0  | 0 |
| BRIGHTSIDE FOUNDRY AND ENGINEERING Co., LTD. (accepted) | 680  | 0  | 0 |

|                                                                |      |    |    |
|----------------------------------------------------------------|------|----|----|
| For heating works, Edinburgh Road school, Ladbroke Grove Road. |      |    |    |
| Wippell Bros. & Row                                            | £753 | 17 | 6  |
| G. Davis                                                       | 660  | 0  | 0  |
| Dargue, Griffiths & Co., Ltd.                                  | 610  | 12 | 10 |
| Skinner, Board & Co.                                           | 605  | 0  | 0  |
| E. Oldroyd & Co., Ltd.                                         | 602  | 0  | 0  |
| Turner & Co.                                                   | 586  | 10 | 0  |
| Brightside Foundry and Engineering Co., Ltd.                   | 577  | 0  | 0  |
| T. S. Knight & Sons                                            | 575  | 0  | 0  |
| M. DUFFIELD & SONS (accepted)                                  | 570  | 0  | 0  |

|                                                                           |      |    |   |
|---------------------------------------------------------------------------|------|----|---|
| For heating works, Canterbury Road boys and girls' school, Old Kent Road. |      |    |   |
| J. Williams & Sons, Ltd.                                                  | £389 | 0  | 0 |
| W. G. Cannon & Sons                                                       | 359  | 0  | 0 |
| E. Oldroyd & Co., Ltd.                                                    | 357  | 0  | 0 |
| Wippell Bros. & Row                                                       | 340  | 0  | 0 |
| Brightside Foundry and Engineering Co., Ltd.                              | 294  | 0  | 0 |
| Dargue, Griffiths & Co., Ltd.                                             | 274  | 13 | 7 |
| Bates & Sons                                                              | 270  | 0  | 0 |
| M. Duffield & Sons                                                        | 227  | 12 | 0 |
| G. & E. BRADLEY (accepted)                                                | 225  | 0  | 0 |

|                                                  |      |   |   |
|--------------------------------------------------|------|---|---|
| For heating works, Cator Street school, Peckham. |      |   |   |
| J. & F. May                                      | £645 | 0 | 0 |
| W. G. Cannon & Sons                              | 629  | 0 | 0 |
| G. & E. Bradley                                  | 615  | 0 | 0 |
| J. Esson                                         | 609  | 0 | 0 |
| M. Duffield & Sons                               | 570  | 0 | 0 |
| J. Fraser & Son                                  | 492  | 0 | 0 |
| Wenham & Waters, Ltd.                            | 473  | 0 | 0 |
| J. Defries & Sons, Ltd.*                         | 398  | 0 | 0 |

\* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

|                                                                               |      |    |   |
|-------------------------------------------------------------------------------|------|----|---|
| For alterations to heating apparatus, St. Dunstan's Road school, Hammersmith. |      |    |   |
| Vaughan & Brown, Ltd.                                                         | £115 | 0  | 0 |
| G. Davis                                                                      | 98   | 0  | 0 |
| Palowkar & Sons                                                               | 79   | 15 | 0 |
| M. Duffield & Sons                                                            | 66   | 0  | 0 |
| Wenham & Waters, Ltd.                                                         | 51   | 0  | 0 |
| Werner, Pfeleiderer & Perkins, Ltd.*                                          | 50   | 19 | 6 |

\* Recommended for acceptance.

The following work will be executed during the summer holidays—July 25 to August 24, 1901. Where exterior as well as interior work has to be done, the contractors will be allowed an additional week for the former.

|                                     |      |   |   |
|-------------------------------------|------|---|---|
| For painting interior, Gravel Lane. |      |   |   |
| W. Downs                            | £420 | 0 | 0 |
| Johnson & Co.                       | 394  | 0 | 0 |
| Barrett & Power                     | 338  | 0 | 0 |
| G. Barker                           | 272  | 0 | 0 |
| J. Haydon                           | 270  | 0 | 0 |
| W. HORNETT (accepted)               | 269  | 0 | 0 |

|                                                      |      |    |   |
|------------------------------------------------------|------|----|---|
| For painting interior (new portion), Chequer Street. |      |    |   |
| F. T. Chinchin                                       | £210 | 10 | 0 |
| C. Dearing & Son                                     | 210  | 0  | 0 |
| McCormick & Sons                                     | 207  | 0  | 0 |
| Marchant & Hirst                                     | 196  | 0  | 0 |
| G. Barker                                            | 161  | 0  | 0 |
| W. CHAPPELL (accepted)                               | 156  | 10 | 0 |

|                                                                |      |    |   |
|----------------------------------------------------------------|------|----|---|
| For painting exterior and cleaning interior, Barrow Hill Road. |      |    |   |
| T. Cruwys                                                      | £447 | 10 | 0 |
| Marchant & Hirst                                               | 426  | 0  | 0 |
| Stevens Bros.                                                  | 384  | 0  | 0 |
| Thompson & Beveridge                                           | 333  | 0  | 0 |
| W. CHAPPELL (accepted)                                         | 255  | 10 | 0 |

|                                                  |      |   |   |
|--------------------------------------------------|------|---|---|
| For painting interior and exterior, Page's Walk. |      |   |   |
| W. V. Goad                                       | £644 | 0 | 0 |
| Johnson & Co.                                    | 585  | 0 | 0 |
| J. & M. Patrick                                  | 573  | 0 | 0 |
| H. Line                                          | 559  | 0 | 0 |
| W. Hammond                                       | 499  | 0 | 0 |
| LATHEY BROS. (accepted)                          | 487  | 0 | 0 |
| W. Sayer & Son                                   | 484  | 0 | 0 |

# HAM HILL STONE. DOULTING STONE.

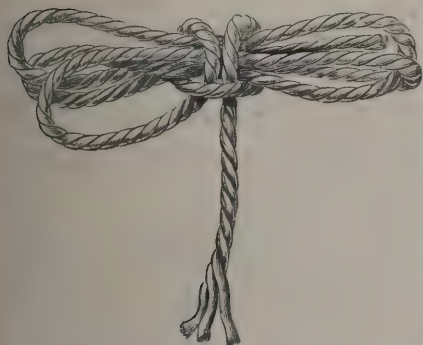
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(Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Doultling Stone Co.)

Chief Office, NORTON, STOKE-UNDER-HAM, SOMERSET. London Agent, Mr. E. A. WILLIAMS, 16 Craven St., STRAND.

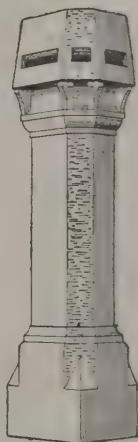
## SASH CORD

(PATENT APPLIED FOR.)



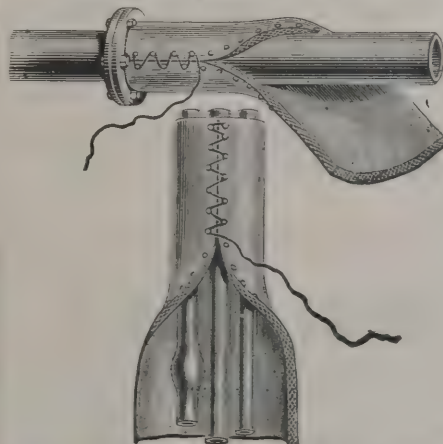
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## LONDON SCHOOL BOARD—continued.

|                                                            |        |    |   |
|------------------------------------------------------------|--------|----|---|
| For painting exterior, Board's stores.                     |        |    |   |
| C. Dearing & Son                                           | £164   | 0  | 0 |
| T. Cruwys                                                  | 143    | 17 | 0 |
| JOHNSON & Co. (accepted)                                   | 137    | 10 | 0 |
| W. Chappell                                                | 120    | 0  | 0 |
| For painting interior, Chatham Gardens.                    |        |    |   |
| H. Wall & Co.                                              | £314   | 0  | 0 |
| C. Dearing & Son                                           | 312    | 0  | 0 |
| Stevens Bros.                                              | 296    | 0  | 0 |
| W. Silk & Son                                              | 244    | 0  | 0 |
| G. BARKER (accepted)                                       | 243    | 0  | 0 |
| For painting interior, Star Lane.                          |        |    |   |
| Marchant & Hirst                                           | £415   | 0  | 0 |
| W. Chappell                                                | 300    | 0  | 0 |
| W. Hammond                                                 | 273    | 19 | 0 |
| F. T. CHINCHEN (accepted)                                  | 258    | 17 | 0 |
| For painting exterior and cleaning interior, Burrage Grove |        |    |   |
| W. J. Howie                                                | £551   | 0  | 0 |
| Johnson & Co.                                              | 505    | 0  | 0 |
| Thomas & Edge                                              | 495    | 0  | 0 |
| H. Groves                                                  | 485    | 0  | 0 |
| E. PROCTOR (accepted)                                      | 475    | 0  | 0 |
| For painting interior and exterior, Wordsworth Road.       |        |    |   |
| J. & M. Patrick                                            | £1,329 | 0  | 0 |
| C. Dearing & Son                                           | 1,078  | 0  | 0 |
| J. Grover & Son                                            | 1,069  | 0  | 0 |
| McCormick & Sons                                           | 1,036  | 0  | 0 |
| Marchant & Hirst                                           | 999    | 0  | 0 |
| Stevens Bros.                                              | 940    | 0  | 0 |
| M. PEARSON (accepted)                                      | 830    | 0  | 0 |
| For painting interior, Haseltine Road.                     |        |    |   |
| J. & C. Bowyer                                             | £380   | 0  | 0 |
| E. Proctor                                                 | 353    | 0  | 0 |
| G. Kemp                                                    | 342    | 0  | 0 |
| W. J. Howie                                                | 326    | 0  | 0 |
| C. G. JONES (accepted)                                     | 323    | 0  | 0 |
| For exterior painting, Plassey Road.                       |        |    |   |
| Johnson & Co.                                              | £186   | 0  | 0 |
| J. & C. Bowyer                                             | 184    | 0  | 0 |
| E. Proctor                                                 | 158    | 0  | 0 |
| G. Kemp                                                    | 140    | 0  | 0 |
| C. G. JONES (accepted)                                     | 120    | 0  | 0 |

## LONDON SCHOOL BOARD—continued.

|                                                                                          |      |    |   |
|------------------------------------------------------------------------------------------|------|----|---|
| For painting interior and exterior, Gopsall Street.                                      |      |    |   |
| Stevens Bros.                                                                            | £645 | 0  | 0 |
| C. Dearing & Son                                                                         | 564  | 0  | 0 |
| W. Silk & Son                                                                            | 489  | 0  | 0 |
| T. CRUWYS (accepted)                                                                     | 463  | 0  | 0 |
| For painting exterior and cleaning interior (boys and girls' departments, George Street. |      |    |   |
| Maxwell Bros., Ltd.                                                                      | £412 | 0  | 0 |
| H. Line                                                                                  | 410  | 0  | 0 |
| W. V. Goad                                                                               | 399  | 0  | 0 |
| W. Downs                                                                                 | 391  | 0  | 0 |
| J. F. Ford                                                                               | 377  | 0  | 0 |
| W. SAYER & SON (accepted)                                                                | 328  | 0  | 0 |
| For painting interior and exterior, Leipsic Road, East Lambeth.                          |      |    |   |
| J. & M. Patrick                                                                          | £587 | 0  | 0 |
| W. Sayer & Son                                                                           | 503  | 0  | 0 |
| W. V. Goad                                                                               | 490  | 0  | 0 |
| W. Downs                                                                                 | 415  | 8  | 6 |
| Rice & Son                                                                               | 406  | 0  | 0 |
| G. KEMP (accepted)                                                                       | 392  | 0  | 0 |
| For painting interior and exterior, "Michael Faraday."                                   |      |    |   |
| Johnson & Co.                                                                            | £517 | 0  | 0 |
| H. Line                                                                                  | 483  | 0  | 0 |
| W. Downs                                                                                 | 463  | 0  | 0 |
| W. Sayer & Son                                                                           | 442  | 0  | 0 |
| Lathey Bros.                                                                             | 436  | 10 | 0 |
| Holliday & Greenwood, Ltd.                                                               | 422  | 0  | 0 |
| RICE & SON (accepted)                                                                    | 419  | 0  | 0 |
| For painting interior, Reddin's Road, East Lambeth.                                      |      |    |   |
| W. Sayer & Son                                                                           | £407 | 0  | 0 |
| H. Line                                                                                  | 390  | 0  | 0 |
| J. F. Ford                                                                               | 343  | 0  | 0 |
| W. H. Lorden & Son                                                                       | 292  | 15 | 0 |
| RICE & SON (accepted)                                                                    | 288  | 0  | 0 |
| For painting interior (P.T. school) and cleaning interior (main school), Sumner Road.    |      |    |   |
| Holloway Bros.                                                                           | £534 | 0  | 0 |
| H. & G. Mallett                                                                          | 458  | 0  | 0 |
| Maxwell Bros., Ltd.                                                                      | 446  | 0  | 0 |
| Rice & Son                                                                               | 425  | 0  | 0 |
| H. LINE (accepted)                                                                       | 417  | 0  | 0 |
| W. Sayer & Son                                                                           | 393  | 0  | 0 |

**MCNEILL'S FELTS** Roofing, Inodorous, Sarking, Dry Hair, Damp Course, &c.  
**MCNEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
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**GRAVES' PATENT ROOFING,**  
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LONDON SCHOOL BOARD—continued.

|                                                                                                                             |      |      |
|-----------------------------------------------------------------------------------------------------------------------------|------|------|
| For painting exterior (old and new portions), painting interior (enlargement), cleaning interior (old portion), Warple Way. |      |      |
| W. Hornett . . . . .                                                                                                        | £640 | 0 0  |
| R. S. Ronald . . . . .                                                                                                      | 606  | 0 0  |
| J. & M. Patrick . . . . .                                                                                                   | 577  | 0 0  |
| E. Flood . . . . .                                                                                                          | 550  | 0 0  |
| W. Hammond . . . . .                                                                                                        | 542  | 0 0  |
| Lathey Bros. . . . .                                                                                                        | 525  | 0 0  |
| W. Johnson & Co., Ltd. . . . .                                                                                              | 449  | 15 0 |
| W. H. LORDEN & SON (accepted) . . . . .                                                                                     | 404  | 15 0 |
| For painting interior and exterior, Vicarage Road.                                                                          |      |      |
| Johnson & Co. . . . .                                                                                                       | £607 | 0 0  |
| Thomas & Edge . . . . .                                                                                                     | 495  | 0 0  |
| W. J. HOWIE (accepted) . . . . .                                                                                            | 477  | 0 0  |
| H. Groves . . . . .                                                                                                         | 475  | 0 0  |
| E. Proctor . . . . .                                                                                                        | 463  | 0 0  |
| For painting exterior, Cubitt Town.                                                                                         |      |      |
| T. H. Jackson . . . . .                                                                                                     | £183 | 0 0  |
| A. E. Symes . . . . .                                                                                                       | 175  | 0 0  |
| A. W. Derby . . . . .                                                                                                       | 144  | 0 0  |
| J. Haydon . . . . .                                                                                                         | 134  | 0 0  |
| J. T. ROBEY (accepted) . . . . .                                                                                            | 108  | 11 0 |
| For painting interior and exterior, Old Castle Street.                                                                      |      |      |
| F. & F. J. Wood . . . . .                                                                                                   | £740 | 0 0  |
| A. W. Derby . . . . .                                                                                                       | 720  | 0 0  |
| G. Barker . . . . .                                                                                                         | 678  | 0 0  |
| J. Haydon . . . . .                                                                                                         | 606  | 10 0 |
| J. T. ROBEY (accepted) . . . . .                                                                                            | 571  | 5 0  |
| For painting exterior, Glengall Road, Tower Hamlets.                                                                        |      |      |
| Corfield & Co. . . . .                                                                                                      | £265 | 0 0  |
| A. W. DERBY (accepted) . . . . .                                                                                            | 209  | 0 0  |
| J. T. Robey . . . . .                                                                                                       | 201  | 17 0 |
| For painting interior, "Forster."                                                                                           |      |      |
| T. Cruwys . . . . .                                                                                                         | £426 | 0 0  |
| G. Kirby . . . . .                                                                                                          | 408  | 0 0  |
| C. & W. Hunnings . . . . .                                                                                                  | 391  | 14 6 |
| STEVENS BROS. (accepted) . . . . .                                                                                          | 387  | 0 0  |
| For painting interior and exterior, Silwood Street, Southwark.                                                              |      |      |
| W. Sayer & Son . . . . .                                                                                                    | £686 | 0 0  |
| J. & M. Patrick . . . . .                                                                                                   | 644  | 0 0  |
| H. Line . . . . .                                                                                                           | 615  | 0 0  |
| HOLLIDAY & GREENWOOD, LTD. (accepted) . . . . .                                                                             | 436  | 0 0  |

LONDON SCHOOL BOARD—continued.

|                                                    |        |     |
|----------------------------------------------------|--------|-----|
| For painting interior and exterior, Oldfield Road. |        |     |
| T. L. Green . . . . .                              | £1,194 | 0 0 |
| J. Grover & Son . . . . .                          | 1,024  | 0 0 |
| H. Wall & Co. . . . .                              | 1,018  | 0 0 |
| McCormick & Sons . . . . .                         | 996    | 0 0 |
| G. S. S. Williams & Son . . . . .                  | 992    | 0 0 |
| Stevens Bros. . . . .                              | 924    | 0 0 |
| BARRETT & POWER (accepted) . . . . .               | 884    | 0 0 |

NEWCASTLE.

|                                                                                                                                      |        |      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------|------|
| For erection of a Wesleyan Methodist church school at Rowlands Gill. Mr. F. R. N. HASWELL, architect, 77 Tyne Street, North Shields. |        |      |
| R. Smith . . . . .                                                                                                                   | £2,620 | 0 0  |
| Davison & Bolam . . . . .                                                                                                            | 2,517  | 2 8  |
| A. Armstrong . . . . .                                                                                                               | 2,507  | 0 0  |
| T. A. Turnbull . . . . .                                                                                                             | 2,416  | 2 7  |
| Turner Bros. . . . .                                                                                                                 | 2,121  | 15 9 |

NORWICH.

|                                                                                        |        |      |
|----------------------------------------------------------------------------------------|--------|------|
| For erection of stabling, stores, &c., at New Mills. Mr. A. E. COLLINS, city engineer. |        |      |
| Martin, Wells & Co. . . . .                                                            | £6,700 | 0 0  |
| Coulson & Loft . . . . .                                                               | 6,364  | 0 0  |
| G. E. Hawes . . . . .                                                                  | 6,025  | 0 0  |
| J. S. Smith . . . . .                                                                  | 5,947  | 0 0  |
| T. H. Blyth . . . . .                                                                  | 5,930  | 0 0  |
| J. Downing & Son . . . . .                                                             | 5,882  | 0 0  |
| J. Youngs & Son . . . . .                                                              | 5,710  | 0 0  |
| J. Hurn . . . . .                                                                      | 5,662  | 10 0 |
| H. C. Greengrass . . . . .                                                             | 5,460  | 0 0  |
| CHAPMAN & SON, Norwich (accepted) . . . . .                                            | 5,249  | 0 0  |
| For extension of city asylum. Mr. A. E. COLLINS, city engineer, &c.                    |        |      |
| Coulson & Loft . . . . .                                                               | £6,257 | 1 4  |
| Downing & Son . . . . .                                                                | 6,238  | 0 0  |
| G. E. Hawes . . . . .                                                                  | 5,958  | 0 0  |
| J. Youngs & Son . . . . .                                                              | 5,957  | 0 0  |
| J. S. Smith . . . . .                                                                  | 5,813  | 10 0 |
| J. Hurn . . . . .                                                                      | 5,792  | 0 0  |
| Chapman & Son . . . . .                                                                | 5,342  | 0 0  |
| H. C. GREENGRASS, Norwich (accepted) . . . . .                                         | 5,206  | 16 3 |

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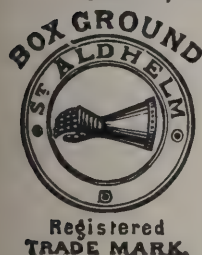
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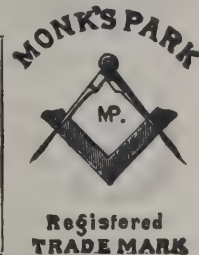
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**NUNEATON.**

For erection of stables at the dépôt in Queen's Road, and erection of buildings for a refuse destructor at the sewage works. Mr. J. S. PICKERING, surveyor.

*Stabling.*

|                                                                |      |   |    |
|----------------------------------------------------------------|------|---|----|
| C. Streather . . . . .                                         | £447 | 7 | 11 |
| A. Bedingham . . . . .                                         | 404  | 8 | 0  |
| T. SMITH, Wheat Street, Nuneaton ( <i>accepted</i> ) . . . . . | 377  | 0 | 0  |

*Destructor buildings.*

|                                            |     |    |    |
|--------------------------------------------|-----|----|----|
| T. Smith . . . . .                         | 796 | 19 | 10 |
| C. Streather . . . . .                     | 773 | 3  | 10 |
| A. BEDINGHAM ( <i>accepted</i> ) . . . . . | 720 | 14 | 0  |

**PLYMOUTH.**

For construction of a stoneware pipe sewer in Clifton Place. Mr. JAMES PATON, borough engineer.

|                                                    |      |    |   |
|----------------------------------------------------|------|----|---|
| W. C. Shaddock . . . . .                           | £766 | 19 | 0 |
| T. Shaddock . . . . .                              | 659  | 16 | 3 |
| H. E. Skinner . . . . .                            | 648  | 10 | 5 |
| F. T. GOAD, Plymouth ( <i>accepted</i> ) . . . . . | 558  | 0  | 0 |

For street works, Chudleigh Road, Park View Villas Lane. Mr. JAMES PATON, borough surveyor.

*Chudleigh Road.*

|                                                      |      |    |   |
|------------------------------------------------------|------|----|---|
| H. E. Skinner . . . . .                              | £560 | 18 | 5 |
| R. T. HORTOP, Plymouth ( <i>accepted</i> ) . . . . . | 541  | 5  | 0 |

*Park View Villas Lane.*

|                                                 |     |    |    |
|-------------------------------------------------|-----|----|----|
| Parsons . . . . .                               | 485 | 1  | 4  |
| H. E. Skinner . . . . .                         | 469 | 8  | 10 |
| E. DUKE, Plymouth ( <i>accepted</i> ) . . . . . | 465 | 16 | 7  |

**RADCLIFFE.**

For erection of court offices and caretaker's house in Stand Lane, Radcliffe, Lancs. Messrs. JAMES SELLERS & SONS, architects, Union Chambers, Bury.

J. ALLEN, Railway Street (*accepted*).

**ROSS (HEREFORDSHIRE).**

For alterations and additions at Hill House, Bridstow, for Captain G. R. Oldham. Mr. ARTHUR P. SMALL, architect.

|                                                          |      |    |   |
|----------------------------------------------------------|------|----|---|
| W. Peachy . . . . .                                      | £822 | 0  | 0 |
| Kemp & Sons . . . . .                                    | 816  | 0  | 0 |
| W. E. Lewis . . . . .                                    | 799  | 10 | 0 |
| W. P. LEWIS & CO, Hereford ( <i>accepted</i> ) . . . . . | 746  | 10 | 0 |

**RUSHDEN.**

For erection of workshops, stores, sheds, &c., Newton Road, Rushden, Northants. Mr. W. B. MADIN, town surveyor.

|                                                                     |      |    |   |
|---------------------------------------------------------------------|------|----|---|
| H. Sparrow . . . . .                                                | £910 | 0  | 0 |
| Hacksley Bros. . . . .                                              | 890  | 0  | 0 |
| C. E. Bayes . . . . .                                               | 873  | 0  | 0 |
| R. Marriott . . . . .                                               | 847  | 0  | 0 |
| T. WILMOTT, jun, Newton Road, Rushden ( <i>accepted</i> ) . . . . . | 799  | 10 | 0 |

**SCOTLAND.**

For erection of thirty-six new houses and alterations to twenty-four tenements for the working-classes in Pipe Street, Portobello.

*Accepted tenders.*

|                                    |        |   |   |
|------------------------------------|--------|---|---|
| Melrose & Thomson, mason . . . . . | £2,029 | 0 | 0 |
| Forsyth & Nisbet, joiner . . . . . | 1,464  | 0 | 0 |
| W. M'Vey, plasterer . . . . .      | 778    | 0 | 0 |
| D. Blake & Co., plumber . . . . .  | 580    | 0 | 0 |
| M'Lean & Reid, slater . . . . .    | 217    | 0 | 0 |
| P. Bell & Son, smith . . . . .     | 169    | 0 | 0 |
| W. & J. Brown, painter . . . . .   | 120    | 0 | 0 |
| J. Cunningham, glazier . . . . .   | 31     | 0 | 0 |

For sewerage work at Linlithgow.

BLAIR & WHITE, 95 Bath Street, Glasgow (*accepted*).

For erection of seven cottages at Auldearn.

*Accepted tenders.*

|                                            |      |    |   |
|--------------------------------------------|------|----|---|
| J. Grigor, Auldearn, carpenter . . . . .   | £313 | 10 | 0 |
| W. Ross, Forbes, mason . . . . .           | 237  | 7  | 0 |
| J. Gray & Son, Inverness, slater . . . . . | 76   | 16 | 0 |
| R. S. Reid, Dufftown, plasterer . . . . .  | 63   | 17 | 6 |
| H. Brown, Nairn, plumber . . . . .         | 12   | 10 | 0 |

For extension of the Edinburgh public library, for the Corporation. Mr. WILLIAMSON, architect.

*Accepted tenders.*

|                                        |        |    |   |
|----------------------------------------|--------|----|---|
| Kinnear, Moodie & Co., mason . . . . . | £3,469 | 17 | 4 |
| C. Macandrew, joiner . . . . .         | 1,368  | 0  | 0 |
| Redpath, Brown & Co., smith . . . . .  | 960    | 0  | 0 |

**TORPOINT.**

For limewashing and colouring the interior of the workhouse at Torpoint, Devon.

|                                                 |     |    |   |
|-------------------------------------------------|-----|----|---|
| R. KENT, Torpoint ( <i>accepted</i> ) . . . . . | £19 | 10 | 0 |
|-------------------------------------------------|-----|----|---|

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For erection of buildings and chimney-shaft for the electric-light station. Mr. W. LAURENCE BRADLEY, surveyor.  
*Accepted tenders.*  
Martin & Co, Barden Road, Tonbridge, buildings . . . . . £4,524 0 0  
J. Jarvis, Vale Road, Tunbridge Wells, chimney-shaft . . . . . 1,088 10 0

WALES.

For erection of new dining-hall and laundry, and additions and alterations to infirmary, tramp ward, male and female wards and other works at the workhouse, Bangor Road, Conway. Mr. T. B. FARRINGTON, architect, Trinity Square, Llandudno.  
E. Owen . . . . . £4,820 10 0  
J. Payne . . . . . 4,681 0 0  
D. Ellis . . . . . 4,230 0 0  
J. & R. Williams . . . . . 4,153 0 0  
W. Hughes . . . . . 4,051 10 0  
E. Roberts . . . . . 3,895 0 0  
D. JONES & H. HUGHES, Conway and Llandudno (*accepted*) . . . . . 3,854 0 0  
For erection of sixty or more houses at Pontlloftyn.  
M. Lawrence . . . . . £248 0 0  
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J. Lewis . . . . . 213 0 0  
R. Jones . . . . . 190 0 0

WALES—continued.

For laying about 860 lineal yards of 9-inch stoneware pipe sewers, with manholes, flushing tanks, lampholes, &c., in the village of Tonyrefail, Llantrisant. Mr. GOMER S. MORGAN, surveyor, Pontyclun.  
J. Edwards . . . . . £439 3 11  
A. Hooper . . . . . 430 17 0  
Barry Building Co. . . . . 405 11 1  
M. Thomson . . . . . 392 2 4  
T. Davies . . . . . 390 13 5  
J. Rees . . . . . 374 13 6  
BARNES, CHAPLIN & Co., St. Peter's Street, Cardiff (*accepted*) . . . . . 360 5 8

WATFORD.

For enlargement of the Watford Field girls' school.  
General Builders, Ltd. . . . . £3,497 0 0  
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G. Wiggs . . . . . 3,312 0 0  
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C. Brightman . . . . . 3,115 0 0  
R. L. Tong . . . . . 3,025 0 0  
CLIFFORD & GOUGH (*accepted*) . . . . . 2,943 0 0

WELLINGTON.

For rebuilding Plat Lane Bridge or culvert at Ellerdine Heath. Mr. JOHN BREEZE, surveyor.  
T. Lawley . . . . . £70 0 0  
JONES BROS., Wellington (*accepted*) . . . . . 68 15 0

WHITEHAVEN.

For sewerage works at Distington. Mr. G. BOYD, engineer, 33 Queen Street, Whitehaven.  
J. T. HARRISON, Town End, Distington (*accepted*) . . . . . £120 0 0

WITHAM.

For drainage and sanitary work at Bridge school, Witham, Essex.  
T. Challoner & Son. . . . . £1,220 0 0  
A. A. Streeter . . . . . 1,096 0 0  
S. Wiles . . . . . 940 0 0  
R. A. Crowe . . . . . 870 0 0  
Wilson, Border & Co. . . . . 764 4 0  
E. West . . . . . 744 0 0  
W. ROGERS, Colchester (*accepted*) . . . . . 669 0 0

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#### HALESOWEN.

For restoration of the stonework of Halesowen parish church.  
COLLINS & GODFREY, Tewkesbury (*accepted*) £1,025 0 0

#### LONDON.

For decorative and sanitary repairs and electric-light installation, 38 Warwick Road, Earl's Court, S.W. Messrs. JNO. H. MORLEY & Co., surveyors, 185 Earl's Court Road, S.W.

Woldslock & Mould . . . . . £328 0 0  
J. Rugg & Son . . . . . 322 10 0  
JAMES WHITAKER (*accepted*) . . . . . 313 0 0

#### SCOTLAND.

For purification of the sewage of the borough of Moffat before being discharged into the river Annan.

HENDERSON & DUNCAN, Edinburgh (*accepted*) . . . . . £2,883 17 4

### ANSWERS TO CORRESPONDENTS.

ARCHITECT'S FEES.—(H. E. H.)—(a) The architect is entitled to charge half the commission upon the estimated cost. If he should, in addition, procure tenders in accordance with the instructions of his employer the charge is 2½ per cent. extra (which would in this case be upon the lowest tender). (b) The following are the professional services included in the ordinary 5 per cent.:

The requisite preliminary sketches, drawings and specifications sufficient for an estimate and contract, detailed drawings and instructions for execution.

In respect to the ownership of drawings and specifications, it has hitherto been the general custom for the architect to be paid for their use only, those documents remaining his property. No authoritative decision in the courts of law has, however, yet been given on the subject. It is, therefore, desirable, for the present at least, that the architect should have a direct understanding with his employer on this point. The architect is entitled to demand payment for plans and to keep them.

(c) In cases of this kind the architect generally gives his client a complete tracing of the drawings and a copy of the specification of the proposed buildings, the same having been approved by the local authorities.

WORKMEN'S COMPENSATION.—(G. W.)—The workman is entitled to compensation even if the building is not 30 feet in height, provided it is being erected by means of machinery.

### TRADE NOTES.

U. M. F. CHURCH, South Lambeth, is being fitted with the latest improved low-pressure hot-water heating apparatus by Messrs. John King, Ltd, engineers, Liverpool.

SPECIAL arrangements have, we are informed, been made by the Chancery Lane Safe Deposit Company for the temporary safe keeping of securities to meet the public, convenience during the holidays and the Long Vacation.

MESSRS. COUSLAND & MACKAY, ventilating engineers 150 Hope Street, Glasgow, have been entrusted with the ventilation of Malmesbury Park schools, Bournemouth, which they are carrying out by means of Mackay's patent direct-acting ventilators and improved air inlets.

A FINE large Cambridge quarter-chime clock, striking the hours on the tenor bell of 30 cwts. and the quarters on four smaller bells, with all Lord Grimthorpe's designs and improvements inserted, was set going on Saturday last for the first time, the work having been carried out by Messrs Wm. Potts & Sons, clock manufacturers, Leeds, to the order of the vicar and churchwardens.

### NEW CATALOGUES.

FROM Messrs. Pott, Cassell & Williamson, of Motherwell, N.B., we have received a series of illustrated leaflets descriptive of their laundry machinery, hydro-extractors, &c., for the latter of which they claim the following advantages:—That the extractor, being self-balancing, and having no rigid journals, no vibration is communicated to the floor; owing to the extra depth of the basket and width of the lip the capacity is greater than that of any other machine of equal diameter; no special foundation is needed; no part of the machine is under the floor-level; there are no working parts under the basket; all working parts are easily accessible, and at the same time protected by the frame; owing to the method of driving, the engine can be run at an economical speed; the engine is pro-

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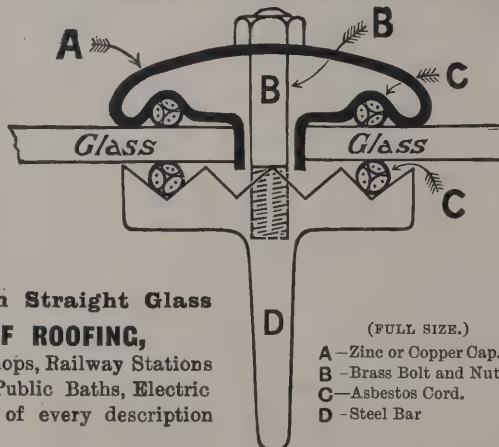
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MESSRS. J. ASHTON RILEY, LTD., of Canal Boiler Works, Huddersfield, have forwarded to us one of their new priced and illustrated catalogues, which is a model of neatness and conciseness. The illustrations, which are numerous, consist of well-executed drawings of the company's well-known boilers, which are shown in great variety and are fully described and priced.

### VARIETIES.

MESSRS. ESSEX, NICOL & GOODMAN, architects and surveyors, announce that they have now removed from their old office, 8 Newhall Street, to new offices in Colmore House, 21 Waterloo Street, Birmingham.

THE new voluntary schools which have been erected in the Green Parlour Road, Writhlington, for the education of the children of Writhlington and Foxcote were opened on the 27th ult.

HER Majesty the Queen has been pleased to accept a copy of the édition de luxe of Mrs. Nevill Jackson's "History of Hand-Made Lace," which contains actual specimens of old and fine laces.

THE forthcoming Bank Holiday performances at the Royal Aquarium are to be continued in their entirety throughout August; commencing at 10 A.M. they will not terminate until close upon midnight. During each afternoon and evening performance a series of living pictures are shown by the bioscope of past and current events of interest, and twice daily Annie Luker dives from the Aquarium roof (a distance of 90 feet) into the shallow water below.

MESSRS. LEVER BROS., of the Sunlight soap works, have just opened at Port Sunlight a gigantic restaurant for the supply of cheap food to the girls employed by them. The hall consists of three wings, the east, central and west, can seat 1,300, has a floor space of 15,770 square feet, and is fitted with the best modern and improved cooking apparatus. The building was designed by Messrs. William & Segar Owen, Warrington, and built by Messrs. Beckett & Co., Hartford, and is a capital example of the architect's and builder's arts.

It is readily conceded that photography may be classed among the arts, and in the hands of the really skilful much beautiful work is now turned out which cannot fail to awaken admiration even on the part of those who are usually most apathetic. Architectural photography particularly lends itself to manipulation whereby results of a high order are obtainable, and among those who have achieved success in this particular line there are none, so far as we are aware of, in the provinces at least, who, judging by the admirable specimens submitted to us, have turned out better or more satisfactory work than Mr. C. R. H. Pickard, the well-known photographic artist of Leeds, whose knowledge of the subject is, we are assured, equal to any and all occasions. Special attention, too, is given by him to what is understood as technical photography, and abundant evidence is afforded of the happy results he has obtained in this important department; and his own high standard of excellence in photography, which is exercised in all parts of the country, does not deter him from giving his services when needed in enlargements or in the working-up of negatives of clients and others, while special attention is given by him to the reproduction of plans on a reduced scale, as well as to the preparation of lantern slides for lecturing or educational purposes. In the dry matter, too, of catalogue illustration, upon which from the business point of view, so much often depends, Mr. Pickard may be advantageously consulted, as his success in this department, especially where sanitary goods and appliances are concerned, is freely acknowledged.

THE Leeds and Yorkshire Architectural Society on the 27th ult. made an excursion to Giggleswick, to inspect the new chapel now being erected at the Grammar School. The donor is Mr. Walter Morrison, and the architect Mr. T. G. Jackson, R.A. A full inspection was made of the chapel, with its cedar carving, mosaics, sculpture, sgraffito work, stained glass, marble pavements and varied use of local stone, which together made the building one of the most beautiful and interesting in course of erection in the north. The visitors were entertained by the head-master (Rev. G. Style), and were conducted over the chapel by Mr. R. Evans (clerk of the works).

THE twenty-second edition of the Great Eastern Railway Company's "Tourist Guide" has just been issued, and it ably sustains the reputation acquired by its well-known forerunners. As heretofore, it is edited by Mr. Percy Lindley. A series of



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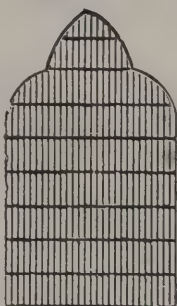
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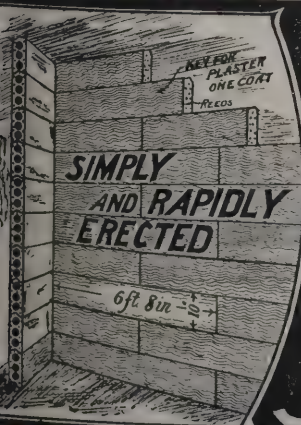
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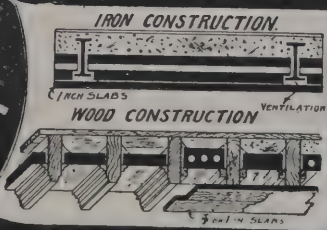
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maps have been added. A fresh chapter will be found on the Tyrol, and some less frequented, and to many tourists on that account more attractive, districts near at hand have come within the scope of this handy guide. By the Royal Mail Harwich-Hook of Holland route fresh districts in Holland and North and South Germany, districts not yet popular and not spoiled, have been opened up. By the improved express service Norway, Denmark and Sweden are now brought within easy reach of the tourist sighing for fresh holiday fields. An added chapter on these districts will no doubt prove attractive and useful.

A PUBLIC meeting, presided over by Mr. D. W. Yates, was held in the Co-operative Hall, Radcliffe, Lancs, on the 30th ult., for the purpose of considering the question of erecting a new spinning mill in the town, with a view to giving an impetus to Radcliffe trade. A provisional committee, composed of local manufacturers and others, had been appointed to investigate the matter and report. The secretary now stated that the committee estimated that the cost of the mill would be 24s per spindle for the counts they proposed to spin. They proposed to have a mill of, say, 70,000 spindles, which worked out at 85,000s. He advanced figures respecting mills similar to the one proposed, and said several interviews had taken place with the ground landlords. Mr. Andrew Greenhalgh, in a short speech, remarked that they had had splendid sites at low rentals offered them. A resolution was adopted approving of the general scheme, and a committee was appointed to canvass the town with a view to ascertaining to what extent the public would subscribe.

### BUILDING AND BUILDERS.

LORD OVERTOUN laid the memorial-stone of the new St. Andrew's United Free church, Blairgowrie.

PLANS have been passed for a new parish church which it is proposed to erect at Somercotes, Notts, at a cost of 5,000s.

MR. W. A. DUCAT, A.M.I.C.E., held a Local Government Board inquiry at Frodingham, Yorks, into the application of the Urban District Council to borrow 1,600s. for the purposes of building Council offices, &c. There was no opposition.

THE Lord Provost's committee of Edinburgh Town Council has recommended the acceptance of contracts, amounting in all to 5,797s., for the contemplated extension of Edinburgh public library. Property in the Cowgate was purchased some

time ago, and to meet the growing demand on the accommodation of the library it is proposed to proceed with the work as soon as possible.

THE contract for pumping machinery in connection with the second artesian boring recently completed at Gainsborough (the largest in this country for waterworks purposes, the well being nearly 1,500 feet deep), has been placed with a Belfast firm, the amount of their tender being 6,150s. The borehole pump will be of a novel design, embodying the principle of multiple valves for both suction and delivery, which will give a much larger waterway than the ordinary form of single valve.

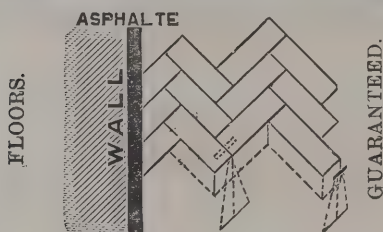
POWERS were obtained some time ago by the Corporation of Blackpool to widen the promenade 60 feet westwards, and it came as a great surprise to the Corporation a month ago to hear that this would only provide a promenading space of 13 feet at the outside, the other space being taken up with the roadway and tramtrack. The new surveyor has put forward a scheme to carry the promenade westwards a distance of 100 feet, his estimate for the additional width being only 45,000s. over the estimated cost of 300,000s. for the smaller widening. The sub-committee who have the matter in hand have adopted the larger scheme for recommendation to the town council at its next meeting.

MR. M. K. NORTH, inspector to the Local Government Board, held an inquiry on the 25th ult. at the Aston Council House as to the application by the Council to borrow 750s. for works of sewerage, and 350s. for the erection of a convenience within the boundary of Aston Park, fronting Trinity Road. Mr. Joseph Ansell, on behalf of the Council, explained that in November last while certain work was being done at some newly-erected houses in Barton Street, it was ascertained that the sewers were in a most insanitary condition, in fact in such a state that they proceeded to do the work before applying to the Local Government Board. The inspector afterwards visited the parts of the district concerned.

A PLOT of land fronting Market Street, opposite the Glebe Mill, Westhoughton, Lancs, has been secured by the Urban District Council as the site for the intended new Town Hall; the area of the land, which has been obtained from the owners of the Glebe Mill (the Westhoughton Manufacturing Company) being about 2,100 square yards. Preliminary arrangements have also been agreed upon for erecting the new edifice.

FOUNDATION-STONES have been laid of a new church and Sunday school on the Pye Nest estate, Halifax. The chapel

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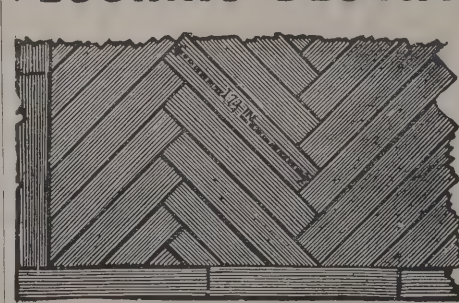
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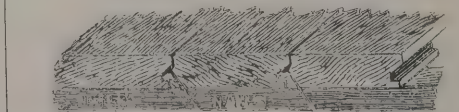
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will be entered from Upper Washer Lane, and will be 50 feet long, 37 feet broad and 27 feet high, and it will accommodate 320 people. The organ chamber is to be recessed from the chapel. On the one side will be the minister's vestry, and on the other a staircase leading down to the school, which will be immediately under the chapel, and owing to the rapid fall of the ground will be well lighted on both sides. Four classrooms are to be provided on this floor, opening out of the schoolroom, together with a vestry for the choir, entrance and staircase hall, &c. The school entrance will be from Washer Lane, and will be about three steps up from the road level. A kitchen, heating apparatus chamber, coal and coke cellars, &c., will be provided in the basement. The buildings will cost about 2,500*l.*, and will be well and substantially built of Southwark stone with ashlar dressing to front elevation, the interior work being carried out in pitch pine varnished. The architects are Messrs. R. Horsfall & Son.

THE foundation-stone has been laid in Birmingham of a new Central Hall which is being erected by the Birmingham Wesleyan Methodists, and is said to be the largest building of the kind in the country belonging to the Connexion. Its site is in the heart of the city, being nearly opposite the Assize Courts, and is designed in the free Renaissance style, in which so much of central Birmingham is being rebuilt. It covers an area of 2,766 square yards, and has frontages to three streets—to Corporation Street, which is the main elevation, measuring 224 feet, to Ryder Street 113 feet, and to Dalton Street 276 feet. In the centre of the building is a fine tower, rising to a height of 180 feet. On the ground floor are fifteen shops, with basement shops, together with sale-rooms, large warehouses and other offices for commercial purposes. One large basement, capable of accommodating 500 children, will be retained by the mission as a ragged school, and will be fitted up with suitable cooking arrangements for the feeding of the poor in times of need. On the first and second floors are the large hall, synod hall and other rooms for Methodist purposes. The main entrance under the tower leads into a spacious hall, where two easy staircases lead to the first-floor landing. Here, by turning to the left, access is gained to the synod hall and church house, and by turning to the right and ascending a few steps the level of the great hall is reached at the platform end. The corridors which run round the great hall give access on the outside to twelve committee-rooms, and on the inside are frequent entrances to the great

hall. The hall is 140 feet long, 90 feet wide upstairs, and 48 feet high, with seating accommodation for 2,300 persons (300 being on the orchestra and 2,000 in the auditorium). There are no seats under the gallery, so that the speakers have a low platform and an undivided audience. On the lower or left-hand side of the tower is the church house. The corridor leading from the stairs already mentioned has on its left (or Corporation Street side) a large committee-room and the synod hall, which will seat 500 persons, and on the right another large committee-room and the Sunday school. Along the corridor are two large and commodious rooms, the library and the ladies' parlour, which look out on Ryder Street. On the floor above are twelve club and classrooms of various sizes for conducting the work of the mission. There are in all five entrances with good staircases. The chief material employed in the façade is red terra-cotta. Great attention has been paid to ventilation, lighting and heating. The entire cost of the scheme is estimated at from 60,000*l.* to 65,000*l.*

#### LEIGHFORD PARISH CHURCH RESTORATION.

AT a public meeting held on the 18th ult. to consider what steps it was advisable to take in connection with the proposed restoration of Leighford parish church, the Vicar read the architect's report, which stated that the Norman church consisted of a nave of at least four bays, most probably with narrow aisles upon both sides, all under a roof of one span. The church was cruciform, and probably triapsidal, evidences remaining of a low arch, which most likely opened into an apse upon the north side. The general setting out of the plan did not suggest a central tower, but an example close at hand of a Norman western tower was suggestive of the same treatment there, and he imagined that its collapse might have caused the destruction of the south side of the church and possibly also the west end of the Bridford aisle, which led to the extensive operations of 1748. The original Norman chancel gave way to a Geometrical construction at the end of the thirteenth century. The next great change in the form of the fabric was the destruction of the Norman north aisle and Early Decorated chapel to make way for the Bridford aisle erected in the fifteenth century. Afterwards it was possible that the church was neglected and allowed to go to ruin, thus necessitating the drastic and disfiguring works completed in 1748, which left the church in its

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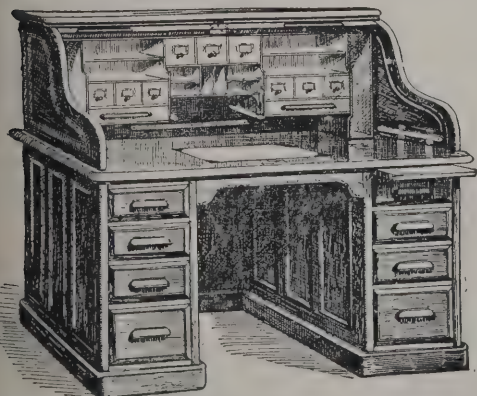
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present state. The unfortunate transformation of that date went far to obliterate the history, as it largely destroyed the beauty of an interesting fabric. With regard to the present treatment of the church, he suggested that the stonework of the Norman arcade should be divested of cement and sham pointing. For the general appearance of the church the recovery of the Norman arcade would be a great gain, but this would involve great expenditure, as a new tower, a bay further westward, would have to be built. Assuming that to be beyond possibility, so far as might be, the Norman arcade should be exhibited to the church upon the Bridgford aisle side by finding a new place for the vestry. This could be conveniently done by placing it at the east end of the aisle in the space now useless. This vestry would be screened from the church partially by the organ slightly moved in position and partially by oak screens, which could have a decorative character. The whole area of the church would thus be brought into use and the vestry placed very conveniently near the choir. The choir arcade should be replaced, the square pews in the choir removed, and new stalls set out. The choir is not central with the nave nor with the chancel arch, but it would be possible to arrange the stalls so as to appear symmetrical with all. The south door should be opened out and provided with a wire door so as to gain means of airing the choir in summer time. The choir and nave are on the same level, not at all an unusual arrangement with Mediaeval builders. This ought not to be disturbed, but the holy table might be slightly elevated. To complete the east end there should be a new east window in the Bridgford aisle. The existing seating might be used up by being cut down and adapted to proper dimensions. The floors should be lowered to their original level and laid with wood blocks and either wood or tiles in the passages. It would be possible to use up the greater portion of the timbers in constructing the roofs, such a reconstruction being necessary, as the tie-beams were too much cut about and the general reconstruction too rough and ungainly to show nakedly in the present state. The choir roof should be lowered to its proper height. The irregular plan of the Bridgford aisle made a construction of an open high-pitched roof with eaves exceedingly difficult and virtually impossible of success. The proper course would be to restore the flat-pitched roof with parapets. Regarding the 1748 brickwork, this ought to be entirely a matter of design. The present architecture was so uncouth and ugly that nothing could redeem it. Had it been an honest piece of Classic design of

the period he would have retained it, but it was a piece of pretence Gothic, having no character but ugliness. He suggested, therefore, that either new windows should be inserted in the brick wall, or, better still, that the latter should also be recased. The tower, although of slight proportions, appeared to be perfectly stable, with the exception of the stonework of the west belfry window, part of which was in danger of falling. Referring to the question of heating apparatus, he remarked that a flue ran up the tower which might be utilised for a low-pressure apparatus placed in a vault under the west end of the Bridgford aisle. The fact that some underpinning was wanted in that position made the construction there still more desirable. The heating would be mainly by radiators, as pipes under gratings on the floors caused draughts and were objectionable for sanitary reasons. He estimated the probable cost of carrying out his suggestions at 4,905*l.*—3,105*l.* for the work in the church and 1,800*l.* for the tower work.

Colonel Dobson proposed that efforts be made to raise funds to carry out the restoration of the church, and that a committee be formed of subscribers of not less than 5*l.* to carry out this object.

Mr. Collier seconded the resolution, which was carried unanimously.

#### THE VICTORIA EMBANKMENT, NOTTINGHAM.

THE new embankment constructed by the Nottingham Corporation along the north side of the Trent, from Trent Bridge to Wilford Bridge, to be known as the Victoria Embankment, was opened on July 25 by Alderman Lambert (chairman of the public parks committee), in the presence of the mayor (Mr. F. R. Radford), the members of the Corporation, and a large attendance of the general public, the event marking the completion of one of the largest and most acceptable schemes of improvement undertaken by the Corporation for many years. The idea of constructing a riverside boulevard and promenade, says the *Nottingham Guardian*, was conceived some sixteen years ago, the suggestion being made to the Corporation by Mr. Arthur Brown, the city engineer. Owing, however, to the difficulty and great cost of the scheme it was not entertained until recently, when the necessity of providing some means of checking the ravages of floods and increasing the facilities for outdoor recreation in a district whose population was going up by leaps and bounds compelled attention to the

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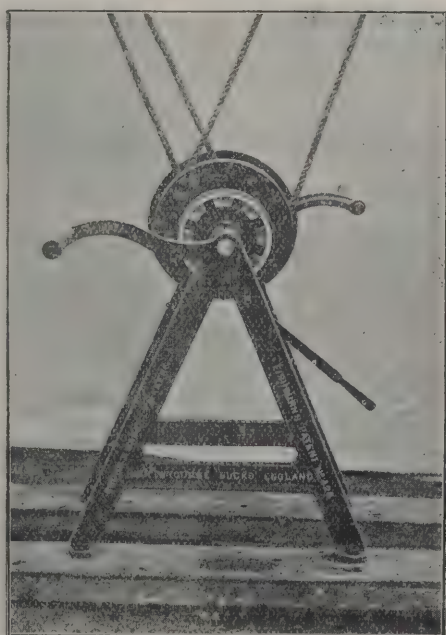


execution of some such work as has now been handed over to the inhabitants of Nottingham. It is fortunate for the city that Colonel Bruce had as his surveyor Mr. Robert Evans, whose sympathies were very early enlisted in favour of the scheme, and who has all through given it his hearty co-operation. Very little progress was made with the work until the advent of the Great Central Railway, which company purchased compulsorily a large amount of property from the Corporation, including the recreation ground on the east side of Queen's Walk and a large slice of Bulwell Forest. The Corporation then obtained power to devote the money received from the sale of lands and properties to the purchase of additional recreation grounds and to the carrying out of this undertaking. A piece of land abutting on the proposed embankment, and having an area of 24 acres, was purchased from Colonel Bruce to be used as a cricket and football ground, and an agreement was entered into at the same time between Colonel Bruce and the Corporation settling definitely the conditions upon which the road should be constructed. Colonel Bruce gave up sufficient land, having an area of about 24 acres, for the formation of the road, and thus the Corporation obtained control of the river on the north bank from Trent Bridge to Wilford Bridge, the acreage quoted being the area of land only and not including the area of half the river, which was at the same time conveyed to the Corporation. The next point which required grave consideration was whence to obtain the necessary material for filling up the road to a level which should be well above the reach of floods, and it was found that the height to which the ground would have to be raised varied from 6 feet to 8 feet on the line of the new carriageway. The river Trent had been neglected for a score of years, and the only dredging which had taken place was that done by the owners of the ordinary gravel boats, whose sole object was to get fine gravel, and who had no interest whatever in keeping open a channel for the free passage of flood waters. It was suggested by the city engineer that if the material were obtained from the river it would serve two important objects—increase the waterway of the river, which would have an important result in time of high floods, and provide good material for the filling up of the road. Mr. F. Raynor, the engineer of the Trent Navigation Company, was approached on the subject, and he gave his hearty co-operation, recognising that whatever was done in the way of dredging on a large scale would benefit the river and relieve for a time the Trent Navigation Company of their obligations in

this direction. The sanction of Parliament having been obtained in the Nottingham Improvement Act 1897, instructions were given to the city engineer. No time was lost in the preparation of working drawings, and the contract for the piling, concreting and hauling the gravel, &c., when delivered by the Trent Navigation Company, and other works were let to Mr. A. Kellett, the sub-contractor for the laying-out and planting of the grounds being undertaken by Mr. W. Bardill, and for the supply of the ironwork by Mr. Andrew King. Operations were commenced in May 1898, and on May 26 in that year the first pile was driven by Ald. Lambert, as chairman of the public parks committee. The embankment is about a mile and a quarter in length, occupying 24 acres of land. The total width of land occupied by road, verges, slope, &c., varies from 170 feet to 250 feet. The roadway is 36 feet wide, and is channelled with granite cubes, the remainder of the carriageway being laid with tar macadam. On the north side is a footway 10 feet wide, and between this and the carriageway is a grass verge 10 feet wide and a narrow footway 5 feet wide. On the south side the narrow footway and grass verge are repeated, but the principal footway is 15 feet wide. The paths are all asphalted, and each grass verge has a row of trees planted down the middle. Between the 15-foot footpath and the river is a grass slope of varying width, nowhere less than 70 feet, and in some places 150 feet wide. Along the slope a row of trees has been planted. The grass slope terminates at the hauling path, which is 10 feet wide, and from the south edge of the hauling path there are constructed continuous concrete steps, seven in number, each step being 1 foot high. The bottom of these steps is protected by continuous piling; the king piles, 9 feet apart, are 12 inches by 12 inches, and the sheet piles, which are continuous, are 11 inches by 4 inches. The steps form a pleasing walk, from which fishermen can ply their gentle craft, and for those who do not care to sit upon the concrete steps about 150 new seats have been provided and placed on the walks. The embankment naturally follows the windings of the river, which are very numerous, and add certainly to the beautiful appearance of the road. At the Trent Baths the space at the back of the baths has been planted with shrubs, &c., the appearance being most pleasing. At the Wilford Bridge end there is a large plantation which, when grown, will hide the somewhat unsightly outline of the Wilford Bridge approach. The slopes at the Great Central Railway goods yard have been planted with trees and shrubs, and at the top

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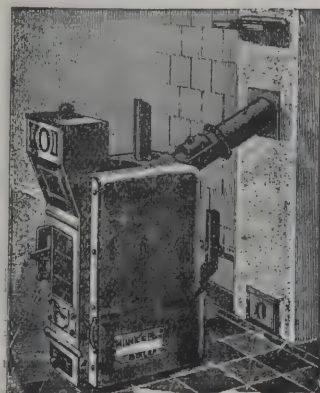
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of the slope there is a privet hedge. Some figures may be of interest to show the amount of material swallowed up in the work. The material required for the filling up of the roads represents about 300,000 tons; the number of piles used is 7,300; the area of turf is 18 acres, and the length of concrete steps equals nearly 10 miles. The length of iron fencing is about 7½ miles. In 20 years or so, when the trees have grown so as to provide the shade necessary in hot weather, the beauty and utility of this walk and promenade will be greatly enhanced. It is confidently anticipated that the embankment will be of lasting benefit to the inhabitants of Nottingham, and it is hoped that steps will be taken by some authority to improve the southern banks of the river, so as to insure the public access to the river and its foreshore. The whole of the works have been designed and carried out by Mr. Arthur Brown, M.Inst.C.E., the city engineer, who, as referred to previously, has been mainly responsible for the initiation of this great work.

### UNDERGROUND RAILWAYS IN LONDON.

THE following report from the Joint Select Committee of the House of Lords and the House of Commons on London-underground railways has been issued:—

1. The committee have met and considered the matters referred to them, and have taken evidence in respect of the lines of route for underground railways which have been proposed by Bills introduced during this session. The order of reference is as follows:—

(1) Whether the lines of route for underground railways in and near London, proposed by Bills which have been or may be introduced during the present session, are best calculated to afford facilities for present and probable future traffic; and, if not, what modification of those lines of route are desirable;

(2) What special provisions (if any) should be made for the protection of the owners, lessees and occupiers of properties adjacent to underground railways from possible damage and annoyance;

(3) What special terms and conditions (if any) as to construction and working should be imposed upon the promoters;

(4) Whether any, and which, of the schemes proposed by the said Bills should not be proceeded with during the present session.

2. Looking to the general terms of reference it appeared to

the committee that these Bills were not to be considered and dealt with by them as by ordinary private bill committees to whom they might have been referred; that the committee had not, for example, to deal with the financial questions that ordinarily arise, nor with any special engineering details, and only partially and indirectly to consider questions of competition. They therefore called for no evidence upon these points.

3. For the purposes of this report the committee adopted the map handed in by Sir Alexander Binnie, on behalf of the London County Council, of the London Tube Railways, 1901, showing all lines open to traffic, in progress, authorised and proposed, from which it will be seen that the needs of considerable areas are unprovided for, specially north of the river in the neighbourhood of East and West Ham, and south of the river between Greenwich and Dulwich. This is possibly accounted for by the fact that the subsoil is of such a character as to make the construction of underground railways very costly.

4. The committee have had before them ten Bills proposing lines of routes for underground railways in and near London, or extensions of already authorised lines.

5. The difficulty in dealing with the question of the best routes is greatly increased by the fact that a considerable number of underground railways have already been authorised by Parliament; some of these have not been commenced, while others have been only partially constructed. It is obvious that any conclusions as to the best lines of route, or modification of the schemes now before Parliament, must be materially influenced by this fact.

6. The committee think it may be useful to state, in the first instance, some general points which they suggest should be borne in mind when dealing with this question of routes.

(a) Underground railways or underground tramways in London and its immediate suburbs, which can be hereafter extended if required, above or below ground, into the country, but from the termini of which passengers could, for the present, proceed by electric surface tramways, omnibuses, and so forth, appear to be the best mode of dealing with the present traffic and the probable requirements of an increasing population.

(b) These underground railways or tramways should run from well-recognised centres of traffic to other like centres of traffic, or from centres of traffic to districts whence large numbers of people have to be carried daily to and from their work in London or the suburbs.

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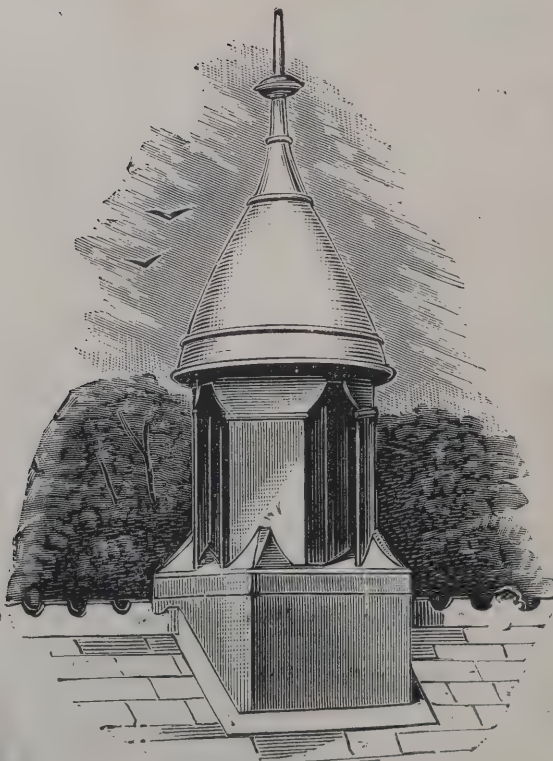
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(c) It is desirable that Parliament should carefully investigate the circumstances under which authorised lines apply for an extension of time. The result of many of the authorised railways having remained in abeyance for a considerable number of years has been in some cases to prevent other companies coming forward to make lines along the same route. The renewal, therefore, of lapsing powers should not be granted without the most careful consideration as to the probability of a company which has already failed to carry out its obligations to the public being able by an extension of time to fulfil those obligations within a reasonable period.

(d) The committee have been informed that the London County Council have had difficulty in getting a *locus standi* to oppose the renewal of powers before Parliament because they have not opposed the original scheme. The committee are of opinion that the County Councils and the City Corporation should be granted a *locus standi* in all such cases where they are concerned.

(e) The underground lines may be worked at the termini on the shuttle system, or by means of terminal loops. Which system should be adopted in each case is a question for the parliamentary committee to which the Bill is referred. But while the advantages to the working of the line by loops are obvious, and in outside districts there can be no objection to them, the committee think that very great caution should be exercised by a committee in sanctioning them in the heart of the City, on the ground of the large amount of space occupied to the possible exclusion of future railways. They have the less hesitation in making this recommendation as the multiple motor system, by which much time is saved in shunting at terminal stations, appears likely to be adopted in future.

(f) Confluent junctions inside tubes should be avoided, nor are they desirable in the open where the service of trains at the converging point is very frequent, since slight detentions on one line impair the service on both.

(g) We concur in the recommendations of the joint parliamentary committee of 1892 as to the acquisition of wayleaves in the case of private property, and in the case of passing under the streets.

(h) One of the main objects of underground railways being to relieve traffic in congested places, it is desirable that stations should be so constructed as to avoid, as far as possible, the discharge of passengers into crowded streets. Interchange stations should, where practicable, be placed at all points where underground lines cross one another, and should be connected

by subways so as to facilitate the passing from one system to another underground.

7. Damage and annoyance to the owners, lessees and occupiers of properties adjacent to underground railways may occur through one or other of the following causes:—

1. Subsidence due to construction, especially to the construction of a station.

2. Vibration due to the working of the railway.

(1) The committee did not think it desirable to receive evidence on the general question of underground railways causing subsidence; they considered that each case of probable or alleged subsidence must be judged by the circumstances of the particular case.

(2) The committee found that a special committee (known as Lord Rayleigh's committee) was examining fully into the question of vibration, and it was decided, therefore, not to enter upon this part of the reference.

It was, however, thought desirable to have some short statement as to the proceedings of Lord Rayleigh's committee, and at the second sitting a memorandum was handed in by the late Sir Courtenay Boyle. It concluded with the following statement:—

"The committee may, in the meantime, say that from the information already obtained they believe that on new tubular railways, under proper conditions, no objectionable amount of vibration need be apprehended, but they abstain from a definite recommendation until the further experiments above alluded to are completed."

To wait for the final report of Lord Rayleigh's committee would have necessitated considerable delay. As soon, therefore, as the evidence and arguments of counsel were concluded, the committee decided to report upon the other parts of the reference, and to deal with the future report of Lord Rayleigh's committee by the following general recommendation, namely:—

A clause should be inserted in every Bill binding the company to adopt and give effect to the recommendations, &c., which Lord Rayleigh's committee may make.

As regards a line already authorised, such a clause can be properly imposed, if and when application is made to Parliament for an extension of time or of works.

8. The committee find a want of uniformity in the clauses imposing upon companies an obligation to run trains in the early hours of the morning for the accommodation of workmen at specified fares; but every Act should contain clauses imposing these obligations, and the clauses in the Central London



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Railway Act 1900, with some modifications suggested by the representatives of the Corporation of London and London County Council, appear well adapted to secure the desired object.

9. The committee have taken a considerable amount of evidence as to through fares for the various systems of railway proposed, and as to uniformity of fares. While there would be obvious advantages to the travelling public in both these proposals and they would commend them to the consideration of the various companies, they cannot make any practical suggestion for their adoption so long as the interests involved are in various hands, but they recommend that the Board of Trade should make a report to Parliament every five or ten years on the working of these railways, of their relations to one another and on the reasonableness of the fares charged thereon. They consider that such a report while giving no absolute power regulating the conduct of the railways, would have a very strong moral effect in inducing the companies to take a reasonable view of their duties to the public.

10. The committee proceed to report upon the several schemes for underground railways proposed by Bills introduced during the present session from the route point of view, leaving, as above stated, ordinary financial questions and other details to parliamentary committees.

The Bills that have been referred are as follows:—Central London; Charing Cross, Euston and Hampstead, No. 1 and No. 2; Islington and Euston; King's Road; West and South London Junction; City and North-East Suburban; North-East London; Brompton and Piccadilly Circus; Charing Cross, Hammersmith and District; Piccadilly and City.

11. The Central London Railway apply for power to make loops at each end of their line, so as to enable them to increase the number of trains and thus facilitate traffic. It appears to the committee that there can be no objection to the proposed loop at the western end of the line. There is more difficulty with respect to the proposed loop at the east end of the line. This Bill may be referred to a parliamentary committee in the ordinary course, subject to the remarks contained in paragraph 6, sub-section (e).

12. Charing Cross, Euston and Hampstead, No. 1 and No. 2—These Bills may be referred to a parliamentary committee in the ordinary course. The committee think there should be no confluent junction on the authorised line. One of the branches should join end on, and the other should be connected by an interchange station. There should be no

difficulty in securing this, as the works of the authorised line have not been commenced.

13. Islington and Euston.—This Bill may be referred to a parliamentary committee in the ordinary course.

14. King's Road.—This Bill may also be referred in the ordinary course if interchange stations are provided at Victoria. An extension to Putney Bridge would be desirable.

15. West and South London Junction.—This Bill may also be referred in the ordinary course.

The question has been raised whether there should not be an end-on junction with the North-West London, which might involve the abandonment of the line between the Marble Arch and Paddington station. On the whole, the committee think that the proposed scheme is the best, as securing the direct through route between Paddington and Victoria stations.

16. It will be convenient to consider the City and North-East Suburban and the North-East London together.

(a) An extension further north of the North-East London would be very desirable, especially in view of the area of land taken by the County Council for building purposes. The committee are of opinion that the Chingford branch is not wanted if the City and North-East Suburban is sanctioned.

(b) The committee consider that that portion of the City and North-East Suburban route from the centre of the City along Bishopsgate and thence turning to the east of Victoria Park is not desirable, and they suggest that (unless engineering difficulties prevent it) a better route would be eastward from the centre of the City, along Leadenhall Street, or other streets in like direction, and thence in a north-easterly direction to Victoria Park. This would prevent the overcrowding of Bishopsgate with tubes, and would also bring communication to an overcrowded district of Whitechapel, which otherwise would remain without these facilities of rapid transit.

(c) Subject to the above remarks, it appears to the committee that both these schemes may be referred in the ordinary course, as they both afford great facilities to crowded districts, and to districts where building is increasing and likely to increase.

17. Brompton and Piccadilly Circus, Charing Cross, Hammersmith, and District, and Piccadilly and City.

The committee are of opinion that there ought to be one through line from Hammersmith along Piccadilly to Piccadilly Circus and the City. They consider it most desirable that there should be an end-on junction between the Hammersmith line and the City and Piccadilly at or near Piccadilly Circus.

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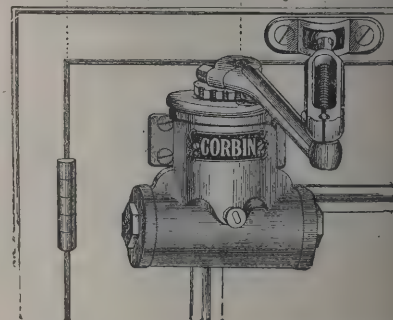
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Failing that, the alternative junction at Charing Cross should be adopted so as to secure a through route.

18. The committee under the circumstances do not approve the proposed extension of the Brompton and Piccadilly Circus line to Bloomsbury Square, but if the through line from Hammersmith to the City can be secured, an extension to the Angel, Islington, from Piccadilly Circus, with an interchange station at the latter place, would be a useful route, and should receive favourable consideration.

19. In the course of their deliberations the committee have had brought under their notice several matters which do not appear to lie distinctly within the terms of their reference. Of these the most important was the proposal that all these underground railways should be subject within certain limits to the control of a central authority. On this the committee desire to make the following observations:—

The question of underground railways in London and the suburbs and of their working is so complicated and of such importance from a financial as well as traffic point of view, that the committee are disposed to agree with the views of the Corporation of London and the London County Council, that in some way there should be a more direct control and supervision of all projects for such underground railways. Whether this should be effected by the supervision of some public department as the Board of Trade, or by some body like the Light Railways Commission, or by a joint committee of members of both Houses of Parliament, appointed at the beginning of each session, to consider all projects affecting the relief and distribution of traffic in or near London, is a question which appears to them to deserve serious consideration.

20. The railways should be constructed on sound economical principles and without undue inflation of capital. It is obvious that if dividends are to be paid on inflated capital, fares to produce such dividends must be on a scale higher than would be required to pay a fair remunerative interest on the money expended on the works. The Light Railways Act gives power to the local authority to construct or to assist in the construction of light railways, and the committee are of opinion that some such power given to the City Corporation and the County Councils concerned in respect to London underground railways would be of the greatest advantage. They therefore recommend that the Board of Trade should insert in each Bill a model clause based upon that in the Light Railways Act, with such modifications as may be necessary, giving powers to the

City Corporation or the County Councils in the counties, in which the railways would be constructed, either to construct or to aid in the construction of the lines.

21. Such powers would enable the Councils to encourage, by subsidy or otherwise, the prolongation of railways into districts thinly populated, and therefore suitable for the relief of congested districts, whereas, in many cases at any rate, a public company would not feel justified in extending their line till the population became greater.

22. It has indirectly been brought to the notice of the committee that another system of underground locomotion—namely, that of subways or shallow tunnels immediately under the surface of the roadways—has been successfully developed and is in progress of further extension both on the Continent and in America.

The committee have heard no evidence with regard to this system, but in view of the large amount of capital involved in the schemes now before Parliament, and the importance of utilising it to the best public advantage, the committee recommend that an early inquiry should be held by the Board of Trade upon this system.

### ST. AGATHA, SPARKBROOK.

THE new church of St. Agatha, at Sparkbrook, Birmingham was dedicated by the Bishop of Worcester on Saturday the 20th ult. It occupies a site adjoining the Board schools in the Stratford Road, and has been erected from the designs of Mr. W. H. Bidlake, and under his superintendence. It is a building of lofty proportions and has massive walls in the late Decorated Gothic style, with an original interpretation of traditional forms, and accommodation is afforded for more than 1,000 worshippers. The materials employed are buff brick facing within and red and blue brick without, with Hollington stone and Bath stone dressings. The roofs are covered with grey-green Whitland Abbey slates. Much of the eastern part of the church is hidden by surrounding buildings, but this is compensated for by an imposing west front and lofty tower facing the Stratford Road. The tower is 120 feet high to the top of the parapet, and is surmounted by a flèche rising 40 feet higher. It is constructed to house eventually a peal of eight bells, and the large belfry lights in the upper part of the tower form an important feature in the design. The gilt skeleton dials of a clock adorn the north and south sides of the tower. Below the belfry is the ringing stage,

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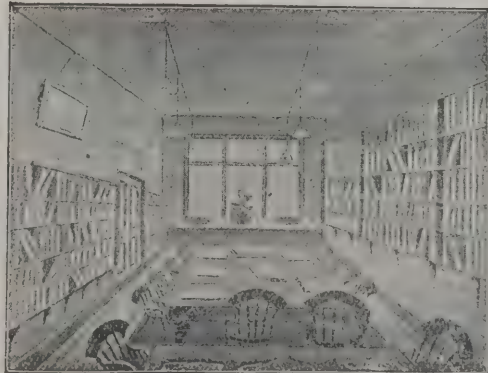
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lighted by coupled windows in each face. From the base of the tower projects a semi-octagonal baptistery, over which is the west window, which is in turn surmounted by elaborate sculpture in canopied niches, representing Christ in majesty, supported by the angels of Justice and Pity, and surrounded by angels. On the north and south sides of the tower, and forming with it a symmetrical façade, are lofty porches, whose tympana are filled with sculpture illustrative of the martyrdom of St. Agatha, while the arch mouldings are decorated with cherubs' heads. The carved inscriptions "Enter into His gates with thanksgiving" and "Enter into His courts with praise" run under the projecting porch eaves. The interior consists of a nave 120 feet long and 29 feet wide, separated from wide aisles by arcades of Hollington stone arches. Projecting shafts rise between the arches and, terminating at the cornice level, in corbels of leaf sculpture, carry transverse timber arches supporting the timber ceiling, which is partly decorated in colour. The clerestory is lighted by elaborate traceried windows, nearly every window being of different design. The chancel is also terminated with an elaborate traceried window, which it is hoped may be filled with painted glass. The chancel is separated by arcades from a choir transept, over which is the organ chamber on the north side, and from an ambulatory which communicates with the vestries on the south. The choir seating is of fumigated oak, that of the nave being of sequoia wood. The pulpit is also of fumigated oak set on a stone base. The builders were Messrs. John Bowen & Sons.

### SEWAGE DISPOSAL.

AN interim report from the Commissioners appointed in 1898 to inquire into the disposal of sewage has appeared. The following are the conclusions:—

1. We doubt if any land is entirely useless, but in the case of stiff clay and peat lands the power to purify sewage seems to depend on the depth of the top soil. There are, of course, numerous gradations in the depths of top soil which are met with in nature, and it is not easy to draw the line between lands which contain a sufficient depth to justify their use and lands which do not. We are, however, forced to conclude that peat and stiff clay lands are generally unsuitable for the purification of sewage, that their use for this purpose is always attended with difficulty, and that where the depth of top soil

is very small, say 6 inches or less, the area of such lands which would be required for efficient purification would in certain cases be so great as to render land treatment impracticable. Further information with regard to this point will be available when our investigation of land treatment is completed.

2. After carefully considering, however, the whole of the evidence, together with the results of our own work, we are satisfied that it is practicable to produce by artificial processes alone either from sewage, or from certain mixtures of sewage and trade refuse such, for example, as are met with at Leeds and Manchester, effluents which will not putrefy, which would be classed as good according to ordinary chemical standards, and which might be discharged into a stream without fear of creating a nuisance. We think, therefore, that there are cases in which the Local Government Board would be justified in modifying, under proper safeguards, the present rule as regards the application of sewage to land. No general rule as to what these safeguards should be can be laid down at present, and, indeed, it will probably always be necessary that each case should be considered on its own merits.

3. We consider it of the utmost importance that the simplest possible means should be provided for adequately protecting all our rivers, and we are further of opinion that it will be desirable, probably for some time to come, that scientific experiments should be carried on in order to ascertain all the real dangers of pollution, against which they should be protected. In the present state of knowledge, and especially of bacteriology, it is difficult to estimate these dangers with any accuracy, and it seems quite possible that they should be either exaggerated or undervalued according to the predisposition of those who have to deal with them. An authority guided by medical considerations might not unreasonably be inclined to insist on a degree of purity which may ultimately prove in certain cases to be uncalled for; while another authority, with its mind fixed upon economy, might shrink from taking essential precautions. It is perhaps scarcely for us to say what arrangements should be made, but we are of opinion that the general protection of our rivers is a matter of such grave concern as to demand the creation of a separate commission, or a new department of the Local Government Board, which shall be a supreme rivers authority, dealing with matters relating to rivers and their purification, and which, when appeal is made to them, shall have power to take action in cases where the local authorities have failed to do so.

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The Architect.

THE WEEK.

THE names of the winners of the Grands Prix de Rome in architecture for this year were announced on last Saturday. The first prize was awarded to M. LOUIS JEAN HULOT, a pupil of M. MARCEL LAMBERT. Like so many other architects, M. HULOT is a native of Paris, where he was born on January 21, 1871, and is therefore over thirty years of age. After three or four years in the Villa Médicis, and if he follows the usual routine by accepting an inspectorship on a public building, he will nearly have attained his fortieth year before he starts an independent practice. Many English architects have gained reputation before they reached that age. The second Grand Prix has been gained by M. JACQUES M. PRÉVOST, born in 1874 and a pupil of MM. GUADET ET PAULIN. M. PAUL BARRIAS, a pupil of M. PASCAL, received an honourable mention in the competition. It is needless to say the masters were formerly successful competitors for the Prix. The Grand Prix de Rome in painting has been awarded to M. JACQUOT DEFRANCE, a pupil of MM. BONNAT ET MAIGNAN; M. AZEMA came next. In sculpture the first prize was won by M. BOUCHARD, a pupil of M. BARRIAS; the next winner, M. LARRIVÉ, studies with the same master.

EVER since the Somersetshire Archæological Society have made Taunton Castle their headquarters they have spent considerable sums towards its restoration. The repairs of the great hall have now been completed, and the various portions of the museum are being arranged. In addition to the cost of the renovation of the hall and vestibule, it became necessary this year, on the appointment of a new curator, to execute repairs to the apartments assigned for his residence. Nothing had been done to them, beyond repairs to the roof, for upwards of twenty-five years previously. Towards the total cost of the work at the hall subscriptions to the amount of 705*l.* 6*s.* 6*d.* have been received, including a legacy of 300*l.* The sum expended, added to the other expenditure on the Castle restoration account, leaves a debit balance against that account of 168*l.* 16*s.* Owing to the numerous calls on the purses of the subscribers, it is considered unadvisable to issue any further appeal. A resolution was proposed and carried lately authorising the committee to borrow sums not exceeding 500*l.* at one time upon security of the property of the Society. It was remarked that they had to make the great hall at Taunton into a museum worthy of the county, and the value of their assets in Taunton was 10,000*l.*, so that 500*l.* was a small sum to borrow on that security.

THE present time appears to be unfavourable for many architectural works which are not modern. Last week we mentioned the case of the Garisenda Tower, in Bologna. The basilica of Vicenza, which is partly the work of PALLADIO, is also said to suffer from the weakness of the foundations. From Mr. SOMERS CLARKE'S report it cannot be concealed that for some time past the condition of St. Paul's was enough to excite grave apprehensions of a collapse. The action of the cathedral authorities in commissioning expensive decorations under such circumstances may be an example of hardihood, but it was to be expected that in a city like London more business capacity should be displayed. It would have shown good sense if instead of covering the walls with compositions which nobody can understand and which are not incentives to devotion, an appeal had been made to the public in general for aid to make St. Paul's secure whatever might be the cost. For the safety of so national a work sacrifices would be made, and it would be possible with the assistance of civil engineers to carry out protective measures on the scale that is demanded. Like the Italians, who at Bologna are applying rough-cast as if it were a universal remedy for defects in construction, in St. Paul's cementing on a small scale has been adopted. The aim seems to have been to save appearances, and time has been allowed for a course of

undermining by railways, drains and other enemies. The cost of preservative works on an adequate scale must now, in consequence, be enormous. It might have been foreseen what would be the results of excavations around the cathedral site, but instead of endeavouring to cope with the dangers the authorities have been occupied with the contests of artists, amateurs and clergymen over the character of the various systems of decoration which have been proposed.

THROUGH the aid of Mrs. WILLETT and her family the restoration of Wymondham Abbey, in Norfolk, has been commenced. The building has a history which can now be considered as interesting. In the year 1107 the old Saxon church was pulled down when WILLIAM D'ALBINI founded the Benedictine Priory as a "cell" to the great Abbey of St. Alban, of which his brother was abbot. The new church, dedicated to St. MARY THE VIRGIN, was then built. It was a cruciform structure, with central lantern tower, two towers at the west end, nave, choir, north and south transepts, north and south aisles to the nave, and chapels to the VIRGIN, St. MARGARET, St. ANDREW and another saint. The building was used in common both by monks and parishioners. In the middle of the thirteenth century, in consequence of the monks claiming the whole of the building, the parishioners procured from the Pope an official recognition of the nave and north aisle as belonging to the parish. Later the lantern tower at the intersection of the transepts being decayed, the monks built the present octagon tower, and thus encroached on three bays of the nave. They at the same time laid claim to the whole building. Disturbances ensued, and the parishioners ultimately re-established their right to the remainder of the nave and the north aisle. In the time of Queen ELIZABETH the present clerestory and the roof of the nave were built and the north aisle widened. In 1448 the priory was erected into an abbey, and a few years later the west tower—now almost a ruin—was built and the bells hung. The abbey was dissolved in 1538, and the last abbot was presented to the vicarage. He was buried under an elaborate monument at the south of the altar. In modern times the great church, which is of cathedral-like proportions, has fallen into a very dilapidated state. The restoration will cost from 20,000*l.* to 25,000*l.* The restoration is intended as a memorial of the late Mr. GEORGE WALTER WILLETT, who was for many years a prominent inhabitant of Brighton, and also of the mother of Mrs. WILLETT.

AT Yaverland, in the Isle of Wight, on the shore of the Haven, is a copse known as Centurion Coppice, which formed the subject of some discussion during the recent visit of the Hampshire Field Club. According to VENABLES, it bears in its name a trace of the existence of the chapel of St. Urian, built by the lords of the adjacent manor of Woolverton. OGLANDER says that this Woolverton "had been formerly a good gentleman's estate; now one THOMAS KNYGHT hath it on lease. They had theyre chappell, part whereof I have seen standinge called Centurion's chappell." St. URIAN, or URIANUS, was born in Bretagne in the latter half of the seventh century. In his youth he went to Dol, near St. Malo, or rather Rennes, where he became a priest, and eventually a bishop. In his old age he retired into a monastery, and died in July 749. Traces of foundations still remain in the copse. Evidence is to be found in the Chancery Rolls of its existence in the reign of EDWARD VI. Why was a chapel built in the island dedicated to St. Urian? A conjectural answer is that at the Conquest (1067) Woolverton became the property of a Breton or of a soldier from the South of Normandy. The church of Yaverland, which has many peculiarities, was restored by Mr. EWAN CHRISTIAN some years ago. It is believed that the building originally was not a parish church, but was the private chapel of the RUSSELL family, to whom the manor belonged. There are several parish churches in England which were originally private chapels. There was a tradition, which does not now find much favour, that the building was erected from the remains of another church which stood in St. URIAN'S copse.

POLYLITHIC SCULPTURE.

THE prophecies of BARUCH are among the Apocryphal books. BARUCH, whose name probably conveyed the same meaning as Benedictus, was the faithful scribe of the great prophet JEREMIAH and his fellow sufferer. It is believed he was present at the siege of Jerusalem under the lieutenant of NEBUCHADNEZZAR, and was one of the exiles in Babylon; he therefore lived six centuries before CHRIST. BARUCH, like the majority of the religious Hebrews of his age, was afraid of art, and especially of sculpture. He considered it to be his mission to raise his voice against the statues of wood, gold and silver which were to be seen in the East, and which he thought were employed as idols. He reproaches the other nations with their weakness and blindness, and with that remarkable power of sarcasm which was a characteristic of the Prophets, he mocked the people for the pains which they took in adorning such figures. He declared that serpents used to eat the hearts of their gods, that they were without feet, and had to be carried. In this view we can trace the influence of JEREMIAH, and, indeed, the epistle bears the name of the greater prophet.

The statement is of extreme importance in the history of art, although BARUCH's book may not be accepted by some classes of theologians. It is certainly early evidence, and from its peculiarly Hebraic language it cannot be the composition of a later age. From what the prophet says about the devouring serpents, it is to be assumed that the body of the statue was carved out of wood, and that the gold and silver were either used for parts of the figure, such as the face and the hands, or for its adornment. It is easy to understand that Semitic tribes would think more of the material employed in a statue than of its qualities as a work of art. To meet that weakness the artists may have covered the parts which were visible with precious metals. It is noteworthy that whenever the prophet speaks of an idol he always describes it as if it were a combination of gold, silver and wood. The idols which BARUCH detested were not unique. Among the Greek sculptors of a later time the use of gold and silver with wood was common, and in that way may have originated the golden masks which were employed as late as the Gothic period.

The meaning of the allusion to the absence of feet cannot be explained with certainty. Some of the idols may not have been *selbstständig*, to use a Germanism, and were used solely in processions when they were carried by priests. Figures of the kind were not uncommon in ancient days, but the prophet may also have endeavoured to bring home to the votaries how helpless was the thing they honoured. What is remarkable in BARUCH's diatribes is that he also speaks of drapery as an adjunct of the idols. We know from the Assyrian figures how much importance was attached to beautiful robes by the Asiatic kings and courtiers. We may even conclude the rank of people was expressed by their dress. From various allusions it has been assumed that at a later date draped sculpture was familiar in Greece, and it has been affirmed that a statue of *Venus* which was found at Pompeii must have required for its completion the aid of drapery which could be changed from time to time. From BARUCH's master JEREMIAH we also learn much in a few lines about the character of the idols. We are informed how they were cut out of a tree of the forest, they were decked with silver and with gold, they were fastened with nails, they must needs be borne because they could not go. Then it is said, "Silver spread into plates is brought from Tarshish and gold from Uphaz, the work of the workmen and of the hands of the founder; blue and purple is their clothing; they are all the work of cunning men." It is not stated that blue and purple textiles were used, but we may conclude from the words of the two prophets that was the practice in the East 2,500 years ago.

The best Greek works are undoubtedly in white marble, but JOHN GIBSON was not the only expert who believed that the figures were coloured or delicately tinted. There was a love of colour among the Greeks as among the Easterns, and they were prepared to make sacrifices in order to gratify their eyes. Besides, the mythology of the Greeks was represented by a great number of figures, and, although the artists may have adhered to certain types to make apparent what deity was before a spectator, the use of ornaments as auxiliaries for that purpose was, therefore,

recognised as legitimate. Gold and silver were best adapted to express whatever was symbolic.

There is accordingly sufficient evidence that besides the chryselephantine statues and the tinted statues, there was an older class made up of several materials. It was likely to occur to such keen logicians as the Greeks that robes, which were not enduring were not adapted for statues, which would depend for much of their interest on their age. For the same reason gold and silver, which were temptations to thieves, were undesirable. Whatever the cause, we know that statues made up of more than one kind of marble were prepared, Greece was rich in marbles, and it was possible to obtain materials that would be suggestive of others of a different class. Not only gold and silver, but draperies could therefore be imitated with sufficient accuracy and without much expenditure of money. A yellow marble was to be found in Corinth, Melos and Macedonia which served for gold; there was a black marble in Miletus which recalled ebony; the purple robes could be represented by Lydian marble, and so on. With men of taste the figures of coloured marbles were not acceptable, but the vulgar rich patronised them, and on that account it appears they were mentioned by MENANDER as one of the accompaniments of luxury. The multi-coloured arrangement was not confined to marbles. Bronze heads, feet and hands were employed with marble figures, and sometimes there was a reverse practice, and to figures in bronze, extremities in marble were added. VITRUVIUS in his second book calls such statues *akrolithoi*. It is possible that when occasion demanded heads were changed, and a man who wished to be agreeable to his guests would require to be possessed of a stock of portraits of their favourites. Some toy-books for children which were in use in the early part of the last century included a number of heads that could be added to one body, and were possibly a survival of the Greco-Roman sculptor's practice.

Sometimes the employment of different materials was more delicately carried out. According to PAUSANIAS there were bronze statues in the city of Clœtas in which the nails only were of silver. There was more naturalness perhaps in using an exquisite marble or precious stones to express the eyes, which was a common practice. It would appear that in the Roman studios there were specialists who were called in for that class of work, and instead of being described as a sculptor the man became a *faber oculus*.

Neither BARUCH nor JEREMIAH mention the existence of marble idols, unless they are comprised under the generic term stone. It is possible they were not present at that time in many parts of the East. According to PLINY the use of marble was known to Greek sculptors about the year 580 B.C. BARUCH was probably then living, but it was not likely that he took any concern in the progress of art in Greece. No doubt the early figures of stone or marble were stiff in their attitudes, but much of that quality would be lost if drapery were introduced.

It cannot be said that the use of coloured marbles in sculpture has ever died out. Composite figures were pleasing to Roman amateurs. From time to time examples are met with which show that the arrangement continued to find favour as time went on. During the later Renaissance many examples were produced, and they were more in keeping with the unrestrained luxury in furniture and decoration to be found in the interior of palaces. Occasionally instances are still to be seen in auction-rooms, and there is probably not one of the principal London dealers in bric-à-brac who would not be able to produce large busts or terminal figures which are formed of different coloured marbles with or without bronze. The class of art may be condemned, but it has antiquity in its favour, and it is not without alliance with various other classes of art. It provokes also a comparison with painting, and as an element in decoration it might occasionally be turned to account.

Marble pictures which differ from mosaic by the avoidance of any particular form of tesserae were also in favour as a wall decoration. In a church at Antwerp, of which RUBENS was to some extent the architect and superintendent of decoration, they were tolerated by him, although with his own hand he could fill the spaces occupied by them in a fraction of the time devoted to cutting out the fragments from marble. But the great

Fleming could be generous, and wished to give a helping hand to artists in other materials besides paints and canvas.

THE BRITISH MUSEUM.

ONCE a year, as our columns testify, there is in many English counties a revival of interest in archæology. It is not to be supposed that all who assist at the meetings, or share the waggonettes in excursions, are able to contribute to the extension of knowledge on the subject. The majority will generally be found to be inspired by a desire for entertainment of a class which is obtainable under no other conditions. But a great deal of enjoyment is derived, and it is possible that old buildings and other relics of antiquity are afterwards remembered with more reverence. What was before thought no more than rubbish may be discovered to possess the claims on attention which should belong to survivals of the past. Even a slight amount of enthusiasm may often be sufficient to preserve a building and to keep out of the melting-pot a piece of silversmith's work which used to be looked upon as an auxiliary to superstition. Everyone knows how much has been sacrificed in this country through a want of appreciation of objects which have a history; and those who may consider that the present is inferior to the past in respect to its productions have reason to be grateful to local archæological societies for the educational work they have accomplished.

In case it should be assumed that England is too circumscribed to be worthy of the undivided attention of an archæologist we generally have a report of the British Museum appearing about the time when the county excursions are undertaken, which will suggest the additions which have been made to treasures which as revelations of preceding ages may be said to be unrivalled. A study of the contents of the Museum cannot be accompanied in every case by the pleasures which await those who belong to local archæological societies; but, with all the drawbacks, it is satisfactory to know that during the past year 663,724 visitors passed through the portals of SMIRKE'S building. Many of them would perhaps hesitate to acknowledge they were archæologists, but it cannot be denied that the object of the Bloomsbury collections is to be suggestive of the past rather than of the present, and the crowning attractions are derived from antiquity. The Trustees have endeavoured to enable visitors to see the objects with less difficulty, for by the introduction of skylights in several galleries the contents of the cases are less obscure on dull days.

For architects the most interesting acquisition will be found in the remaining drawings of ancient buildings which were made in all parts of England and Wales by JOHN CHESSELL BUCKLER and members of his family during three generations. The purchase of the collection has been spread over three years. The drawings fill nearly 100 volumes. Many of the edifices no longer exist, and others have been so transformed as to be now recognised with difficulty; but as the BUCKLERS were remarkable for the painstaking accuracy of their representations, the value of the record is inestimable. The diaries of GEORGE SCHARF, the elder, in Lycia during the years 1839-44 will also be found useful in connection with the exploration of Sir CHARLES FELLOWES, by which the Museum was enriched with an interesting collection. Remains of architecture are not easily obtained, but some marble slabs and fragments have been brought from Naucratis and from the tomb of AGAMEMNON at Mycenæ. Another acquisition is a cast of pillar inscribed with *boustrophedon* inscription in archaic Greek and Latin characters having reference to sacred rites. The original was found *in situ* in the Roman Forum under the black marble pavement, and beside two oblong bases, apparently of the two lions which, according to Roman tradition, were beside the tomb of ROMULUS or of FAUSTULUS.

All keepers of museums know that objects and works which are incomplete may be expected to be one day furnished with the absent fragments. For instance, there was a portion of a bar of gold in the Museum which was supposed to have been used as a medium of exchange, but another fragment has been purchased, and it is now found that the total weight is 1,113 grs., or about eight and a half times

the Mycenæan unit of 130 grs. Of humbler interest, but an object that will appeal to a larger number, is a bronze writing pen of the Roman period, one end fashioned like a modern nib, not split, but with a groove down the centre; the other end is shaped like a small spoon for erasures.

Greece and Rome are modern compared with Egypt and Assyria. Mummies have become almost too numerous, but those derived from a predynastic cemetery in Upper Egypt are unlike the generality of examples. They were found in shallow oval graves hewn in the rock. They are representatives of a fair-haired, light-skinned race, which appears to have been descended from the aboriginal inhabitants of the Nile valley.

A collection of scarabs represents a period from B.C. 3600 to B.C. 600. Among other additions are five baked terra-cotta models of Egyptian houses of the dynastic early period. It is too often believed that the arts in Egypt were under such rigorous hieratic control, individuality was not tolerated. The white limestone stele of MERI-HERU refutes this tradition, for it is signed by the sculptor REN-SENE. The Assyrian collection has been increased by 1,360 tablets from Lower Babylonia. They include a number of interesting commercial documents and contract-tablets which were inscribed during the periods of the rule of the kings of the second dynasty of UR, about B.C. 2400, and of the kings of the first dynasty of Babylon from about B.C. 2300 to B.C. 2050, as well as several valuable documents which date from the reigns of CAMBYSES and DARIUS THE GREAT, B.C. 529 to B.C. 485, with black basalt gate-socket of ENTEMENA, governor of Shirpurla, about B.C. 4500, inscribed in "line-Babylonian" with the king's name and titles, and with an account of the temples which he built during his reign; and a baked clay cone of GUDEA, governor of Shirpurla about B.C. 2500, recording the building of a temple in honour of the god NINGIRSU.

The purchase by the Trustees of the gold ornaments found in Ulster has been interpreted as an addition to the many wrongs endured by Irishmen. Jewellers' work from Wales has been obtained, and we may be assured there will be no outcry by the Welsh members at the insult offered to the Principality. At Rhayader, in Radnorshire, were found a broad gold bracelet ornamented with applied wires, with enamelled clasps displaying Celtic scrollwork, an incomplete pair of gold bracelets in quadrangular panels set with garnets and sapphire pastes, and a heavy gold ring set with an onyx intaglio of an ant. At Sully Moor, near Cardiff, four gold rings, with ornamented angular shoulders, one set with a cameo and another having a cock engraved on the bezel, were discovered. From some Roman coins found with them the date of the rings appears to be about A.D. 300. The most valuable acquisition is, however, a massive triple collar of gold, with engraved geometrical ornament and cup-shaped projections, found at Penha Verde, near Cintra, Portugal. This important addition to the prehistoric series in the Museum is probably the most remarkable relic of Bronze Age metal-work found in Portugal.

The Department of Coins and Medals has been enriched by 1,311 examples, of which 54 are gold, 491 silver, 704 bronze, and 62 other metals. Some are rare, and there are fine examples among those from Greece. One from Eumania, in Phrygia, suggests the historic importance of coins. The late M. WADDINGTON, the French statesman, was no less distinguished as a numismatist. In one of his works he came to the conclusion that the city of Eumania was for a time known as Fulvia, as a complement to the first wife of MARK ANTONY. The coin obtained for the Museum confirms the hypothesis, as from the inscription it is evident the name of the "shrill-tongued FULVIA" was obliterated from the dies and the old name of the city restored.

Among the printed books now is a copy printed in Paris in 1483 of BOCCACCIO'S "Ruine des Nobles Hommes et Femmes," one of the earliest illustrated books printed in France. The woodcut blocks used in this work were sold to RICHARD PYNSON, and were employed by him to illustrate LYDGATE'S translation into English of BOCCACCIO'S work printed in 1494 under the title of "The Fall of Princes." The British Museum possesses two imperfect copies of this translation, one of which wants all the leaves containing the woodcuts, while the other wants three of the nine which

should exist in a perfect copy. One of the two earliest guide-books printed describes Pozzuoli, and has been secured. The most important donation is the library of the late Mr. H. S. ASHBEE, containing 8,764 works in 15,299 volumes. These include a collection of books by or relating to CERVANTES, consisting of 384 editions of "Don Quixote," 114 editions of the other works of CERVANTES, and 252 books relating to his life and works. Other important portions of this library consist of large collections of the works of FIELDING, STERNE, MOLIÈRE and LE SAGE, and of an interleaved and extra illustrated copy of NICHOLS'S "Literary Anecdotes," extended to 42 volumes. For lovers of the theatre the Hon. SIDNEY CARR GLYN'S gift of a collection of play-bills of Covent Garden Theatre, 1791-1880; Theatre Royal, Haymarket, 1805-79; Lyceum Theatre, 1809-91; the King's Theatre, afterwards Her Majesty's Opera House, 1808-48; Royal Kent Theatre, Kensington, 1834-46, and of other London theatres and places of amusement will be of more importance than the Assyrian deeds of baked clay.

The Department of Prints and Drawings has acquired 11,133 works of various classes. Among them are 53 designs by JOHN FLAXMAN and 210 by STOTHARD. No less than 493 platinotype photographs of ancient buildings in various parts of the United Kingdom, executed for the National Photographic Survey and Record, have been presented.

EXPLORATION OF RUINS IN ZAMBESIA.

IN a letter to the *Times* Dr. Carl Peters writes:—I have been exploring in the last two years the country between Zambesi and Sabi, and have been able to ascertain that all the ancient ruins along the eastern border of Mashonaland apparently belong to the same class of civilisation. Along the banks of the Mazoe and Ruenya, on the high plateaux of Inyanga and Melssetter, in Manicaland, and in the neighbourhood of the Sabi river I have everywhere found the same type of ruins. Over the whole district the cyclopean wall is the typical form of house-building, and in some parts whole cities of these buildings are lying open to the eye of the astonished explorer. In north Inyanga I found debris of ancient settlements with a diameter of 1½-2 miles. All over that country artificial water-furrows are still existent. You know the book of the late Theodore Bent, "The Ruined Cities of Mashonaland," in which he describes some of the ruins in the southern parts of the zone very correctly. It is much to be regretted that this excellent explorer has died so soon. His theory on the character of Zimbabwe and other ruins is undoubtedly quite correct. The symbols of phallus-worship can be found from the Zambesi down to the Sabi, and there can be no doubt that the old race which has lived here formerly, and which has left those ruins, adhered to the cult of Baal and Astarte. Bent is also right when he points out that most of those ancient fortifications were built in connection with mining business. Not only are all old workings on gold mines generally found in the neighbourhood of those ruins, but I have also discovered in this summer a series of ancient copper mines along the eastern bank of the upper Sabi. I followed up these copper workings to an extent of about 20 miles, but I am certain that their extension is a much larger one towards north and south, and I have been informed by the natives that similar workings exist also on the western bank of the Sabi river.

All these facts, which I was able to ascertain through my explorations, lead me to believe that the ancient conquerors belonged to a Semitic race, and the repeated appearance of the name of Massapa, Umsapa, Rusapi, Sabi, &c., makes it highly probable that they were Sabæans, a race very nearly related to the Phœnicians of the Mediterranean. We have found in Manicaland two stones with old inscriptions, which I have not been able to decipher yet and which I expect presently in London. They seem to me also in old Semitic characters.

Thus far my explorations confirm more or less the opinions put forward by other explorers before.

Now I think I am able to go a step further with my conclusions on the basis of new evidence which I have got.

Livingstone in his last diary already leads attention to the strange fact that a tribe on the Rovuma river showed tattoos of a decidedly Egyptian character. I have also wondered how it came that the Egyptian prefix "Sa," meaning "land," appears in the name of "Sofala," which was originally "Sa-Ophara," or "Ophirland." During my last expedition I had a chance to get access to some newly-discovered bushmen-paintings, which are in form and in colour of an absolutely Egyptian character. It is also known that etymologists have found in the Hottentot language traces of the ancient Egyptian.

These all are very remarkable facts, which seemed to contradict the Semitic-Sabæan theory of ancient South African civilisation. I am obliged to the chief of the police in Umtali for further and much more important evidence in this direction. I have brought with me a female, undoubtedly Egyptian, figure of 4½ inches length, which is splendidly conserved. This figure was found about 17 degs. south and 33 degs. east, south of the Zambesi river. It has hieroglyphics round its waist, which have not been deciphered yet. I take it that this figure is about 5,000 years old, and a representation of the goddess Isis. This now is a most remarkable fact, for it is quite clear that the statuette cannot have come overland from the Nile to the Zambesi river. In connection with the other evidence I have mentioned it proves direct Egyptian influence in South Africa.

Now you know that besides the "Ophir" question the mysterious country "Punt" or "Phoun" has excited for centuries the curiosity of scholars. This country "Punt" or "Phoun" is mentioned in ancient Egyptian representations:—"And Sanch Kara of the ninth dynasty, about 2500 B.C., and the Queen Hatsepu, of the eighteenth dynasty, about 1600 B.C., sent expeditions thither. They brought back gold, ivory, several kinds of valuable timber, leopard skins and two kinds of monkeys, among them baboons, too. The interpretation of the word Punt is just as much disputed as that of Ophir; but, judging from the above-mentioned products, it is probable that under Punt an African country has to be understood" (see Dr. Carl Peters, "King Solomon's Golden Ophir," pages 77, 78), and as the products of the "Punt" expeditions are more or less identical with the returns of the "Ophir" voyages, scholars as Carl Ritter have already concluded that "Ophir" and "Punt" were the same country.

The country between Zambesi and Sabi in South Africa, I take it, is the "Ophir" of Solomon's epoch. I believe that the finds of my last expedition bring some evidence that "Punt" was indeed the same country.

I believe that these mining districts were originally discovered by the Egyptians, and were an Egyptian colony; that the Phœnician epoch, of which many more relics are existent, probably followed the Egyptian, in fact, that the Phœnicians took the country some time between 1600 B.C. (Queen Hatsepu's expedition) and 1100 B.C. (King David's period).

Since then Arab influence has been predominant in these parts of the world, till the Portuguese conquistadores under Vasco de Gama appeared.

I intend to lay all my evidence presently before the public.

THE SECURITY OF ST. PAUL'S CATHEDRAL.

THE following official statement concerning the condition of St. Paul's has appeared in the *Times* from Mr. Somers Clarke:—

Many reports have been circulated about the security of St. Paul's Cathedral which are not more remarkable for their conflicting nature than for their lack of authority. The public have been alarmed by statements about serious cracks in the fabric. These there are. They, expecting to see daylight shining through the walls, go away disappointed. Then we see comforting reports that there is really no cause for anxiety.

The expectations of the one set of people are as unreasonable as the other reports are untrue.

Never having seen any representative of the Press, information that has been attributed to me is wholly imaginary.

It has been thought well that I should ask permission in your columns to make a statement as to what is the real condition of things, and this I will try to do as briefly as possible.

Within the first hundred years after the structure of the cathedral was finished the immense weight resting on the foundations of the eight piers which carry the dome and on the foundations of its abutments caused those parts of the structure to sink a little.

Most ingeniously spread out as are these foundations so as to cover the largest possible area, the earth beneath them has consolidated rather more than under those parts of the fabric less heavily loaded.

The settlement thus caused has broken the eight arches and the windows of the clerestory over them in the nave, the choir and the north and south transepts, where they abut on the dome piers.

In the same way the very great weight of the western towers has caused them to sink. In sinking they have cracked the west front in a vertical direction through the great door, the window above and the vaulted ceiling of the portico. They have also cracked through the wall of the chapel to the east.

It is very rarely that one finds one of our cathedrals with towers or other heavy features wherein such parts have not been a cause of settlement.

Such settlements are not necessarily a cause of serious insecurity, but it is obvious that by them the integrity of the

edifice is more or less destroyed. Where the structure was intended to be tied together by continuous masonry the continuity is broken. Arches which should exercise their pressure in a definite direction begin to act in directions unforeseen.

In buildings of Pointed architecture such deformations are less serious in result than in those where round arches only are made use of. Pointed arches will undergo the most extraordinary distortions before they finally yield. The moment a round arch is broken or begins to spread the top flattens and its strength is jeopardised.

Above a hundred years since the development of the before-mentioned settlements gave cause for anxiety a system of great iron ties was introduced into St. Paul's Cathedral. These are placed so as to tie back to the dome piers the fronts of the north and south transepts; to counteract, in fact, the want of continuity caused by the breaking through of the arches and window already referred to.

But another movement was also observed, and ties were introduced to counteract it. The transept fronts were found to be settling away from the main fabric, and also themselves to be settling towards the east and west, this being demonstrated by a crack extending vertically through the windows.

The damage in the south transept was greater than in the north, and has since developed. This we can tell by observing the size of the joints between the stones, many of which, after the fashion of the time, were run in with lead, now quite loose and not filling the joints.

Wren was well aware that the substratum on which the cathedral was to rest left much to be desired.

The Mediæval builders as a rule troubled themselves very little about foundations. Wren took all precautions that were known or practicable in his time.

Examining the site of his new cathedral, he found that, passing through the debris of old London, he came, at a depth of some 15 feet or 16 feet from the surface, to a layer of clay, or "pot earth," as he terms it. This varied from 6 feet to 4 feet in thickness. The pot earth rests on a stratum of sand (not at all solid) mixed with gravel stones, the lower part wet. Below this, and some 35 feet to 40 feet from the surface, lies the London clay. Wren thought it out of the question to carry all his foundations down to the London clay. He rejected piles, foreseeing that wells or other things might more or less drain off the water from over the clay, and knowing that, unless piles remain always under the same conditions, they must certainly rot. He thought best, by spreading the foundations, to float the cathedral on the bed of "pot earth," and thus he built, never dreaming of the desperate attacks the sandy substratum under the pot earth would have to sustain. Had this substratum been left undisturbed, although there would no doubt have been some movement on the structure on the lines of the chief settlement we now see, there is no reason to apprehend that the movement would have continued.

The very necessary increase of sanitation and of road improvement was probably the first serious attack on the substratum.

The ground on which the cathedral stands slopes rapidly towards the south and the west. It is fairly level to the east and north. In all directions sewers were made and at various depths.

It was proposed in 1832 to bring a sewer at some 30 feet below the surface through the churchyard on the south and east sides of the cathedral. Immediately the danger to the fabric that this would cause was pointed out, the Corporation of London, which has ever shown the greatest consideration for the cathedral, ordered the works to be stopped. The deep drain in these places has never been made. Unfortunately it was carried up Godliman Street almost into the churchyard, and must have done not a little to drain the substratum, especially near the south-west tower. The level of this sewer is considerably below the bottom of the foundation of the cathedral walls.

Some thirty years ago the Metropolitan District Railway was made under Queen Victoria Street, cutting a large gash along the southern slope of the hill on which the cathedral stands.

The railway at its nearest point is but 530 feet away; that is, just about the length of the cathedral. The railway is, in fact, a huge trench cutting into the sandy stratum. The disturbance caused by making such a trench was very great. There cannot fail to have been a considerable change in the water-bearing conditions just above the London clay. A cutting once made the water will always follow it.

Below the underground railway there has since been pierced the tube for the Waterloo and City Railway. How far this is down in the London clay I do not know.

We find, then, that the southern slope of the hill on which the cathedral stands is fairly riddled with excavations of one sort and another. There are sewers, the underground railway, and a tube at a lower level.

The most remote of the railways or tubes is but just 530 feet from the cathedral foundations.

Those who have studied earth movements, the result of deep excavations, know that a great deal of dislocation takes place in a line diagonally right and left of the parts excavated. The fact that the underground railway is 500 feet off does not insure that resultant earth movements do not come much nearer to the cathedral. During the last twenty years fresh indications of settlements have been showing themselves in the walls of the church. The movements are still in progress.

Those most to be observed are on the south side. The worst are in the south transept. The way in which these have moved since the ties of 100 years ago were inserted shows that the settlements are due not to the thrusting of arches in the fabric itself, but to the subsidence of the mass which at this place consists of a wall from 8 feet to 10 feet thick, 130 feet long, 130 feet high, and weighs between 12,000 and 13,000 tons.

The arch of the window head is so broken that the great keystone carved with a cherub had dropped more than 2 inches from its place. Before the repairs just completed it was quite loose, and was merely held by the pinch of some stones at the back and by the ironwork of the window. The wall has, in fact, split vertically through the doorway and window over it, sinking gently in two masses right and left.

The coffered window head we see from inside the church is quite out of shape, and the same dislocation in a less degree may be observed over the windows of the clerestory adjoining. The massive iron stanchions intended merely to resist the wind and to give rigidity to the lead glazing are now bent by the weight of the window arches pressing upon them.

It would be going into too much technical detail to state in your columns where there are other indications of movement. It is enough to say that they exist on the south side of the church, and we know that some of them have continued to develop during the last three years. They are still developing.

If we suppose it possible that the subsoil be left from henceforward untouched, the settlements are of sufficient importance to make it necessary not only to watch them carefully, but to expend considerable sums (out of a very limited income) on their repair. During the last four years the Chapter has had to find the money for such works.

But now comes the attack by the electric railways. One of these—the Victoria, City and Southern Electric Railway—proposes to come under the churchyard, taking a line between the cathedral and the great warehouses on the south. The centre line of the tube or tunnel would be about 40 feet from the south-west tower and 50 feet to 60 feet from the south transept.

Another—the Piccadilly and City Railway—proposes to pass under Carter Lane—that is to say, under the first street immediately south of St. Paul's Churchyard.

The centre line of this tunnel is at a distance of 170 feet both from the south-west tower and the south transept. It would be a little nearer to the cathedral than the width of the west front. It would be but 300 feet from the centre of the dome.

We must not forget that the cathedral is already attacked on the north. Here is the tube of the Central London Railway, and this is but 460 feet from the centre of the dome.

We know that this tunnel, passing as it does close to Bow Church, has already in the few short years since it was pierced caused the steeple to overhang 1 foot 9 inches towards itself. Bow Church tower is a mere toy compared with the enormous weight of St. Paul's. The area of one of the western towers of St. Paul's is just double the area of Bow Church tower.

But, sir, the chief danger to the cathedral lies by no means only in piercing the tubes or in the vibration from passing trains. The tubes may be sunk ever so far down, the vibration may, and no doubt will be very much reduced, but wherever the tube may be a tremendous hole must be made for the public to get at it. Then when the bottom is reached there are footways, cross passages and all manner of subsidiary excavations. Who knows what underground streams may not be tapped in making these big shafts, or how much superincumbent weight may affect excavations?

The Piccadilly and City Railway proposes to place its terminus under the space where Cannon Street is crossed by Queen Victoria Street. The tunnels in which is the terminus must necessarily be of considerable length, and can hardly fail to come within 600 feet of the cathedral.

The great hole and excavations to the east are, however, not more dangerous than would be those to the west on the slope of Ludgate Hill, where a station is projected. There is already, on the north, the Post Office station of the Central London Railway.

The results of these big excavations and disturbances would very probably not show themselves seriously in the fabric of the cathedral for a good many years; but what is, let us say, 50 years in the life of a great national monument, one of the most magnificent buildings in the world, and which, taken due care of, may last for 1,000 years and more?

CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.

THE fifty-fifth annual meeting of the Cambrian Archæological Association was held at Newtown, Montgomeryshire, on the 30th ult., when the presidential address was given by Lieutenant-Colonel E. Pryce-Jones, M.P., who in the course of an interesting paper said it was not his intention to enlarge upon any of the details that would come before their notice during the week's excursions, but he would like to say a few words upon two or three general questions which appeared to have a close connection with the work of the Association. These points were:—(1) The protection and better preservation of our national monuments; (2) the formation and the establishment of local and national museums; and (3) the collection and publication of local and county records. It was hardly necessary to dwell at any length upon the need for, and the importance of protecting and preserving the ancient relics and monuments which the hands of the Goth and the ravages of time have still left to us. But the days had not yet come when a warning on this score could be deemed unnecessary, for he was afraid that it was still within the bounds of possibility for meinhirion and even crosses to be broken up and to be built into walls, and for inscribed pillar stones to be utilised as gate posts or lintels or even pig troughs. Civilised communities had learnt to recognise the value of the accumulated knowledge which might be derived from the monuments of the past, but the careless and the thoughtless could at any moment destroy for ever a possible source of invaluable information, and the utilitarian material mind was apt to think more of a standing shed than of a broken ruin. To those who had a responsibility in the matter of preserving our ancient monuments, be they stone crosses or dolmens, or the remains of ruined buildings, he would commend the good advice tendered by a distinguished member of this Association—Mr. Romilly Allen—in a paper which he read before a kindred society some few seasons ago, viz. that they should take advantage of the Bill passed for the Preservation of Ancient Monuments, the provisions of which enable any owner of a monument by deed of hand to constitute the Commissioner of Works its guardian, while relinquishing no right which he previously possessed with regard to the monument itself, except that of being able to destroy it. The Commissioner of Works, he understood, undertook in these circumstances to maintain the monument at the expense of the Government. Local archæological societies and the local authorities could do much to stimulate public interest in this matter, and he trusted that Montgomeryshire would not be behindhand in carrying out so obvious a duty. The second point which he desired to mention was the desirability of encouraging the formation and establishment of local and national museums. For reasons that were by no means clear or conclusive, the Government up to the present had not looked with a kindly eye upon the indubitable claim of Wales to a share of the public money that was devoted to the maintenance of museums. It behoved the community to act in such a manner that the Government must eventually be shamed into doing what was right and just in the matter. Looking at the position from a practical point of view, the suggestion nearest to hand was that museums and art galleries should be established in connection with the National Colleges. In the time to come they might perhaps have so far composed the local contentions as to be able to decide harmoniously and unitedly on the most suitable place for what may be termed the National Museum for Wales—a museum which in its comprehensive arrangement and educational possibilities would fully represent the continued development and progress of the country. In the meantime incalculable good could be effected by establishing and fostering local museums, which would serve not only as a storehouse where they might rightly preserve precious treasures, but form also an educative agency appealing not only to the awakening intelligence of their youth, but to the wider range of thought and ability amongst our scholars and experts. As a Montgomeryshire man, he was glad to feel that in that respect also they of that county could hold their own, for in the Powysland Museum and Gallery of Art at Welshpool they had a local collection that was, he believed, second to none in the Principality, both as regarded its objects and its contents. Finally, he desired to say one word as to the need for collecting and publishing local and county records. In that matter Montgomeryshire could claim that it had led the way, for, apart from the many valuable papers concerning the county and its antiquities which were to be found in the pages of the "Archæologia Cambrensis," they had in their Powysland magazine a collection of local and other records that would make the task of the county historian, when he appeared, comparatively light. Other counties in Wales should follow so excellent an example, for the time had come when the few county histories which they possessed, such as Meyrick's "Cardiganshire" and Jones's "Brecknockshire," all required to be rewritten in the light of fuller information and brought up to date. As an example of what could be done with early county records, he need only refer to a work recently carried

out by one of the members of their own committee, viz. the Calendar of the Quarter Sessions Papers of the county of Worcester, compiled by Mr. Willis Bund. By means of that most admirable compilation Mr. Bund had succeeded not only in showing the importance of the documents with which he dealt, but in throwing a flood of light on the daily life of the people of this county two and three centuries ago. Work of a similar kind was urgently needed in connection with documents relating to Wales, both locally and in the public depositories, and he earnestly commended it to the attention of the members of the Cambrian Archæological Association.

TESSERÆ.**Roman Britain.**

THE same style and taste in art and that love of convenience, comfort and splendour that was found in the chief provinces of Italy and Gaul, which fell short only of imperial Rome itself, pervaded the palaces of the Roman generals and the British chieftains—their coadjutors and allies; and Roman luxuries in architecture, such as hot, cold and vapour baths, with gymnasia, hippodromes, theatres and amphitheatres were to be found, as their ruins testify, in every Romano-British city or station in the island. Britain abounded at this time with well-built villages, towns, forts and fortified stations; and the whole country was defended by that high and strong wall, with its numerous towers and intervening castles, which reached from the mouth of the river Tyne on the east to the Solway Firth on the west. This spirit of improvement that distinguished every spot whereon the Romans formed a settlement, so much advanced the taste and increased the number of British artists and artificers that in the third century this island was celebrated for artistical knowledge. When Constantius, the father of Constantine the Great, was about to rebuild the city of Autun, in Gaul, in the year of Christ 296, being well acquainted with Britain, of which country his wife Helena was a native, he procured the ablest of his workmen from there, which, according to Eusebius, greatly abounded with the best artificers. After the abandonment of Britain by the Romans—whose attention was called by insurrections against their imperial authority in states nearer home to think much of this distant colony, which had been severely ravaged by the Picts and Scots—the classical taste in architecture gradually declined, and was succeeded by various, and in some instances depraved, styles. The country, although divested of Roman armies, had been thoroughly Romanised by the enlightened conquerors, and if no Roman general or person of inferior rank remained behind, the Britons who had been entrusted with command had become half Romans by education.

Modern Medals.

All coins preceding the ninth century or age of Charlemagne are denominated ancient; all posterior to that period down to the present time modern. Pinkerton, in his valuable "Essay on Medals," observes of the latter that down to the revival of learning in the sixteenth century "they are so very rude that curiosity alone suggests any inducement to examine them. Without dates or epochs they cannot serve one purpose of utility. The very portraits found on them are so uncouth that the 'human face divine' is scarcely discernible; the reverses always bear a most beautiful cross, garnished with pellets, or a dish of some such exquisite flavour." The most observable difference in respect of art between modern and the ancient medals seems to lie in the portraits. The ancient artists even of the lowest class marked the character and exhibited the life and spirit of the person represented, while the moderns only produce a kind of model with very faint features of the character. The ornaments of the portraits have also this effect, the ancient being simple and picturesque in real life, whereas ours are discordant and ungraceful. The reverses of ancient medals when consisting of human figures or detached objects exceed the modern in every view of strength, elegance or taste. But in landscape and all belonging to perspective the modern excel the ancient to a prodigious degree. A great fault of modern reverses as of modern portraits is that the manners of the time and country are often wholly perverted in them. Personifications are of all ages, countries and languages, but what title have heathen gods and goddesses to exist on our medals and attract the adoration of our connoisseurs?

The Laws of Beauty.

That laws of truthfulness and reality are essential to the production of beauty in all works of art is certain—so essential that without them all attempts at beautiful effect must utterly fail. Still, it is not to them that beauty owes its existence. Combined with good taste they may save us from ugliness, but they will not necessarily produce beauty. There are many works of art of which we say that they are really beautiful. They contain elements of beauty which cannot be mistaken. There

are other works of which we say that they are all very well; they answer their purpose, but we see no real beauty in them. Again, there are other works of which we say that they are positively ugly. It is from this ugliness that these constructional laws may save us, and if the mind of the artist is imbued with some of the spirit of ancient art, he will often produce forms that do contain elements of real beauty, but this is all. It is scientific research alone into the nature and causes of beauty and perfection that can enable even the greatest artists to produce works of the truthfulness of whose proportions they can be at all certain. The deeper our researches are into the principles and causes of beauty in architectural form the better able we shall be to produce beautiful effects, and the more we shall appreciate the beauty which, all confess, is found in the works of antiquity, whereas the deepest research into the laws upon which the mere material and constructional element is framed will not help in the attainment of positive beauty.

The Colonnade.

Colonnades are of various forms and dimensions, and assume different names according to their application and uses. When in front of a building or in the interior of a quadrangle they are called porticoes; when surrounding a building of any shape, peristyles; when double or more, as in some of the ancient temples, and the circular peristyle in front of St. Peter's at Rome, they are polystyle. No people have made more use of colonnades, or with greater effect, than the ancient Egyptians, many of their temples being literally thickset, both in the interior and exterior, with colonnades of every description. The Greeks were more simple in their arrangement, and their colonnades were mostly distributed into porticoes and peristyles, both monostyle and polystyle. Their most magnificent example is perhaps the Temple of Jupiter Olympius at Athens. Baalbec and Palmyra present also various examples of splendid colonnades. Of modern works, the magnificent colonnade of the Piazza di San Pietro at Rome, the work of Bernini, is at once the grandest and most beautiful. It consists of 280 columns, and 48 pilasters of 40 feet high, raised on three lofty steps. It is surmounted by a balustrade, on which are 88 colossal statues of saints 15 feet in stature. Colonnades are among the most beautiful and splendid works of architecture, and in the hands of a man of taste and science are capable of the grandest and most imposing effects.

The Pyramids.

The ancient Egyptians seem to have penetrated very far into the mysteries of nature, and although their superstition appears at first sight to be extremely gross and absurd, yet it is very probable that their deities were only emblematical personages, representing by sensible images the grand effects or presiding principles which they supposed to exist in the universe. Thus the moon was called Isis, and the sun Osiris, and to the honour of this last deity, from whose visible influence and creative energy all things seem to spring into existence, it is not improbable that the Egyptians erected those stupendous monuments and dedicated them to him as temples or altars. It was natural to build them in that shape which the rays of the sun display when discovered to the eye, and which they observed to be the same in terrestrial flame, because the circumstance was combined in their imaginations with the attribute which they adored. If they were temples dedicated to the sun, it seems a natural consequence that they should likewise be places of sepulture for kings and illustrious men, as the space which they covered would be considered consecrated ground. This hypothesis is common, and is not contradicted by the present reasoning. But considering them as altars, and as most travellers agree that they were never finished, but terminate in a square horizontal surface, it would not be refining too much to venture an assertion that in great and solemn acts of adoration the Egyptians constructed fires, the flames of which should terminate in the vertex of the pyramid, and so complete that emanation of their deity which they admired and adored.

The Maesta, Siena Cathedral.

The greatest effort in the career of Duccio di Buoninsegna was the famous Maesta for the high altar of the cathedral of Siena. It consisted of many parts united as one great panel, 14 feet long by 7 feet in height, exclusive of the pinnacles, and painted on both sides. On the front was the Madonna enthroned, holding on her left knee the infant Saviour, who was fully clad, after the Byzantine manner. Twenty angels surrounded the throne. Figures of the Apostles and of four kneeling bishops, tutelaries of Siena, completed this side of the altar-piece. On the reverse, which faced the chancel, various scenes of the Life and Passion of Christ were depicted in twenty-six small compositions, of which two, the Entry into Jerusalem and the Crucifixion, exceeded the rest in size. There was, further, a predella containing many subjects from the lives of Christ and the Virgin. This important work was commissioned in October, 1308, and was not wholly finished till about three years later; although on June 9, 1310, what we must suppose

to have been the front panel only was carried to the Duomo with solemn pomp, in which the archbishop, the great magistral, and in fact the whole population, civil and religious, took part, with lighted tapers, amidst the clangour of trumpets, drums and the church bells. The altar-piece cost 3,000 florins of gold, out of which Duccio's pay was but 16 soldi per working day. But the materials were furnished him. In 1506 it was removed from the high altar (which was at the same time thrown further back in the church) to make way for the present bronze tabernacle, the work of X. Vecchieta, and became so completely lost to sight and memory that Vasari, about fifty years later, was unable to discover it. It was, however, brought to light again in the seventeenth century, when the front and back panels were sundered and otherwise deranged, and finally set up on side altars in either transept, where they are ill seen. Eighteen of the subjects of the predella and pinnacles, long preserved in the sacristy, are now in the Opera del Duomo (Office of Works) close by.

Mezzotint Engraving.

In its nature and execution mezzotint engraving is very peculiar. The artist rakes, hatches or punches the surface of the plate all over with a knife or instrument made for the purpose, first one way and then the other, across, &c., till the face of the plate be thus wholly covered with lines or furrows, close and, as it were, contiguous to each other, so that if an impression were thus taken from it it would be one uniform blot or smut. This being done, the design is drawn or marked on the same face, after which they proceed, with burnishers, scrapers, &c., to expunge or take out the dents or furrows in all those parts where the lights of the piece are to fall, and that, more or less, as the lights are to be stronger or fainter, leaving black those parts which are to represent the shadows or decipherings of the draft. It being much easier to scrape or burnish away parts of a dark ground, corresponding with the outline of any design sketched upon it, than to form shades upon a light ground by an infinite number of hatches, strokes and points, which must all terminate with exactness on the outline, and at the same time differ in their force and manner, the method of scraping as it is called, in mezzotint, consequently becomes much more easy and expeditious than any other manner of engraving. The instruments used in this style are cradles, scrapers and burnishers. The art of mezzotint engraving was at first considered as only adapted to broad subjects, and where high minute finishing was required it was thought vain to attempt it; but the great advance made since the introduction of the art has convinced every artist and amateur to the contrary, and the successful works of Earlom (especially his masterly flower-pieces) are admirable specimens of its power, as also are the beautiful productions of Hodges, Dixon, and many other English artists. It is decidedly most appropriate for the engraving of portraits, both as to touch and effect. The art of scraping mezzotint has been applied to the printing with a variety of colours, in order to produce the resemblance of paintings.

Alderman Boydell.

It is said of Alderman Boydell that "he contrived to employ every aspirant to distinction in the arts of painting and engraving whose energies wanted encouragement." He was himself an artist, and his love of the profession he chose may be judged by the fact that at the age of twenty-one he walked from Stanton, in Shropshire, to London, against the wishes of his father, to put himself apprentice to an engraver. That by his own exertions he rose to fame and fortune is less his praise than that he very greatly assisted other artists in their rise to eminence, men, too, whom he helped to surpass himself in his own profession. The "Shakespeare Gallery," though the greatest undertaking of Boydell, formed but a portion of his patronage of art. This magnificent scheme was an additional means of employing the best painters of the British school in large and important works at a time when the Church refused to patronise painting, and the tiled and wealthy of the land, with the single exception of the king, encouraged portraits only. It did much also for engraving, and, among other admirable specimens of that art, we owe to the Shakespeare Gallery Sharpe's transcendent work from West's *Lear*, a work showing that the power of a first-rate engraver, even of other men's designs, does not lie within the scope of mere talent, but that it is genius, and of a higher order than that displayed by many a painter, who looks upon engravers as artists much below him. Boydell built for the reception of his pictures the rooms in Pall Mall which afterwards belonged to the British Institution, and employed the greatest sculptor then living to decorate the front. It was his intention to bequeath the building and its contents to the nation. But the outbreak of the French Revolution by stopping entirely the sale of his prints on the Continent, where it had been extensive, and the war that followed diminishing the demand for them at home, his means were so crippled that he was unable to fulfil his patriotic wish.

NOTES AND COMMENTS.

THE desire to see an illustration of the adopted project of the Queen Victoria Memorial has diminished since it was announced that it was to be deprived, or at least for an indefinite time, of the grandeur which is only obtainable by the employment of architecture. The Government no doubt realise the fact, and probably it is on that account the permission is withheld to photograph or reproduce any sketch or model representing the Memorial. We are informed that attempts have been made to take "snaps" by the aid of miniature apparatus which would escape detection, but it is not to be credited that the humblest of English journals would, under the circumstances, defy authority, and disregard the arrangements of the committee, which no doubt are inspired by prudential considerations, and above all make the late QUEEN'S name a subject for a mercenary scramble.

INFORMATION has been given by the Treasury about the leasing of Crown property in London. It is stated that there has not been made recently any alteration in the practice of granting new leases. Where it is not considered necessary that the premises should be rebuilt negotiations are usually entered into with an occupying tenant for a renewal in preference to others, if there is one who is in a position to undertake the responsibilities of a lease and desires to remain in occupation. If the premises have to be rebuilt it is not always practicable or expedient to adopt that course. If not adopted the Commissioner of Woods could not undertake to warn all occupying tenants before making arrangements with others, though in practice such tenants would, by their own inquiries, become aware some time before their tenancies expire whether or not they could get a renewal. Crown lessees who are not occupiers are not considered to have any preferential claims to renewals. There is a touch of circumlocutionism about the declining to warn occupants that other people are eager to obtain leases of their buildings, but in practice the evil is, we believe, not oppressive. It should be remembered that the practice on the Crown estates is always likely to be taken as an example by owners elsewhere, and that reason alone should inspire equitable arrangements with old tenants.

THE risks incurred in the development of building estates were exemplified in the case *CROUCH v. ROBERTS*, which came before the High Court on Monday. When the case was first heard at the Birmingham Assizes we referred to the circumstances. Afterwards it was submitted to Mr. MORTON BROWN for a report. The action related to the development of the Selly Oak estate in Birmingham. The plaintiff, a builder, agreed to erect 133 small houses, the outlay being about 100% a house. According to him a substituted agreement was entered into that he should have leases of the land guaranteed to him in his own name by the defendant, who was the freeholder. The plaintiff raised money on progressive mortgages, and these amounts went towards the defraying of the cost of building. Plaintiff was to be paid the cost of building the houses, and he was to receive full payment from the defendant in the following manner, viz. whenever there was a sale of reversions of any of the leases sold the money was paid by the defendant to the plaintiff on account of building. Defendant paid over to plaintiff all amounts that were advanced in respect of the progressive mortgages. A lump sum of 1,000% was to be paid to plaintiff as profit. A large amount of money was advanced on three progressive mortgages, nominally to the plaintiff, because the leases were in his name. The money went to him, and he expended it in building. After a time the mortgages began to be called in, and defendant paid off most of them, but the time came when he stopped, and said there was a second mortgage for 350%, which he would not pay because it was outside the agreement. The mortgagee obtained judgment against plaintiff, and issued an execution. The plaintiff thereupon brought his action against the defendant, setting up that under the agreement he was to be indemnified against all losses in connection with the mortgages. The jury answered the questions in favour of plaintiff. Mr. MORTON BROWN reported that the amount owing by defendant to

plaintiff was 6,231*l.* 9*s.* Counsel on Monday asked for judgment for that sum. For defendant a counterclaim for 250% was raised, but after some discussion was struck out, and it was agreed that there should be judgment for the plaintiff on the claim with costs.

THE First Commissioner of Works, when referring to the proposed widening of Piccadilly, said he had no control over the regulation of the traffic in London streets. If we may draw a conclusion from some decisions given in the police courts, it would appear that the magistrates are as ignorant on the subject as the people who suffer inconvenience by blocks in streets. Yet there can be no doubt that if a firm control were exercised over the traffic, and especially over carts and waggons, there would be fewer necessities for the costly alterations of such thoroughfares as Piccadilly. Let any one who travels along that highway roughly analyse the conveyances that overspread the road, and it will be found that without involving the owners in heavy losses, many of the vehicles could be diverted in other directions. It would be necessary no doubt to increase the number of policemen, but the payment to them would be trivial in comparison with the expense which will be necessary if Piccadilly has to be widened. But there is another consideration. If a part of the Park and its trees must be sacrificed, no money can restore the peculiar character which at the present time gives an unique charm to Piccadilly. Nor will the widening be sufficient to insure an unimpeded course for all the traffic which can find its way there. To overcome the obstacles in Piccadilly it will be necessary to have more streets running southward, and to obtain them the beauty of the Green Park would be destroyed. Of course, after the proposals for a colossal alteration of St. James's Park, that arrangement would not be thought much of a sacrifice, and, indeed, there is in London at the present time a spirit in public and municipal offices which is not unlike that which prevailed in certain circles in Paris when HAUSMANN commenced his operations. The picturesque counts for nothing, and old associations are swept away with as much ease as if they were fallen leaves. London seems to be destined to lose the character which gives it interest in order that it may become a weak imitation of a continental city.

THE erection of the City Hall in Philadelphia has occupied about thirty years, and the outlay has been 24,138,592 dols., or nearly five millions sterling. Of that sum 402,472 dols. were expended on preparation of site, water-supply, legal expenses, &c.; 5,477,052 dols. on rent of temporary offices, fittings, and furniture, and 17,860,067 dols. on construction. According to a statement prepared by the architect, Mr. BLEDYN POWER, the principal items of construction were as follows:—Excavation, foundation-stone and machinery, 359,668 dols.; granite and blue-stone work, 542,407 dols.; marble and marble-work, 5,467,503 dols.; dressed stonework, interior, 2,112,560 dols.; bricks and brickwork, 1,109,410 dols.; cast and wrought-iron work, 1,589,747 dols.; metalwork for tower, 830,829 dols.; all remaining works, 5,547,941 dols. A provincial city in England would hesitate before undertaking so vast an expenditure. American architects are, however, encouraged to devote all their energy to a building when the reward will be so liberal. With such prospects before them, it is no wonder the architects expend money generously on their education, for, in order to pass through University courses, to study in Paris and pay pupils' fees, the money required to prepare an architect for the practice of his profession amounts to a large sum.

ILLUSTRATIONS.

ALTAR AND REREDOS, JESUS CHAPEL, WORCESTER CATHEDRAL.

THE APOLLO THEATRE AND PRINCE RUPERT RESTAURANT.

26 PARK SQUARE, LEEDS: RECEPTION ROOM.

THE CLAREMONT HOTEL, HARBOROUGH.

CATHEDRAL SERIES.—CHICHESTER: WINDOW TRACERY, SOUTH TRANSEPT. WINDOW TRACERY, J. L. L.

JESUS CHAPEL, WORCESTER CATHEDRAL.*

THE following report by Mr. R. A. Briggs, the architect, which accompanied the design for restoration of the chapel since carried on, will explain the treatment of the screen and altar represented in the plates:—

In accordance with the instructions received, I now beg to forward the designs I should suggest for the proposed new screen and altar to the Jesus Chapel in Worcester Cathedral, and I venture to give expression to the general view of the subject which has led to my treatment of the new work in the chapel.

From records with which many are probably acquainted—extracts from some of which I append—it is clear that in former days "Jesus chapels" were intended for the special accentuation of the Perfect Humanity of Our Lord, and the scheme of decoration which would naturally be deemed suitable should illustrate His earthly life. Not being a theologian, my suggestions are naturally subject to revision by the members of the Chapter.

The literature concerning Jesus chapels is very limited, and only exists in scattered references. According to Bridgett's "Holy Eucharist," vol. ii. page 85, Jesus chapels were always dedicated to the "Holy Name," as in the Jesus Colleges of Oxford and Cambridge. At Enfield there is a Jesus Chapel, and from the records of the chapel it is clear that it was also so dedicated. It appears from the "Liturgical Year," vol. ii. page 259, Christmas, that the devotion to the Holy Name originated in England, but did not become general on the Continent until the fifteenth century. The first special office of the Holy Name given to the Franciscan Order was granted by Pope Clement VII. in 1530. It was extended to the Carthusians in 1643, and was finally promulgated to the Latin Church by Innocent XIII. in 1721.

The following is a description of the ancient Jesus altar in Durham Cathedral from "Ancient Monuments, &c., of the Church of Durham," Surtees Soc., page 28:—

"In the body of the Church . . . over against the Quere dore, ther was an Alter called Jesus Alter, where Jhesus mess was song every fridaie thorowe out the whole yere. And at the backsyde of the saide alter there was a faire high stone wall; . . . ther was standing on the Alter, against the wall aforesaid a moste curiouse and fine Table with ij leves to open and clos againe, all of the hole Passion of our Lord Jesus Christ, most richlye and curiously sett furth in most lyvelie colors, all like the burninge gold, as he was tormented, and as he honge on the cross, . . . the which table was alwaies lockt up, but only on principall daies . . . And on the principall daies, when any of the Monnks said Mass at that Alter, then the Table was opened, which did stand on the Alter."

A description follows of the decoration of the wall, "the whole storie and Passion of Our Lord wrowght in stone, most curiously and fynely gilte," above which came the rood.

In the church of the Holy Trinity, Long Melford, according to the "History of the Church of Long Melford," by E. L. Conder, London, 1887, p. 39, there was a Jesus Altar, which stood in the Martyn Chapel, which was also called the Jesus Aisle. Roger Martyn, writing in the reign of Elizabeth, says:—

"There was also in my Ile, called the 'Jesus Ile,' at the back of the Altar, a table with a crucifix on it, with the two thieves hanging, on every side one, which is in my house decayed, and the same I hope my heires will repaire, and restore again one day. There were also two fair tilt tabernacles from the ground up to the rooffe, with a fair image of Jesus in the Tabernacle at the North end of the Altar, holding a round bawle in his hand, signifying, I think, that he containeth the whole round world; and in the tabernacle at the South end there was a fair image of our Blessed Lady having the afflicted body of her dear Son, as he was taken down off the Cross, lying along on her lap, the tears as it were running down pitifully upon her beautiful cheeks, as it seemed bedewing the said sweet body of her Son, and therefore named the Image of our Lady of Pity."

In the "History of the Holy Eucharist," vol. ii. p. 85, Mr. Joyce, writing to the Rev. T. Bridgett concerning the windows in Fairford Church, Gloucestershire, says:—

"Regarding the Jesus Altar (in this church at the end of the South Aisle), the window represents Our Lord in His Transfiguration with the Sacred Host on His breast. It is a small circular disc in diameter 1½ inch, from the edge of which proceed all round darting rays as from a sun. On its lower circumference the rays lengthen, and underneath at the centre three very long straight beams of sunlight stream downward toward the persons of the three favoured apostles, spreading as they go. Within the disc are the letters I.H.S. The date of the window is about 1500."

An old writer says regarding this particular devotion that—"It seems in some measure to comprise every mystery,

every mercy, every title of honour, every benefit, every grace, every effort of divine love which we adore in the whole process of His Incarnation, Life, Death and Resurrection, Ascension and coming as Sovereign Judge of the living and the dead. The sacred name of Jesus presents to our mind the majesty and glory of His Divinity—the most Endearing Charms of His Humanity under the character of the *Divine Saviour*. This is the name at which devils tremble." (H. J. Feasey: "Notes on Holy Days—August.")

Worcester Cathedral was dedicated in 1218 to the Blessed Virgin, St. Peter, St. Wulstan and St. Oswald (Willis on Worcester, *Arch. Journal*, vol. xx. p. 88). The nave was built in the Decorated style in 1317-27 on the north side. The south side is Decorated with a strong tendency to Perpendicular, built 1360. (King's "Three Choirs," p. 6.) Leland ("Itin." viii. p. 104) says that Bishop Cobham, 1317-27, vaulted the north aisle of nave (Jesus Chapel).

The Jesus Chapel was open to the nave as it now stands in 1750; the present stained glass was done by Wailes and given by Canon Wood as a memorial to his wife. (King's "Three Choirs," p. 19.) The ancient Jesus altar was destroyed by Bishop Barlow in 1550. In Abingdon's "History," 1723, there was in the Jesus Chapel window merely some arms, thus:—"Argent, a lyon rampant; gules, with a border sable; besantee." (Abingdon's "History," pp. 4 and 22.)

Worcester Cathedral contained a great number of altars and monuments (Willis, *Arch. Journal*, xx. p. 88), amongst others the following:—St. Mary, St. Peter, St. Edmund, St. Dunstan, St. Simon and St. Jude, St. John Baptist, St. Mary Magdalen, St. George, St. Nicholas, St. Thomas of Canterbury, St. Oswald, St. Egwin (bishop of Worcester, A.D. 693-707, and abbot of Evesham).

St. Wulstan, the founder of the cathedral, died 1095, canonised at Rome, 1203 (Willis, *Arch. Journal*, xx. p. 87), bishop and confessor. Symbol—figure or model of the church built by him showing an apsidal east end. He was canonised by Pope Innocent III.

Bishop Walter de Cantilupe (died February 4, 1266; Abingdon, 100) was held in great veneration, and when his tomb was opened the body was fully vested (Willis, *Arch. Journal*, xx. p. 132), had a curly beard and moustache, and was vested in a low mitre. The right hand upheld, and the forefingers of the left probably grasped a pastoral staff. The usual vestments, the chasuble being very ample. Over the chasuble is worn a quatrefoil rationale. The amice is apparelled—maniple fringed and jewelled. Under the chasuble is a dalmatic, albe ornamented with richly jewelled apparels. (*Gentleman's Magazine*, October 1862, p. 426.)

Thomas Cobham (King's "Three Choirs," p. 13), bishop of Worcester, made the vault (Willis, *Arch. Journal*, xx pp. 132 and 108) in the north aisle of nave, and held the see from 1317-27. He was buried in the north aisle of the nave, opposite the window of Jesus Chapel, and Leland says that it is probable he was there buried as a benefactor in the midst of his own work. In his will he gives (1327-40) 20*l.* to the fabric. His effigy shows him vested for the altar—arms or, a chevron gules. (*Gentleman's Magazine*, 1862, p. 427.)

Bishop Bryan's tomb was beneath the window under the arch in the Jesus Chapel. The figure is represented lying thereon, his head mitred and supported by angels, his hands joined as in prayer, and at his feet a lion. On left side of tomb three escutcheons, in the middle three piles in point, on the middle pile a bishop's mitre, and under that a cross fitché. In the dexter three piles in point. In the sinister the same arms impaling three fusilles in fesse. (Abingdon, 28.) In Dr. Thomas's survey of the cathedral, on page 103, is a plate of his tomb.

Bishop Humenhall's tomb was also originally in the Jesus Chapel; died 1338. His statue is much mutilated.

Bishop William de Blois, also buried near chapel, died 1236. Effigy shows face smooth. On head is a low mitre. In front of chasuble a lozenge-shaped rationale, jewelled. Folds of chasuble numerous. One end of fringed stole only appears. No dalmatic or tunic, but maniple ornamented with jewels. Right hand is upheld with two fingers raised in benediction; left hand grasps pastoral staff. (*Gentleman's Magazine*, 1862, p. 425.)

Nicholas Heath (1551) was deprived for noncompliance with Edward's new order, and imprisoned in the Fleet until Queen Mary's accession. He was restored by her and made President of Wales and Chancellor of England. (King's "Three Choirs," 76.)

The ornaments or relics in Worcester Cathedral before the Reformation belonged to the following Saints (see the Inventory to be found in the "Transactions of the Archæological Society of Worcester," vol. ii. p. 305, 1871-72):

"*Belonging to Seynt Oswald*.—A cope of yalowe satten the picture off perles set upon golde. A Cheasable of yalowe satten to the same. Another Cheasable of blacke selke wth the holy lambe and cross on the backe. A stole of nylde worke set wth stonys perlys. A gyrdell of changeable selke platted at

* See Illustrations, August 2 and 9.

the yendes. An Albe of clothe and golde, the fore part thereof set w^t perlys stonys.

"*Belonging to Seynt Ulstan.*—A cope of yalowe satten and a Cheasable of yalowe satten browdered a bowte the colar w^t nyldewarke and golde, an albe of Storye warke. A nother cope of crymson satten broddred a bowte all the colar w^t nyldewarke and golde ij stolis on of them blewe satten w^t perlis at the yendes and golde, the hother stole changeable sattens set at the yendes w^t perlis and golde. A fflanel of blue satten, the yendes perle and the clothe of golde, c j gyrdylls on of grene selke the other gyrdyll knytt after nett wyse.

"*Belonging to Seynt Dunstane.*—A stole and a fflanel red selke wrought w^t golde and nyldewarke, the yendes clothe of golde. A fflanel of Seynt Allphege, the yendes clothe of golde set w^t perlis a stole of Seynt (Aldulfe)."

The style of the proposed screen is that of the fifteenth century, and as there are no records that I am aware of to show when the original screen was built, and as it has entirely disappeared, I have chosen the period of architecture when the best screens extant were erected, and the style which lends itself most to an artistic treatment of a stone screen.

The screen is 15 feet 6 inches high to the top of the cornice below the brattishing, and I should propose it being executed in Portland or some other coloured stone, which would be suitable, as the details are small and delicate. Niches are provided so that figures could be added if desired.

On the central pinnacles over the screen is an historical group, consisting of Our Lord on the Cross with St. Mary and St. John on either side. The pinnacle on the extreme left has the pelican in its piety, and on the right the sacred initials. On the scroll to the cross are the words of Our Saviour, "Eli, Eli, lama sabachthani." The screen towards the chapel will be very simple and plain. The door would be of oak.

It is proposed to remove the Fleetwood tomb to another part of the cathedral as shall be arranged. The existing floor will be taken up and relaid, using where possible the existing slabs. One step will be provided to the altar.

The altar and reredos are proposed to be in mahogany, gilt and coloured. The shelf or gradine, popularly known as the retable, is to be of Portland stone.

The following is a description of the figures and sculptured panels:—In the central panel of the reredos is a figure of the Virgin holding the Infant Saviour on her knee in the act of blessing. On either side are figures of St. Wulstan and St. Oswald—patron saints of the cathedral. On each side of the above-mentioned panels are figures of the Twelve Apostles, and on the outer buttresses are figures of six bishops of Worcester, viz. St. Egwin, Walter de Cantilupe, Thomas Cobham, Bishop Bryan, William de Blois and Nicholas Heath. Immediately above the canopy over the central panel containing the figure of the Virgin and the Infant Saviour is a figure of Our Lord holding in His hand a ball, as in the Jesus Chapel of the church of the Holy Trinity, Long Melford, before referred to. On either side are angels bearing the emblems of the Passion. On either side are figures of St. John the Baptist and St. Mary Magdalene. At the apex of the canopy over the figure of Our Lord is an angel holding a crown.

Immediately above the retable are five sculptured panels illustrating five miracles of Our Lord, referred to in St. Matthew xi. 5:—(1) The blind receive their sight; (2) The lame walk; (3) The lepers are cleansed; (4) The deaf hear; (5) The dead are raised up. Between each panel is the figure of an angel.

The reredos has two leaves, as in the original Jesus Chapel at Durham, which will be made to open and shut. On these leaves are bas-reliefs depicting the principal events in the life of Our Lord. On the left-hand leaf are—(1) The Annunciation; (2) The Nativity; (3) The Adoration of the Magi; (4) Christ Teaching in the Temple. On the right-hand leaf are the scenes from the Passion:—(1) Mount of Olives; (2) The Agony; (3) The Betrayal; (4) The Scourging. On the back of the leaves will be painted the Tree of Jesse in gold and colour.

The altar, which is also of mahogany, contains in the central panel a bas-relief of the Virgin holding the body of Our Lord, with two attendant angels. On either side in two panels are guardian angels, and in two other panels are figures of the archangels Michael and Gabriel. It is proposed that the cross on the altar shall be of crystal and copper gilt, and the two candlesticks of copper gilt. On either side of the altar will be curtains hung on a brass rod.

"**The Result** of the competition for the Mallock Memorial, Torquay, has now been published. The successful competitor is Mr. Donkin, F.R.I.B.A., of Bournemouth. The number of designs submitted was seventy-nine. Mr. Hine, architect, of Plymouth, assessed the designs on behalf of the committee, and his recommendation of Mr. Donkin's design was accepted by them.

KING ALFRED'S JEWEL.

THE subject of the Bishop of Bristol's address as President of the Somerset Archæological Society was "King Alfred's Jewel." His lordship said:—

I must first of all express my grateful thanks to the Society for the honour they have conferred upon me in making me their president for the year. It is, I think, some fourteen years or more since I contributed a rather lengthy paper to your Proceedings on the subject of some pre-Norman sculptured stones, of which you still have a few in your county. I was living in Cambridge at the time, and could not be present at your meeting. It is therefore especially interesting and pleasant to me to see at last your Society face to face.

In that paper I worked out at some length the early records of artistic work connected with Somerset, and I went into some of the details of St. Aldhelm's care for art, making special mention of the sculptured crosses which those who mourned for his death erected at each place where his body rested for the night on its seven days' journey from Douling, in your county, to his old home at Malmesbury, in North Wilts. If there was at that time any one thing more improbable in my future than another, so far as I could have judged, it was that in this year of grace 1901 I should have under my care as bishop some 100,000 souls on the Somerset side of the Avon, and should have in my diocese all those parts of North Wilts through which St. Aldhelm's body passed on its way to the Saxon predecessor of that ancient charge of mine, the abbey church of Malmesbury.

This coincidence suggested to me that I should lay before you the steps I have taken towards an identification of the places in Somersetshire and Wiltshire at which the Aldhelm crosses were erected, with some account of the sculptured fragments which remain in the neighbourhood of at least two of the resting-places.

Another subject with which I proposed to deal was the puzzling question of how it ever came to pass that Bath and its district was stolen from Mercia and transferred to Wessex, where it met with very unhandsome treatment on the part of Wells. This subject has been treated by the Rev. C. S. Taylor. It would have lent itself to specially-pointed treatment at the hands of the Mercian bishop to whom, of course, Bath and its district ought to belong, in the presence of the West Saxon bishop who represents the hand of the spoilers of a thousand years ago, and has never to my knowledge expressed any desire to make restitution, or any sense of shame in the retention of the spoil.

The third question with which I had proposed to deal was the difficult matter of the line of separation between the Huiccas, on this western extremity of their southern boundary, and the south-west Britons in the earlier time and the Saxons of Somerset in rather later times. The special point of this investigation is to show that Aust never was on the boundary, and so is out of court as a competitor for the honour of being the place of Augustine's first conference with the Britons.

But this is King Alfred's year; and the Somerset folk have quite as much part in Alfred as the North Wilts part of my diocese has. This was borne in upon me so strongly less than two days ago that I changed front completely, and have hastily gathered up an address on the special link which binds Somerset to the person of Alfred, namely, the jewel found at Athelney 208 years ago. My remarks will have for their purpose to supplement, and in some respects to differ from, the beautiful and suggestive book on the Alfred jewel recently written for the Clarendon Press by your own Professor Earle, a greatly honoured name and personality.

I am the more moved to take this subject because I am unable, by reason of a prolonged absence in Italy, to be present at Winchester in September as the representative of the Society of Antiquarians of London.

You know the jewel well, many of you, and I hope that many of you know the book too; those who do not should lose no time in reading it straight through from one end to the other.

The jewel, as you know, is a small thing of gold and enamel and rock crystal, the shape of an oval battledore with a short handle. It is only $2\frac{1}{2}$ inches long, $1\frac{1}{2}$ wide and $\frac{1}{2}$ inch thick. The enamelled side shows through a plate of rock crystal the upper part of the body of a man, with long attenuated face, holding in each hand the stem of a floriated sceptre; the two sceptres rest on the shoulders of the figure. The back of the jewel is a plate of gold, with a symmetrical pattern of foliage engraved on it. The handle is the neck and head of a scaly monster, ending in a hollow snout, by which the jewel was firmly attached, no doubt in a vertical position, to some stem; the rivet which fastened it to its stem is still there. I accept without reserve Professor Earle's conclusion that the jewel was the ornament of Alfred's helmet, and with rather less confidence his conclusion that it was designed and wrought before Alfred was king. On the latter point Professor Earle's argument that if Alfred had been king the word "cyning" would have been in-

serted in the inscription, in that or some other form, is almost, but I think not quite conclusive. The inscription is quite complete, and is "Ælfred mec heht gewyrca"—"Alfred me caused work"—"Alfred had me made." Professor Earle's remarks on the philology of this inscription are those of a famous master, and it would be a mere impertinence on my part to express the conviction they have wrought in me. On a question of palæography I feel it less impossible to hazard a remark. I am greatly surprised that Professor Earle, in dealing with this part of the subject, maintains the silence which seems always to prevail as to the non-existence of the letter y, in place of which a little piece of foliage is inserted in the inscription. Those of us who study Bristol and Plymouth china know what disguised numerals mean, but this, if a y, is very highly disguised; indeed, if we had not conspicuously wanted a y there I venture to say that everyone would have taken the floriation to be a pretty but unusual device for filling up the space of one letter, instead of putting the filled-up gap at the end of the word. And there is another point in the inscription which is passed over without remark, as though it had no meaning whatever—I mean the line or dot between the two halves of the w. There is no other example of a dot in the inscription, and this dot is where no dot ought to be. Now there are on the jewel two cases of bind-letters—me and ht. Is the dotted w a bind-letter? At Chester-le-Street they found one day when I was there an Anglian stone, with a man on horseback and a name incised, which they could not read. I pointed out that it was a mixture of Roman capitals and runes, and it read Eadmund; there was no difficulty in assigning it to the grandson of King Alfred, Athelstan's half-brother, who stopped at Chester-le-Street when riding up to invade Scotland, and made gifts to St. Cuthbert of which we are to hear more. It so happens that this dot, if treated as having something to do with a rune, will supply the missing y, though not the y which philology would require. The two middle strokes of the w are the rune for u, and the dot or short vertical line is the recognised means of modifying the u into a y. It is so in the minden-stin of Gorm the Old, where Queen Thyra is in runes Thura, but the rune u is dotted as on the jewel. Gorm became King of Denmark at the time when Alfred was in Rome as a boy, and did not die till near the end of Athelstan's reign, whence his sobriquet. It is so in our earliest existing piece of English literature, the great runic inscription of the year 670 on the Bewcastle Cross, where Kyng, Kyning, Kyninges, Kynnburug, Kyneswitha, Myrkna, all of them have for their y a runic u, with a mark inside it. I am well aware, as I have said, that the y in gewyrca has a different origin from the y in Kyning, but at least the coincidence is curious. I confess my folly in pointing it out.

But at the same time I must say that anyone who deals with this inscription cannot safely pass this remarkable dot without a word. If anyone should suggest that its purpose is to occupy a void space, I should reply that such an explanation touches a principle of early lettering to which I have often called attention.

I cannot go with Professor Earle in his belief that the figure in enamel represents the Pope, with his spiritual and temporal sceptres. That idea does not link itself on to anything that I, at least, know either of Alfred or of art, but in a matter of this kind no one should commit himself to a sweeping negative. It is of course true that the young Alfred was brought into very intimate relations with the Pope, and there can be no doubt that he shared the then universal feeling of all the Courts of Europe with respect to the spiritual head of the Church of the West. But I suspect that his ideas of the temporal sovereignty of the Bishops of Rome were likely to take their shape from the Imperial domination over the appointment of the Pope, which showed itself in so drastic a form in the case of the Pope and anti-Pope when Alfred was in Rome on the second and more important occasion. Further, there is not the faintest suggestion anywhere of any such feeling as should induce Alfred to regard himself in practice as the soldier of the Pope, fighting the Danes under his auspices. The whole story of his wars goes quite another way; he was the soldier of Christ. As I have remarked in my essay in the Alfred book of 1899, Asser does not speak of wars between Saxons and Danes, or Angles and Danes; he speaks throughout of wars between Christians and Pagans. Alfred to him is the champion of Christ. Alfred's wars are against Pagans, not against Danes. As soon as the Dane became Christian he might remain in the land.

As a matter of experience in ecclesiastical art, we are very familiar with the two sceptres carried by Our Lord when shown in His glory. On one great cross after another in Ireland there is the Crucifixion on one side, and on the other side the Lord seated in glory, with a sceptre on each shoulder. Professor Earle gives the representation of the Temple in the Book of Kells, which I see he still calls a seventh-century MS., though its label was corrected to "eighth century" some years ago. In this is a full-face representation of Our Lord, of the Irish type, with the two sceptres. I shall continue to take the

jewel to be Alfred's badge as the soldier of Christ, notwithstanding the absence of a nimbus.

Professor Earle omits to note one of the marked features of the twin sceptres. They are in one piece, not in two, as in the Book of Kells and on the Irish crosses. And they are so drawn as to give the idea of a strong spring at the place where the two stems meet, as though their shape when not in use would be that of a pair of tongs with a spring instead of a hinge and handle, and as if some little force were required to keep the two members wide apart, so that one may rest on each shoulder. I would suggest a reference to the two very remarkable crosses at Sandbach in Cheshire, one of them the largest in the kingdom, both of them wonderful records of Anglian art. On each of them there are two figures by the side of Our Lord, the dexter figure with a book, the sinister with a large key, presumably St. Paul and St. Peter, certainly St. Peter on the left side. In each case the key is two keys, their stems joined at the extremities, "a pair of keys," just as we see and speak of "a pair of tongs." If these keys were opened like a pair of tongs, they could be held like sceptres on the two shoulders, and the wards would lie symmetrically like little square bags where the head of the sceptre would naturally be.

As regards the symmetrical and very pretty foliaginous device engraved on the plate of gold at the back of the jewel, I cannot go with Professor Earle in seeing that the stem of the plant, growing out of the very usual cup or sheath, is a sword piercing a heart. To those of us who have for many years closely studied this kind of ornamentation, there is nothing unusual or specially allegorical about the pattern. Even if the cup had been a heart, there are plenty of examples of a heart-shaped boss on the stem of foliage, like the pear-shaped bosses on Renaissance candlesticks. The heart boss is found quite clear and precise on the little portable altar found on St. Cuthbert's breast, and also, even still more clear, on the end of Frithestan's stole, to which we must now turn. Professor Earle does not make use of this apt illustration of the Alfred jewel.

The stole of Bishop Frithestan of Winchester was given to the body of St. Cuthbert at Chester-le-Street by Athelstan, Alfred's favourite grandson. It was worked at Winchester between the years 905 and 916, by order of Ælfæd, the queen of Alfred's son and successor Edward. It has the Latin form of Alfred's own inscription, "Ælfæd fieri precepit," "Ælfæd caused to be made," the Latin passive taking the place of the Saxon active. It is a wonderful piece of work, woven in flat gold wire, with self-edged openings for the insertion of tapestry-work figures of prophets and letters of inscriptions. It was made, as itself declares, for the pious Bishop Frithestan. Ælfæd died in 916, and Frithestan became bishop in 905, so we have the date sure.

Now, not only does Ælfæd's stole carry on her father-in-law's inscription, only spoiled by its ecclesiastical purpose which turned it into Latin, but I suggest a more important connection still. Professor Earle finds the type of the face of the figure in Irish art. But it is in outline long and rather emaciated, and the faces in the Book of Kells are plump and well-liking. I find just the right length and thinness of face in the prophets on Ælfæd's stole, and I venture to suggest that Alfred's artists and Ælfæd's went to the same Byzantine source for the faces of their figures. Inasmuch as the Irish art was not improbably Byzantine in origin, Professor Earle's remarks about the eyes of the figure on the jewel may well be in point, for the treatment of eyes on sculpture and in parchment in the earliest times in these islands followed rather closely accepted types, while other parts varied. The specially close relationship between Alfred's jewel and the Winchester stole of the next generation will be found not only in the shape of the face, but also, and very pointedly, in the outline of the hair.

There is another and more remarkable parallel to the inscription on the Alfred jewel, to which also Professor Earle does not refer. Indeed, I suppose that very few of us are aware of it. I delivered a lecture on the subject in Cambridge when I was Disney Professor there, and as the whole of the story makes a very interesting romance of ecclesiastical art, I will take this opportunity of setting the facts before you in brief. I am far from sure that it has not something to do with these parts, as you will see in the end.

Some of you, no doubt, have seen in the treasury of the church of St. Gudule, in Brussels, the great reliquary, in the form of a cross, which is said to contain the two largest portions of the true cross in existence. Erasmus, who knew the Low Countries only too well, declared in his notes on the whitened sepulchres of St. Matthew xxiii. 27, that there were enough portions of the true cross, if they were collected, to freight a large ship. There is also in this St. Gudule reliquary one of the nails of the cross, which the visitor can see through a piece of glass. The cross has at its centre a crown of thorns, and on the arms and head and stem a number of the emblems of the Passion. There is no inscription, and there is nothing really old about the reliquary.

In 1891 Dr. Logeman, the professor of English philology at Ghent, became possessed of a manuscript which described an inscription of a curious character on this cross, in a language which the writer of the manuscript had not understood. It was sufficiently like Flemish to tempt him into some very quaint interpretations, but it was not Flemish. No such inscription, nor, as I have said, any inscription at all, could be seen upon the cross as it stood in the treasury, examine it as you would. At this point it will be well to relate what is known of the history and provenance of the cross from which this remarkable inscription had so completely disappeared. It will eventually give us an interesting clue.

The reliquary was given to the church of St. Gudule by the Archdukes Albert and Isabella by their will; it had been one of the ornaments of their chapel in Brussels since 1605. The Archduke died in 1621, and the Archduchess, who was a daughter of Philip II. of Spain, and had the Netherlands for her dowry, ruled alone after the death of her husband till her own death in 1633, when their will took effect, and the reliquary came to St. Gudule. It had come to the Archdukes—I wish we still retained that royal use in England, and spoke of the Princes of Wales and Dukes of Cornwall, *principes* and *duces*, not *principem* and *principissam*, *ducem* and *ducissam*—it had come to them from Cologne, to which place it had been carried by the Bishop of Haarlem when he fled from the reformers in 1573. It had reached the Low Countries long before, when Egbert, Archbishop of Trèves, gave it to the abbey of Egmond. This Egbert, whose name is suspiciously English—indeed, there is scarcely any not-English Egbert before 1100—is said to have been a son of Theodoric II., Count of Holland. This reigning count, Dietrich or Thierry, ruled Holland from 963 to 988. He was allied to English families, and his son Egbert is said to have exploited this insular connection. He invited his English friends and relatives to visit him at Trèves, and when he got them there he spoiled them of their goods, and made them send over as ransom a number of other precious things for the adornment of his chapel. We will remember that date, 963 to 988, to which we seem to have traced the cross.

At the time of the French Revolution the cross was plundered of its jewels and broken in two pieces. In the same year, 1793, it was restored, covered on the front with copper, and attested and sealed by the Papal Nuncio. This copper covering, with the emblems of the Passion, is the front of the cross as we have seen it. Dr. Logeman interested the Dean of Brussels in the investigation which the manuscript had set going, and as the Dean of Brussels is usually a personage of importance at Rome, he was enabled to break the Nuncio's seals and remove the copper covering. There stood revealed a singularly graceful and beautiful Anglo-Saxon cross, with plates of embossed silver, the Agnus Dei in the remarkable attitude found before the Norman Conquest in England, the symbols of the evangelists, an inscription across the arms of the cross, and a long inscription running completely round the silver plates on the edge of the cross, from the bottom at one side, round the arms and head and down to the bottom on the other side, all in Anglo-Saxon. Across the arms, in beautifully dainty lettering, is the inscription "Drahmal me worhte," "Drahmal wrought me." Who Drahmal was we do not know; the name does not occur elsewhere. The inscriptions on the edges are—to turn them into modern English—"Rood is my name. Once I bare the rich King, trembling, blood-bedabbled. This rood Æthelmær caused work, and Adelwold, his brother, to the glory of Christ for the soul of Ælfric their brother."

Now here we have two—or rather three—examples of the persistence of a form. The work of art itself speaks. It was so in the earliest sacred song of the English race which has come down to us, 200 years before Alfred, 300 years before the end of the reign of the father of Archbishop Egbert of Trèves, the great sacred song of which there are stanzas in runes on the cross at Ruthwell, in Dumfriesshire, erected about 680; it was so with Alfred's jewel; it is so with Drahmal's cross. That is the first point. Next, the cross of Drahmal has exactly the words on it which are found on the Ruthwell cross, "I bare the rich King," the cross thus telling of the Crucifixion, and "with blood bedabbled." That same great sacred song is found in the Vercelli MS. of Anglo-Saxon poems, a MS. of the tenth century, at much greater length than on the Ruthwell cross. In this MS. the poem is in the dialect of Wessex, not of Northumbria. Drahmal got his inscription from the Wessex MS., not from the Ruthwell cross, for while the words, "I bare the rich King" and "with blood bedabbled" are common to the Ruthwell cross, the Vercelli MS. and Drahmal's cross, the assertion of Drahmal's that it trembled under its burden is not given in that form on the Ruthwell cross, but the Vercelli MS. makes the cross say "that I trembling saw." That is the second point. It is the third point that links us on to the Alfred jewel. "Drahmal me worked." "Rood is my name." "This rood Æthelmær caused work." Here we have the "me," and the "caused work" and the order of the jewel, "Ælfred me caused work."

The jewel has "Ælfred mec heht gewyrcean." When a

hundred years had elapsed "mec" had become "me," and "gewyrcean" "wyrcean." This leads us to the question of the date of Drahmal's cross.

Remember the dates we said we would remember—963 to 988. The only instance in English history in which the names found on Drahmal's Cross, Æthelmær, Adelwold and Ælfric, are brought near together occurs in the Anglo-Saxon Chronicle for the years 982, 983, 984. That is a surprising coincidence, of which, however, it is possible to make too much. They are not described in the Chronicle as brothers, but no student of the Chronicle will be disturbed by that omission. In the Chronicle Ælfric survived Æthelmær and Æthelwold, and Drahmal's Cross was made by order of Æthelmær and Adelwold for Ælfric's soul. But in the Isle of Man about that time people were setting up crosses for their own soul and the soul of a relative, and it is not at all necessary to take it that Ælfric was dead. Indeed it is very easy to imagine circumstances under which two brothers might cause a costly work to be produced for the safety of the soul of a brother for whom they were anxious. This would be specially likely to be so if one of them was a Churchman of much piety and the other a layman of great position who knew the dangers of the times, while the brother for whose soul the costly work was wrought was perhaps a good deal younger than they, and was a man likely soon to be set in the midst of many and great dangers. This exactly describes the three men whose names occur in the Chronicle. In 982 Dorsetshire was ravaged by Vikings. London was burned, and Æthelmær, Alderman of Hampshire, died, and was buried in the new monastery at Winchester. In 983 Ælfhere, Alderman of Mercia, died, and Ælfric succeeded to the same aldermanship. In 984 died Æthelwold, the benevolent Bishop of Winchester, father of monks. In 985 Ælfric was driven from the country. The abstract guess that Ælfric might be a young brother, for whom the two older men were anxious, has received since I wrote it a curious confirmation. I find that he was called in Saxon "Ælfric child" and in Latin *cognomento puer*.

Thus I think that in working out our parallel with the inscription on the jewel we have done something to claim for Wessex that beautiful Drahmal Cross and Drahmal the artist himself. I think that Bishop Æthelwold and Alderman Æthelmær, both living in Winchester, arranged the design, and had it worked out by the head of the Winchester school of artists in gold and silver, a man after King Alfred's own heart, Drahmal. Bound up with the validity of that claim is the intercommunion of governorships between Mercia and Wessex, that most puzzling typographical question, a few years after the date at which our distinguished member, the Rev. C. S. Taylor, has, I think, shown that Bath and its district passed over finally from my jurisdiction to that of Dr. Kennion here present.

I may add that Dr. Logeman sent over to me in 1891 his original photographs of the whole of the Drahmal Cross, and most kindly allowed me to prepare lantern slides from them. As I am to give several lectures on early art in Bristol next autumn and winter, there will no doubt be an opportunity for showing these slides.

I may also perhaps be allowed to lighten the course of a heavy address by telling you of two of the quaint translations made by the author of the MS., on which the whole discovery turned. The word "bedabbled" is in Anglian and Saxon alike "bestemed." This the ingenious person took to be two Flemish words, *beste med*, and he translated it *optima virgo*. "Blode" he felt sure meant blood, as in fact it does. "Wyrcean" is spelled of course with the Saxon *wen*, and looks like "Pyrcan." He knew the connection between *l* and *r*, and between a pelican and blood, and he translated it Pelicanus.

I ought in fairness to say that the expert whom I consulted was of opinion that the language of the inscription is of date later than 980, perhaps forty or fifty years later, perhaps even more. But while I am always most grateful to experts for their opinion, I do not allow it to overwhelm facts. Besides, I have recently had five furnaces and grates put into my house for cooking my dinner and warming the water for my bath instead of two, by an expert, and another expert has not only heated my wine-cellar, but also diverted a flood of water and mud into the room where my candidates for orders are examined. So I am at present, as the American trader dying to secure an expert would say, "rather off experts."

You will, I am sure, heartily join with me in one concluding remark, that we felicitate the University of Oxford, which at present possesses this noble Somerset property of ours, on having found so admirable an exponent of its interest and its charms as Professor Earle has proved himself to be. Speaking to Somerset people, I need scarcely remark that they had, of course, to come to Somerset to have it thoroughly well done.

The *Prix Bailly*, of the value of 60*l.*, has been awarded to M. Malgras-Delmas by the Académie des Beaux-Arts, for his drawings of the Palace of Fervaques at Saint-Quentin.

ROYAL ARCHÆOLOGICAL INSTITUTE.

(Continued from last week.)

Wollaton Hall.

ON Thursday, the 24th ult., according to the *Nottingham Guardian*, Wollaton Hall was selected to be visited.

Mr. J. A. Gotch, F.S.A., described the mansion. In dealing with the oft-quoted statement that Wollaton Hall is a typical example of the English Renaissance, he pointed out that this is erroneous. In its chief characteristics—its lofty central hall and four-cornered pavilions—it stands by itself, and in its extreme regularity of treatment and the care bestowed on detail it exhibits far more conscious effort in design than most of the houses built at that period. As to the all-important question of who was responsible for the design, Mr. Gotch remarked that so little is known through actual records of the architectural designers of that day or of their method of work, the field of conjecture is a large one. From the inscription over the garden door the house is known to have been built by Sir Francis Willoughby, begun in 1580 and finished in 1588. In John Thorpe's collection of drawings in the Soane Museum there is a ground-plan of the house and half the front elevation. There is also a monument in Wollaton Church to "Mr. Robert Smythson, gentleman, architect and surveyor unto the most worthy house of Wollaton and divers others of great account," who died in 1614 at the age of seventy-nine. Lastly, we learn from Cassandra Willoughby, Duchess of Chandos, who wrote an account of the house in 1702, that Sir Francis Willoughby "sent for the master workman who built the house out of Italy," and also for most of the stone figures which adorn the front. There has, said Mr. Gotch, long been an idea prevalent that the houses of Elizabeth's time owed their special characteristics to Italian workmen, but, as a matter of fact, it is extremely difficult to trace anything but a very small amount of English work to Italian hands. The tales of models being sent for from Italy are probably apocryphal, because the plan of English houses differs so widely from that of Italian houses. The chief credit for designing Wollaton should be given to John Thorpe, Smythson being clerk of the works. The meaning of many terms has changed since then, for a number of men described as "architectus" or "architector" were what we should regard as master masons, who in those days developed the ideas of the designer. In addition to the plans which Thorpe left, he is known to have studied a French book on architecture containing corner pavilions such as those at Wollaton, and other plans which he copied into his manuscript book he adapted to English ideas. Thorpe probably designed the plan and elevation, leaving Smythson and "the master workman from Italy" to carry them out. The plan of the building, although of foreign origin, is so contrived as to comply with old-established English habits. Contrary to the prevailing custom, however, Thorpe put his kitchen and servants' rooms down in a basement. This was almost a necessity of the design, for, being of a pretentious nature, it had to be grand on every side, and the inferior premises had to be hidden away. The disposition of the house, with a central hall surrounded by rooms two storeys high, necessitated an unusual height for the hall, which is over 50 feet high. The upper floor of these adjacent rooms on the east side is devoted to the long gallery, since divided into a number of small rooms. Duchess Cassandra tells us that the stone was brought from the Ancaster quarries on the backs of pack-horses, which took back Sir Francis's coal in exchange. The building, nevertheless, cost 30,000*l.*, which was an enormous sum in those days. The external treatment is of pronounced Classic character, with plenty of pilasters and bold cornices.

The members were conducted over the house by Lord and Lady Middleton. Lady Middleton takes a keen interest in everything relating to Wollaton. Wollaton fulfils one's idea of a baronial mansion, with its magnificent hall, fine stone screen, Elizabethan roof, minstrels' gallery and gorgeous staircase painted by Verrio. In the hall and other apartments are paintings by Rubens, Snyders, Lely and Kneller, many of the pictures being family portraits, including one of Sir Hugh Willoughby, who in the time of Edward VI. went, as Sir Henry Howorth recalled to the memory of his fellow archaeologists, to find the North-West passage, in company with those famous navigators Baffin and Hudson, and lost his life in the attempt, being subsequently found frozen with his crew. The cannon which were on his ship are still carefully treasured at Wollaton, along with a large array of firearms requisitioned at the time of the Reform Bill riots for the defence of the house. The "prospect room" over the great hall, containing a box with the coronation robes used by the Lord Middleton of Queen Anne's time, was visited. This splendid apartment measures 62 feet by 30 feet. The cellars also, which are cut for a considerable distance into the solid rock, aroused a good deal of curiosity. Out on the roof a glorious prospect of lake and woodland is obtained, a large part of Nottingham being plainly discernible. Before leaving Sir Henry Howorth thanked Lord and Lady Middleton for their hospitality.

Wollaton Church.

From the hall the party went to the church, opposite to which some masonry, now forming part of several old cottages, indicates the site of the ancient manor house occupied by the Willoughby family prior to the erection of Wollaton Hall. Fifteen years ago, as the Rev. H. C. Russell, the rector, said, the church was thoroughly restored. Before the restoration the arch under the tower was bricked up, with a little door in it, but the arch has now been opened out, with manifest advantage to the architecture of the building. Mr. W. H. St. John Hope gave some additional information concerning the church. The nave, the south door and the tower, he said, are of fourteenth-century work. The monuments are remarkable. On the north side of the altar is an enriched canopy, covering two fine brasses referring to Richard Willoughby and his wife. There is another beautiful canopied tomb on the opposite side of the chancel, containing the recumbent effigies of Sir Henry Willoughby and his four wives disposed around him. In addition there are a number of mural monuments, chiefly to the Willoughby family, but one on the south wall of the nave is devoted to the aforesaid Robert Smythson.

Sandiacre Church.

The archaeologists next drove on to Sandiacre, where they made their way up to the church, Mr. W. H. St. John Hope again acting as guide. The members seated themselves in the nave, and Mr. Hope, speaking from the pulpit, said that this little church had a history which could be made out pretty clearly. They knew for certain that there was a church there at the time when Domesday Book was compiled in 1080, but of that particular edifice there were no remains. In the present building there was nothing earlier than the Norman nave, the date of which was about 1120. The chancel was a fine example of fourteenth-century work. Mr. Hope concluded with a vigorous protest against any proposal to enlarge the church, as this would spoil it architecturally.

Strelley Church.

Strelley Church, the concluding object of the day's excursion, was next reached. Mr. T. K. Edge, of Strelley Hall, acted as guide. The tower of the church is of the thirteenth century, and the interior features of the edifice are a fine late wooden rood-screen, and some splendid monuments to the Strelley family, who, after being lords of the manor for generations, got into pecuniary difficulties in the time of Charles II., and had to sell the estate to Mr. Ralph Edge in 1684. The last of the Strelleys, it is said, was compelled to earn his living as a glass-blower—a sad end for such an illustrious race. The Strelleys were connected with the Willoughbys by marriage, and the combined arms of the two families are frequently to be met with.

In the evening a paper was read by Mr. C. R. Peers, F.S.A., upon "Saxon Churches of the St. Pancras type."

Arms of Nottingham and Colchester.

Mr. W. H. St. John Hope followed with a short paper on "The Arms of Nottingham and Colchester." He stated that he had before described the arms of Colchester, and he then said that a precisely similar shield, but with the cross vert was claimed as the arms of Nottingham, and was so entered in the visitation of 1569. He could not, however, find any other or earlier authority for them, nor could he see how they were to be interpreted or what possible connection they could have with Nottingham. Since those words were written he had become convinced that his former conclusions were untenable. He therefore submitted a new explanation of the interesting arms which would, he hinted, not only make clear the meaning of those of Colchester, but also show that the ancient town in which they were assembled might, with equal propriety, lay claim to similar arms. The question that arose was to whom did the crowns refer? A paper on ancient legends connected with the arms of Colchester had lately been put forth by Mr. Gurney Benham, in which it was said that they might assume that the arms of Colchester, as of Nottingham, were meant to tell the story of St. Helena, that the cross alluded to her discovery of the holy rood, that the three crowns symbolised the magi, and that their position was in all probability intended to remind men of the specially important discovery attributed to her, the discovery of the three holy nails. He (Mr. St. John Hope) was unable to accept that theory, but it had suggested to him yet one other, which he ventured to put forth, namely, that the three crowns had reference to and must be regarded as being associated with the three nails. This reduced the arms to perfectly simple elements—the brow of Our Lord pierced by three crowned nails. They might thus at once see why the lowest crown encircled the cross, because it then hovered over the third nail, and that the honour due to the hallowed nails which were otherwise liable to be overlooked was clearly and emphatically set forth by the crowns in a manner quite in accord with Mediæval usage. With regard to Nottingham, they could see their way very

clearly, since they need no longer try to associate with St. Helena, in whom Nottingham had no interest, arms which might equally well refer to Our Lord alone. Such a shield might, in fact, be regarded as the well-known emblems of the Passion reduced to the simplest elements. He confessed to still being without earlier authority than the visitation of 1569 for the assumption of these arms by the town of Nottingham, and in default of any evidence of the former existence of any relics of the true cross, or of the three nails, he could only assume for the present that it was by mere coincidence that the arms of Nottingham were identical with those of Colchester, for the illuminated initial showed that in both cases the cross raguly should be green, or what the heralds now called proper.

Annual Business Meeting.

On Friday morning the annual business meeting was held. The fifty-ninth annual report of the Council was read. This recorded a balance in hand of 190*l.* 12*s.* 10*d.*, which, compared with last year, showed an apparent decrease, but a further sum of 100*l.* had been added to the deposit with the bankers, so that the gross total indicated an increase of 91*l.* 16*s.* The membership showed that nineteen members had died, of whom nine were life members, and five had resigned. Thirteen new annual subscribers had been elected. Of those who had passed away, Mr. Arthur Cates and Mr. J. Park Harrison were especially noticeable. Mr. Park Harrison was one of the earliest movers in the revival of the practice of Gothic architecture. He was an indefatigable worker, and had contributed often to the proceedings of the Institute.

In regard to the place of next year's meeting, the following centres were suggested by members:—Tewkesbury, Tenby, Cardiff, Brighton, Oxford, York, Newport and Swansea. The final selection was left to the Council of the Institute.

The President said he would like to take the opportunity which that meeting offered of throwing out the suggestion that steps might be taken for the publication of the charters of Rufford Abbey, Newstead Abbey and Welbeck Abbey. In regard to the latter, he believed that the matter had only to be mentioned to the Duke of Portland to be undertaken. It was also suggested that the local authority should be asked to take steps for the preservation of Stapleford Cross, and the secretary was requested to forward these recommendations to the proper quarters.

Hardwick Hall.

The members spent the afternoon in visiting Hardwick Hall, where they were received by Lady Louisa Egerton. Before entering a brief view was taken of the beautiful gardens, which have been laid out under the direction of her ladyship. A halt was made in the entrance hall, and after the fine tapestries and other antiquities which meet the eye at every turn had been inspected, Mr. J. A. Gotch, F.S.A., prior to the tour of the interior, read the following description of the building:—

Hardwick Hall is a building of considerable interest to the student of English Domestic architecture, inasmuch as it is a good example of one manner of the Elizabethan designers, and it has undergone no very serious alterations since it was built. It has suffered, like most houses of that time, from age and from the changing fashions of its inhabitants; but such changes as it has experienced have been in comparatively small matters, so that in the general disposition of its plan and in its external appearance it remains to-day very much the same as when the eye of its founder, Bess of Hardwick, last fell upon it. This Bess of Hardwick was a notable personage, a woman of great ability and strong will, and, being possessed of considerable wealth, she left her mark upon the times in the shape of several large houses, of which this is one, and the only one surviving, the others being Chatsworth—which has been rebuilt—and Oldcotes. She was the daughter of John Hardwick, of Hardwick, and was born in the old hall, of which the ruins still remain in front of this house, near the brow of the hill. That she was a woman of great ability and personal attractions is sufficiently proved by the fact that she married four husbands and survived the last. The date usually assigned to the house is 1576. There is a chimney-piece in one of the bedrooms dated 1588, another in the dining-room dated 1597, and the door of the room called after Mary Queen of Scots is dated 1599. The new hall and the old hall stood side by side, and both were in use for many years. The old hall is, indeed, not much older than the new. Much of it has disappeared, but judging by what remains its general disposition was symmetrical, its windows, as can be seen, are mullioned, and have rectangular lights; its whole appearance points to a date about the middle of the sixteenth century. Tradition gives this house as the birthplace of Bess in 1520, and perhaps a careful search might reveal indications of a building of that date. But if anything of it still survives it certainly would seem as though the old house had been modernised during the second half of the sixteenth century, an additional proof being the remains of a plaster frieze, with figures modelled in relief, of the same character as the frieze in the presence-chamber of the new house.

Having been thus brought up to date, the old house was not left to immediate decay in consequence of the erection of its rival, for we learn from the ingenious Mr. Collins, who quotes Bishop Kennet's memoirs of the Cavendish family in his account of the Dukes of Devonshire, given in his "Peerage," that one room was of such exact proportion and such convenient lights that it had been thought fit for a pattern for a room in Blenheim House. It would be, therefore, well into the eighteenth century before the old house fell to ruin. It is not unlikely that the older house was the more comfortable of the two, for Hardwick Hall can hardly be considered as a model of convenient planning. It belongs to that species of house of which a large number were built in Elizabeth's days; a house designed as an exercise in symmetry rather than as a dwelling. True, it contains the apartments which were then considered essential, but they are arranged with less than the usual care to secure comfort and convenience. What must strike everyone who first sees Hardwick is the great size and number of the windows. This has given rise to the well-known jingle, "Hardwick Hall, more glass than wall." It is a fault common to many of the houses of the time, and one which Lord Bacon protested against in his oft-quoted complaint that "You shall sometimes have fair houses so full of glass that one cannot tell where to become to be out of the sun or cold." The fact that windows were so large and plentiful is one of considerable interest and significance, for it emphasises the complete change which had come over house-planning in the space of a few years. Thirty or forty years earlier windows were somewhat jealously introduced, especially on outer walls, for the necessity for defensive precaution had then hardly ceased. Here at Hardwick, however, no thought of defence is apparent; everything is done to procure the largest amount of light and air. The windows, in fact, are overdone; they make the circuit of the walls with relentless symmetry, and not a few of them have been blocked up inside in order to render the rooms habitable. Some of them were shams from the outset and have fireplaces against them, whilst not a few of them are crossed by floors, so that the lower lights belong to one storey and the upper to another. The room called after Mary Queen of Scots, which is situated high up on the second floor in one of the projecting turrets, has three of its sides on the exterior filled with windows; on the inside, however, only one side is lighted, the fireplace occupying the second side and the bed the third. The room is called after Mary, and has the arms of Scotland over the door, but there is no record of the exact length of her residence in semi-captivity in this house. Mary was beheaded in 1587, and as the door of her room is dated 1599, the probability is that it was adorned in her memory, evidently not for her own proper decoration. The house consists of a large oblong with two projecting turrets on each of the long faces, and one on each of the short faces. The door, as usual, is in the middle of one of the long sides, but the hall into which it gives access is not disposed in the fashion which had been customary up to this period, and which still prevailed in most Elizabethan houses. That fashion is followed in the halls of colleges; it placed the hall lengthways with the building, at the entrance end a strip was cut off by a screen and became a passage, called the "screens." At Hardwick the hall instead of being placed lengthways with the building goes across it from side to side. This unusual disposition may not seem of much importance, and it may be said that although the hall lies differently in relation to the house, yet all the usual features are there—the screens, the buttery-hatch and so forth. But the difference of arrangement, nevertheless, is indicative of a momentous change, and one which distinguishes Mediæval houses from modern. This alteration of character became thoroughly established in the time of Inigo Jones, and has remained to the present day. One of the tests of the age of a house is the disposition of its hall. In Mediæval times it was a living room; in modern times it is a vestibule. The hall at Hardwick, owing to its plan, is leaving the Mediæval type and approaching the modern. It may have had a dais, but probably not. Even if it had, that end had not the snug feeling of the old-fashioned arrangement, with its bay window and the fireplace fairly close to the seats of the chief personages. It must have been somewhat uncomfortable, as on each side of that end is a passage leading to a principal staircase. But, indeed, Hardwick may be said to have no "staircase"; it has, instead, long flights of steps. By "staircase" is meant a special feature, either of wood or stone, such as is the pride of most Elizabethan houses. But throughout the house the detail is disappointing; everything is large and coarse, including chimney-pieces and doorways. It is rather in its general disposition and the size of its rooms that Hardwick is interesting, for when one comes to examine the work closely there is an absence of that fancy and fertility of design which distinguishes the better class of work of that period. But although the means of getting upstairs are not very interesting, there are some fine rooms to go to. There seem to be no family rooms on the ground floor, unless they

have been turned from their original purpose. All the principal apartments are on the upper floors, and as each storey is unusually lofty, the whole height of the building is much greater than was commonly the case. The hall itself is two storeys high, and the only access from one half of the house to the other on the first floor lies across the gallery over the screens. The principal rooms on this floor are those now called the dining and drawing-rooms. In addition to these there are a few bedrooms, and various small apartments contrived to meet modern requirements. The finest apartments, however, are on the second or top floor, where are the presence-chamber and library, and the long gallery beside a fine bedroom and the room named after Mary Queen of Scots. Above these rooms, and partly in the roof, are a number of subsidiary bedrooms. The presence-chamber is a large and lofty room, with a very deep frieze of modelled and coloured plasterwork, representing hunting scenes. The quality of the work is not very high compared with what was being done in Italy and France at the same time; but it has considerable vigour, and imparts a fine and stately character to the room. Over the chimney-piece in the library adjoining is an alabaster panel of very considerable merit, representing Apollo and the Muses. The long gallery occupies the whole length of the east side of the house, and is a lofty and handsome room. It is the only apartment which retains its original ceiling, and as the ceilings of Elizabethan houses exhibited some of the most original and attractive work of the period, Hardwick suffers much from their absence. The rigid symmetry of the external treatment has already been referred to. It is as complete in its way as that of Wollaton, but the latter house derived more than symmetry from the Classic proclivities of the day. It also obtained the pilasters and niches with which its walls are adorned. Hardwick has none of these, and is an example of the fact that they were by no means necessary, although they were a very constant ingredient in the design of the period. The treatment of the windows here resembles in some degree that employed at Wollaton, or rather one should say, Wollaton followed Hardwick to a certain extent. In both places there is a projecting moulding or architrave which makes a framework round the window, and rests at the bottom upon a projecting sill, which is supported by small brackets. The mouldings of the jambs, mullions, and transoms, however, differ in the two examples. The cornices which divide the various floors have only a general resemblance, and the balustrade which crowns the walls is as meagre in the one house as the other. The finish of the turrets here is not so ambitious as at Wollaton, as instead of an elaborate, curly gable, there are only the Countess's initials and coronet supported by a Dutch flourish, a humble member of the same family which is so conspicuous on the towers at Wollaton. There are at Hardwick valuable accessory features which are now wanting at Wollaton, as well as at most of the houses of that time which have come down to us, viz. the garden walls and lodge. The lodge was almost as much a part of an Elizabethan home as the great hall and long gallery, but being of small size and detached from the main building, it has in the majority of cases been swept away in favour of some kind of landscape-garden effect. Happily it has escaped in this instance, and remains together with its supporting walls as an example not only of the manner of laying out the approach to an Elizabethan house, but also of the quaint and sometimes unworkmanlike way in which artificers treated their materials. In conclusion, Mr. Gotch left the domain of architecture to call attention to the great amount and excellent preservation of the tapestry which clothes the walls and vividly illustrates this method of decorating them, and also to the interesting furniture which survives in considerable quantity. These two things reconciled one to the absence of fascinating architectural detail, and helped to make Hardwick one of the finest examples of a large Elizabethan house.

"Robin Hood."

In the evening the members assembled in the Exchange Hall, under the presidency of Mr. R. Evans, J.P. A paper on "Robin Hood" was read by Mr. E. W. Brabrook. He said that Robin Hood had always been a popular hero. His history existed principally in the form of ballads. Of those there existed a great number. That sort of history was not likely to lose in the telling. The songs with regard to him were popular as early as 1362, but a more effective method was used to keep his memory green—that of the Morris dancers. They were popular in 1538, and the performances continued until 1592. Latimer complained that he wished to preach on a certain day, but the people would not hear him because it was Robin Hood's day. The popularity of the story as to him was further attested by the many places associated with his name to be found in Notts, Yorkshire and Lincolnshire. The Royal Forest of Sherwood testified to the bold and merry doings of Robin Hood, and he proceeded to relate several of the stories. Notwithstanding all his misdeeds, Robin Hood gained Court favours, Queen

Catherine sending for him. The many pranks he played would take an age to tell. He was a good outlaw, for he did poor men much good. Charity covered a multitude of sins. Such were the traditions, but what were the facts of the case? There were some who denied Robin Hood any real history whatever. He (Mr. Brabrook) ventured to dissent from that idea, and he should not be surprised if more than one Robin Hood did not exist. There was a strong English flavour about the ballads, and he did not know why it should be doubted that they had some foundation in fact. They need not deny his existence because they could not believe all his exploits. It seemed that he was born about 1160, and his career was a long one. The circumstances as to his noble descent were conflicting, and the probability was that he had no high extraction. The time would, however, never come when the Robin Hood ballads would not be sung. Mr. Brabrook next offered some remarks as to Robin Hood's companions, making special reference to Little John. He said he must give up the reality as to Friar Tuck, which was too improbable, and they must also not put too much faith in the story of Maid Marian.

(To be concluded.)

ST. PETER'S HOSPITAL, BRISTOL.*

THIS is one of the most interesting specimens of ancient Domestic architecture remaining in Bristol. All Domestic architecture of olden times was picturesque in form, and this gabled building will probably be admitted to be one of the most picturesque and characteristic now in existence. The original mansion is believed to have been erected about the end of the twelfth century by John Norton, and occupied the ground from the churchyard to the river. It remained in the possession of the Nortons for several centuries, and in 1435 it was bequeathed by Thomas Norton to his two sons, Thomas and Walter, by whom it was divided into two tenements. Walter is said to have resided in the western part of the building, and Thomas in the eastern part, and the latter is believed to be identical with one Thomas Norton, who, according to various biographers, was reputed the most skilful alchemist of his time, and claimed to have found out the elixir of life and the art of transforming metals, but who nevertheless appears to have died, and to have died in poverty. The premises continued in the occupation of successive generations of the same families till 1580, when Sir George Norton, who then owned the whole, and also the Manor of Leigh (Abbots Leigh) sold it to Henry Newton, afterwards Sir Henry Newton, of Barr's Court. It does not appear, though, to have become the habitation of any of the Newton family. The next known owner is stated in 1602 to be Robert Chambers, gentleman, by whom it was sold in 1607 to Robert Aldworth, a wealthy merchant, whose monogram is to be seen on the river front with the date 1612. At the date named this gentleman made considerable alterations and additions, practically rebuilding the house in the style of the period, for in a later deed now in the possession of the Guardians it is described as having been "by the said Robert Aldworth erected and new built." The street frontage, with its gables and arabesque enrichments, belongs to this date (1612), and the court-room is also a part of the alteration made by him. There is a very fine tomb in the adjoining church to the memory of Aldworth, who died in 1634. Although the principal part of the building was reconstructed by Aldworth, a portion of the churchyard frontage towards the east is part of the original building of the Nortons. From Aldworth's time it was occupied by various families as a private residence, and then became appropriated to trade purposes, being in that capacity first used as a sugar house. It is supposed that this is the place in Bristol visited by the diarist Evelyn, who in 1654 wrote, "Here I first saw the method of refining sugar and casting it into loaves." Then in 1696, on the Government determining to supplement the coinage at the Tower by the establishment of branch mints in some leading provincial towns, the civic authorities pressed the claims of Bristol, and being informed that provision of a suitable house must first be made at the cost of the citizens, it is recorded that the Corporation appointed a committee "to make a bargain with Sir Thomas Day for the Sugar House, and the house will find the way to pay the rent." The Sugar House referred to was this building, and it was occupied as a mint from 1696 to 1698. Finally, in 1698, it passed into the hands of its present owners, then known as the Corporation of the Poor. This body was established, under special Act of Parliament, in 1696, and was the first board of guardians formed in England. The Corporation of the Poor, finding in 1697 their workhouse inadequate, appointed a committee to select some other building, and this body reported in December that they found "none so fit or convenient for the purpose as

* A paper read by Mr. J. J. Simpson at the meeting of the Somerset Archaeological Society.

the Mint." Negotiations were opened, and in 1698 it was purchased for 800*l.* from Edward Colston, and others, and thereupon converted into a workhouse for the poor. The beautiful Jacobean sitting-room, erected by Aldworth, was fitted up by the Guardians as a chamber or court-room for their meetings, and has been used continuously since October 1698 for this purpose. This court-room is a sumptuous apartment, and the plaster ceiling is constructed in square and diamond compartments with floral and other devices, and the deep cornice has a running series of armorial shields supported by griffins. All this was time after time for a long period covered with whitewash, but twenty years ago this encrustation of white lime was carefully removed, and the entire ceiling emblazoned with colours and gold leafage in supposed accord with the original designs. Over this Jacobean ceiling there exists a fine open-timbered Gothic roof of fifteenth-century date, which appears to have been the canopy of the great hall of the mansion before the reconstruction in 1612, and probably extended from back to front of the building. The entire premises are now occupied for administrative purposes only by the Guardians, who, finding the court-room too small for their larger numbers and greatly increased work, are now erecting a new board-room in the south-western portion of the building, but the present apartment will remain intact.

DERBYSHIRE ARCHÆOLOGICAL SOCIETY.

THE members of the above Society made a presentation on the 29th ult. to Mr. Arthur Cox on the occasion of his recent marriage and in recognition of his services as hon. secretary of the Society for nearly twenty-three years. A ready response was made to the invitation for subscriptions, eighty-nine members replying, and a handsome silver salver was purchased, engraved with Mr. Cox's coat-of-arms and a suitable inscription. The presentation was made by the Hon. Frederick Strutt, vice-president of the Society, who in a suitable speech pointed out how much the Society was indebted to Mr. Cox, who had been hon. secretary since its inception in 1878, and had done much to raise it to its present flourishing and important position.

Mr. Cox, in his reply, expressed the thanks of himself and Mrs. Cox to the members of the Society, and stated the pleasure and interest he had taken in the work, which nothing but the pressure of other duties would have caused him to relinquish.

BIRMINGHAM ARCHÆOLOGICAL SOCIETY.

THE Birmingham Archæological Society made an excursion to Gloucester and district on the 31st ult., and under a combination of pleasant circumstances the day proved most enjoyable and successful. The party reached Gloucester about 10.45, and at once proceeded to the cathedral, where an hour or more was spent in examining the many interests of this beautiful and well-known edifice. Thence a brake conveyed the members to Ashleworth, where an interesting group of buildings is to be found close down to the river Severn—the Court and its various outbuildings and huge barn, the church, with its west-end tower and spire, and the churchyard cross. The church and the cross in the churchyard were first inspected, and then, by the courtesy of Mrs. Clarke, the Court was examined. It is a structure of late fourteenth-century or early fifteenth-century date, originally having finely proportioned and lofty apartments enriched with open timber roofs, but is now cut up with modern floors and partitions. After examining the fifteenth-century (or late fourteenth-century) barn, the party drove on to the old vicarage, where Miss Fuljames most kindly permitted its inspection. It is a delightful, half-timbered house, in date about the end of the fifteenth century, and has its porch, gables and walls all of fine oak framings, moulded and enriched and in excellent preservation. By a small detour Hasfield Church was next visited, and then, by the courtesy of Miss Surman, the Great House, another interesting example of Mediæval domestic work of varying date and detail. Deerhurst Church was the next place reached, and its most notable Saxon tower and other details were carefully examined. Then the Saxon chapel of Duke Odda, of eleventh-century date, was inspected. It is partly incorporated in a half-timbered farmhouse not far distant from the church, and is an interesting relic of that pious and church-serving duke. Having taken tea at the farmhouse, the party drove into Tewkesbury, and caught the 8.33 train to Birmingham, after one of the most enjoyable excursions of the season.

The Plans for a central fire station in Durban, South Africa, are to be submitted to public competition, and a premium of 50*l.* is to be awarded for the best design.

GENERAL.

Mr. Walter Merrett has had the honour of submitting to the King the clay model of the marble bust he is executing for Mr. T. V. Bowater, C.C., for presentation to the City Corporation, and was favoured by His Majesty with a sitting.

Battle Abbey was opened last week for the first time since the death of the late Duchess of Cleveland. A small charge for visiting the Abbey is now made. It has been arranged that the Abbey can be visited on other days at a higher charge.

The Greek Ministry of Public Instruction has addressed the British Government, requesting it to express the thanks of the Greek Government to Mr. Seton-Karr for his gift to the Athens Archæological Museum of 140 ancient instruments of various descriptions, which are of great value.

Mr. H. Andrews has purchased the domain of Toddington, comprising about 7,000 acres, and formerly the property of Lord Sudeley. The mansion is a fine example of Gothic architecture, and cost upwards of 150,000*l.* The property is rich in historical associations. The ruins of the ancient abbey of Hailes are upon it, and it was here that Richard, Earl of Cornwall, King of the Romans, founded a Cistercian monastery in 1246.

Mr. John Palfreeman, who has been resident engineer at the Houses of Parliament for about three years, died last week after a few days' illness. Before his appointment at Westminster he was chief engineer at the Royal Courts of Justice. He was in his fifty-ninth year.

Mr. James Hawke Dennis, of Great Hurst Park, Surrey, who has provided the necessary funds for completing the Victoria Tower of Truro Cathedral, has presented a new organ and peal of bells to St. Buryan Church, near Penzance. The bells are from the works of Messrs. J. Warner & Son, of Cripplegate, and the organ from Messrs. Hart & Son, of Truro. The large bell has the following inscription:—"Edward VII. This bell was given by James Hawke Dennis, a benefactor of St. Buryan Church, to commemorate the accession of King Edward VII., A.D. 1901."

The Greek Pavilion from the Paris Exhibition, designed after the Byzantine Church of the Pantanassa at Mistra, is to be erected at Athens as the Church of the Saviour, on the spot where the attempt was made on the lives of King George of Greece and Princess Marie three years ago.

The Bristol Town Council have given their final approval to the Docks Bill, which has passed both Houses of Parliament, this form being necessary before the Royal Assent could be obtained. The present cost of the scheme is estimated at 1,950,000*l.*

The Board of Education (Secondary Branch) announce that the Museum of Practical Geology, Jermyn Street, will be closed as usual from the evening of August 9 until the morning of September 10.

The Housing Committee of the Westminster City Council have reported that they inspected several sites which might be suitable for providing accommodation for the working classes in the city. The committee were of opinion that a vacant site, about an acre and a half in extent, in Regency Street, part of the Westminster Chapter estate, was one suitable for the purpose, and as an initial step they recommended the Council to make an offer to the owners, the Ecclesiastical Commissioners, to purchase the land for the sum of 32,000*l.* The Council adopted the recommendation of the committee.

The West Ham new lunatic asylum at Chadwell was opened on Thursday in last week. The building provides accommodation for 800 patients, and has been erected at a cost of over 300,000*l.*

The York Council have under consideration a scheme for the improvement of a street near the Minster. Numerous experts have communicated with the authorities warning them that almost certain damage will be caused by vibration if heavy traffic be allowed to approach the building.

The Royal Hibernian Academy have elected Mr. Oliver Sheppard, sculptor, and Mr. Henry Jones Thaddeus, portrait painter, as members.

The Bishop of St. Asaph, at a meeting of the St. Asaph Diocesan Societies last week, expressed his willingness to take the risk of avoiding the expense of a second survey by appointing a commission to give their judgment upon the surveyor's first report.

Messrs. P. S. King & Son have in the Press for publication during September a work by Dr. J. F. J. Sykes on "Public Health and Housing," being the Milroy Lectures delivered before the Royal College of Physicians in February and March last.

Heaton Park, Manchester, containing 686 acres, has been purchased from Lord Wilton by the Manchester City Council for 230,000*l.*

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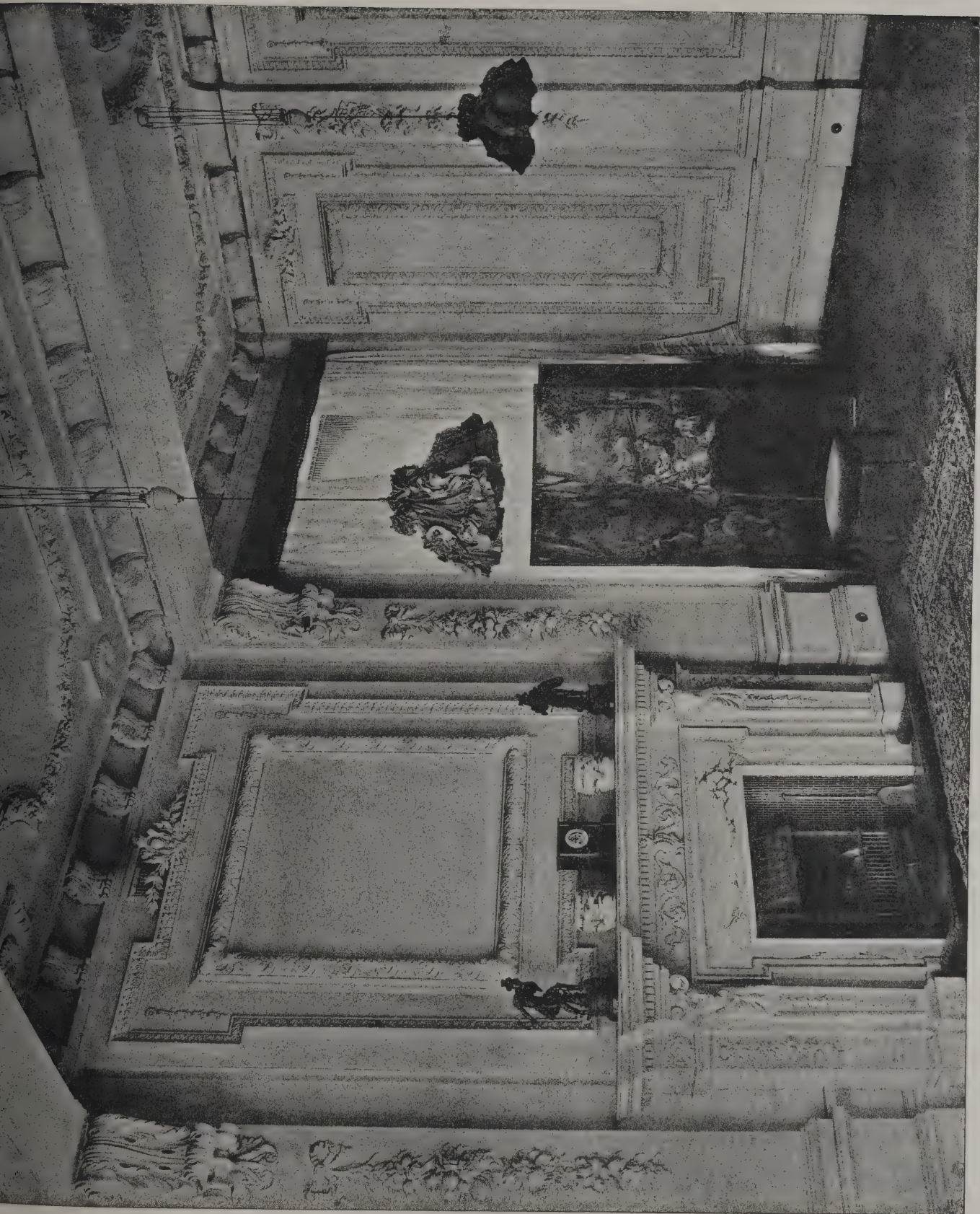
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The Architect, Aug 9th 1901.



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THE "CLAREMONT" HOTEL, HARROGATE.

Messrs. BUTLER WILSON & OGLESBY, Architects.

The Architect, August 9, 1901.



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ALTAR AND REREDOS, JESUS CHAPEL, WORCESTER CATHEDRAL.

R. A. BRIGGS, Architect.

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THE "APOLLO" THEATRE,
LEWIS

9th 1901



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PRINCE RUPERT" RESTAURANT.

itect.

THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

PENZANCE.—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

CONTRACTS OPEN.

AISH.—Aug. 15.—For erection of a farmhouse at Aish, South Brent, Devon. Mr. Thomas W. Pearse, surveyor, Stolford, Modbury.

ARGENTINE REPUBLIC.—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

AUGHTON.—Aug. 22.—For erection of a new pavilion at the isolation hospital at Aughton, Lancashire. Messrs. William Rawcliffe & J. A. Seward, architects, Fishergate, Preston.

BATLEY.—Aug. 21.—For erection of buildings and chimney-shaft for the Corporation electricity works. Mr. J. H. Craik, town clerk, Batley.

BENWELL.—Aug. 12.—For erection of the new Benwell Board school. Mr. J. W. Thompson, architect, 63 Gray Street, Newcastle-on-Tyne.

BERWICK-ON-TWEED.—Aug. 16.—For additions to the National school, Spittal. Mr. Wm. Gray, architect, 2 Ivy Place, Berwick-on-Tweed.

BETHNAL GREEN.—Aug. 20.—For additions to a bakehouse at 24 Calvert Avenue. Specifications, bills of quantities, form of tender and other particulars at the Architect's Department, Housing of the Working Classes Branch, London County Council, 18 Pall Mall East, S.W.

BIRKENHEAD.—Aug. 27.—For erection of a mortuary in Livingstone Street, Birkenhead. Mr. C. Brownridge, borough surveyor, Town Hall, Birkenhead.

BLYTH.—Aug. 17.—For laying drying floor at Link's Road brickworks. Mr. A. Windle, architect, Blyth, Northumberland.

BOLTON.—Aug. 14.—For erection of a county police station at Walkden, near Bolton, Lancs. Mr. Henry Littler, architect, County Offices, Preston.

BOSTON.—Sept. 3.—For erection of a cookery centre, pupil teachers' centre and evening science classrooms in Norfolk Street, Boston, Lincs. Mr. Jas. Rowell, architect, Market Place, Boston.

BRAMPTON.—For extension of the administrative block at the workhouse, Brampton, Cumberland. Mr. T. Taylor Scott, architect, 43 Lowther Street, Carlisle.

BRIMSCOMBE.—Aug. 19.—For erection of a mission-room at Hyde, Brimscombe, Gloucestershire. Mr. G. P. Milnes, architect, Town Hall Offices, Stroud.

BRISTOL.—Aug. 20.—For erection of a disinfecting station at Feeder Road, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BULWELL.—For erection of a church institute in Robinson's Hill, Bulwell, Notts. Mr. W. V. Betts, architect, Bank Offices, Old Basford.

CARLISLE.—For pulling-down and rebuilding business premises in Botchergate, Carlisle. Mr. T. Taylor Scott, architect, 43 Lowther Street, Carlisle.

CHELMSFORD.—Aug. 15.—For erection of one pair of labourers' cottages at the Hall Farm, Purleigh, and one pair of labourers' cottages at Skinners Wick Farm, Tolleshunt d'Arcy. Mr. F. Whitmore, architect, 17 Duke Street, Chelmsford.

CHITTLEHAMHOLT.—Aug. 16.—For enlarging the dwelling-houses and erecting new farm buildings at High Bullen Farm, Chittlehamholt, North Devon. Mr. S. Dobell, architect, Queen Street Chambers, Exeter.

DARFIELD.—Aug. 21.—For erection of eighteen houses and a shop at Darfield, Yorks. Mr. A. B. Linford, architect, Carlton Villa, Wombwell.

Fig. 5 is an Illustration of "VERITY'S PATENT"

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DONCASTER.—Aug. 13.—For erection of a farmhouse and outbuildings at Beltoft. Mr. J. W. Ross, The Poplars, Belton, Doncaster.

FALMOUTH.—For rebuilding wall at the entrance to the ropewalk and paving works in Berkeley Place. Full particulars on application to the borough surveyor.

FULHAM.—Aug. 15.—For alterations and additions to the workhouse, Fulham Palace Road, Hammersmith, W. Mr. A. Saxon Snell, architect, 22 Southampton Buildings, Chancery Lane, W.C.

GRAVESEND.—Aug. 12.—For erection of electric-lighting and destructor buildings and chimney shaft near the canal basin. Mr. F. T. Grant, borough surveyor, Town Hall, Gravesend.

GREAT MARLOW.—Aug. 13.—For alterations and additions to the station buildings at Great Marlow, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

HALIFAX.—Aug. 19.—For erection of several blocks of conveniences, outbuildings, &c., at Holywell Green, near Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HEMEL HEMPSTEAD.—Aug. 12.—For alterations at the workhouse. Mr. Lovel Smeathman, clerk to the Guardians, Hemel Hempstead.

HEREFORD.—Aug. 13.—For erection of two officers' cottages and four attendants' cottages on the estate of the Hereford County and City Lunatic Asylum. Mr. Alfred Dryland, county surveyor, Shire Hall, Hereford.

HOYLAKE.—Aug. 12.—For erection of stables, cartsheds, engine-house, blacksmith's shop, general shops and stores on site adjoining the electric-lighting station at Hoylake. Mr. Thomas Foster, engineer, District Council Offices, Hoylake.

HOYLAND.—Aug. 17.—For alterations in position of fire-places and the walling-up of four windows at the teacher's residence, Hoyland Common, near Barnsley. Mr. Walter J. Sykes, architect, Hoyland Nether.

HUDDERSFIELD.—Aug. 15.—For alterations and additions to Highfield House, Nortonthorpe, near Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

HUDDERSFIELD.—Aug. 15.—For erection of shed and stabling at Bay Horse inn, Outlane. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

ILFORD.—Aug. 26.—For erection of a 34-bed ward, discharging block, additions to administrative block, two cottages, boiler-house, stable and addition to laundry, at the isolation hospital. Mr. Herbert Shaw, 7 Cranbrook Road, Ilford.

IRELAND.—For erection of enclosure walls and gates at new burying-ground, Newtonstewart. Mr. E. J. Toye, architect, Strand, Londonderry.

IRELAND.—Aug. 12.—For building a shop and dwelling-house at Killygordon. Mr. John M'Carry, architect, Stranorlar.

IRELAND.—Aug. 14.—For execution of church work and the erection of a butter mill and a hotel, all at Lisbellaw, co. Fermanagh. Mr. Downey, Fermanagh Library, Lisbellaw.

IRELAND.—Aug. 16.—For extensive improvements at Gortnakelly House, Enniskillen. Mr. Robt. Bracken, Gortnakelly, Florencecourt.

IRELAND.—Aug. 16.—For erection of five houses at Hogg's Folly, Londonderry. Mr. E. J. Toye, architect, Strand, Londonderry.

KENDAL.—Aug. 16.—For erection of a residence, stable and outbuildings at the Low Fields, Ingleton. Mr. Stephen Shaw, architect, Highgate, Kendal.

LEAVESDEN.—Aug. 28.—For certain alterations and additions to the laundry at the Leavesden Asylum, near Watford, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

LEEDS.—Aug. 13.—For erection of a greenhouse, potting-house, &c., at the New Wortley cemetery. Mr. Jas. W. Lawton, architect, 86 Albion Street, Leeds.

LEEDS.—Aug. 17.—For alterations and additions to No. 5 the children's homes, at Rothwell Haigh, Hunslet. Mr. W. E. Richardson, architect, Rothwell.

LEEDS.—Sept. 4.—For erection of twenty-nine blocks of buildings and the alteration of several others, with roads, drains and all fittings forming the extension of the City Hospital, Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LONGTON.—Aug. 22.—For alterations and additions to the Queensberry Road school, Longton. Mr. J. H. Beckett, architect, Stafford Street, Longton.

LUTON.—Aug. 23.—For erection of fire-station and other buildings in Church Street and St. Mary's Road. Mr. Geo. Sell, town clerk, Town Hall, Luton.

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MIDDLESBROUGH.—Sept. 2.—For extensions of the borough asylum. Mr. A. J. Wood, architect, 22 Surrey Street, Victoria Embankment, W.C.

NANTWICH.—Aug. 15.—For taking-down and rebuilding of Rookery county bridge, Worleston, near Nantwich, and raising and widening the approaches thereto. Mr. H. F. Bull, county bridgmaster, Chester Castle.

NELSON.—Aug. 24.—For erection of the new electric-light station in Charles Street, Nelson, for the electricity and tramways committee. Mr. B. Ball, A.M.I.C.E., borough surveyor, Town Hall, Nelson.

NEW BROMPTON.—Aug. 12.—For erection of a Board school to accommodate 1,250 children in Richmond Road, New Brompton, Kent. Mr. H. Dighton Pearson, architect, 27 Chancery Lane, W.C.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

READING.—Aug. 29.—For construction of ladies' swimming-bath and erection of lodge and conveniences. Mr. John Bowen, borough surveyor, Town Hall, Reading.

REDRUTH.—Aug. 15.—For erection of offices and stores as additions to existing business premises. Mr. Sampson Hill, architect, Green Lane, Redruth.

ROCHDALE.—Aug. 12.—For raising the chimney at the electrical generating station. Messrs. S. Butterworth & Duncan, architects, South Parade.

ROCHESTER.—Aug. 21.—For erection of a cabman's shelter at the Rochester Banks station of the South-Eastern and Chatham Railways. Mr. William Banks, city surveyor, Guildhall, Rochester.

ROMSEY.—Aug. 13.—For erection of boundary walls and entrance gates, enclosing land recently added to the cemetery, Romsey, Hants. Mr. James Jenvey, architect, Romsey.

ROTHERHITHE.—Aug. 23.—For erection of a block of dwellings for the working classes upon a plot of ground abutting on Swan Lane. Specifications, bills of quantities, form of tender and other particulars at the Architect's Department, Housing of the Working Classes Branch, London County Council, 18 Pall Mall East, S.W.

RUSTINGTON.—Aug. 28.—For erection of four seaside homes for children at Rustington, near Littlehampton, Sussex. Mr. Rowland Plumbe, architect, 13 Fitzroy Square, W.

SCOTLAND.—For erection of three blocks of semi-detached cottages at the Isle of Rum, N.B. Messrs. Leeming & Leeming, architects, Victoria House, 117 Victoria Street, Westminster, S.W.

SCOTLAND.—Aug. 12.—For alterations to the existing buildings behind Heriot-Watt College, Edinburgh, to convert them into accommodation for art classes, &c. Mr. John Anderson, superintendent of works, 20 York Place, Edinburgh.

SCOTLAND.—Aug. 12.—For erection of the new public library, Stirling. Messrs. Lessels & Taylor, architects, 7A Young Street, Edinburgh.

SCOTLAND.—Aug. 20.—For erection of an infectious diseases hospital, a short distance from Stonehaven railway station, Kincardine. Messrs. Brown & Watt, architects, 17 Union Terrace, Aberdeen.

SEAHAM HARBOUR.—Aug. 12.—For erection of offices, dwelling-house, workshop, &c., at Seaham Harbour. Messrs. Wm. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland.

SOUTH KENSINGTON.—Aug. 14.—For erection of the superstructure of the Royal College of Science, South Kensington. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

ST. ALBANS.—Aug. 15.—For repairs, painting, &c., to the public library. Mr. A. H. Debenham, town clerk, St. Albans.

ST. STEPHEN'S-BY-SALTASH.—Aug. 12.—For erection of school premises at Burraton, St. Stephen's-by-Saltash, Cornwall. Mr. W. H. Fowell, secretary to the Trustees of the Wesleyan chapel.

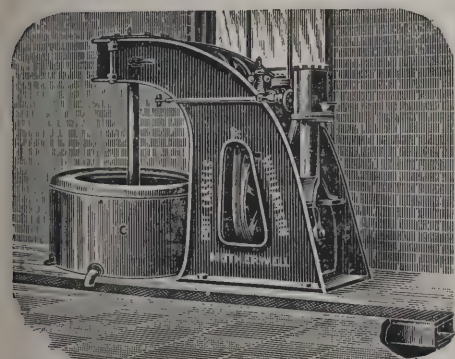
STRATFORD-UPON-AVON.—Aug. 22.—For erection of a porter's lodge and nurses' rooms at the Stratford-upon-Avon hospital. Mr. Roden Dixon, architect, Municipal Offices, Sheep Street.

THETFORD.—For enlargement of the south aisle of St. Cuthbert's Church, Thetford. Mr. Arthur J. Lacey, architect, 6 Upper King Street, Norwich.

TOOTING.—Aug. 22.—For erection of two cottage homes for aged deserving married couples at the Tooting Home, Church Lane. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

TRURO.—Aug. 27.—For erection of a cattle market. Mr. Measham Lea, city surveyor, Truro.

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WALES.—For renovating premises in Bridge Street, Tredegar, and the conversion of same into shops. Mr. B. J. Francis, architect, Abergavenny.

WALES.—Aug. 12.—For erection of a small stone arched bridge to carry the road over the brook above the Pentre, Abergavenny. Mr. John Gill, surveyor, 4 Brecon Road, Abergavenny.

WALES.—Aug. 12.—For erection of lock-up premises at Upper Bangor. Mr. W. G. Williams, architect, 220 High Street, Bangor.

WALES.—Aug. 13.—For alterations and additions to the schoolmaster's house at Maindy, near Cardiff. Mr. G. E. Halliday, architect, 14 High Street, Cardiff.

WALES.—Aug. 15.—For erection of twenty houses at the Tumble, Llanelli. Mr. Thomas Jones, architect, Llanelli.

WALES.—Aug. 17.—For erection of a gymnasium at Neath County school. Mr. D. M. Jenkins, architect, Gwyn Hall, Neath.

WALES.—Aug. 19.—For erection of a new two-storeyed school in Meyrick Street, Pembroke Dock. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WALES.—Aug. 19.—For erection of a school, Whitchurch, near Cardiff. Messrs. Robert & Sidney Williams, architects, Borough Chambers, Wharton Street, Cardiff.

WALES.—Aug. 21.—For erection of lecture and billiard-room and other extensions to the Wyndham Constitutional Club, Porth. Mr. W. H. Childs, 69 Cymmer Road, Porth.

WALES.—Aug. 24.—For erection of a schoolroom and master's house at Mynachlogddu, Clynderwen, R.S.O. Mr. William J. Williams, clerk to the School Board, 1 High Street, Cardigan.

WALES.—Aug. 30.—For additions to the lunatic asylum, Denbigh, North Wales. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—Sept. 5.—For erection of a county school at Holyhead. Mr. Joseph Owen, architect, Menai Bridge.

WALSALL.—Aug. 24.—For erection of municipal offices and town hall in Lichfield Street. Mr. J. S. Gibson, architect, 4 Gray's Inn Square, W.C.

WALTON-ON-THAMES.—Aug. 17.—For erection of stables, cart sheds, cottage and other buildings, at the depot site in Crutchfield Lane, Walton-on-Thames. Mr. C. J. Jenkin, surveyor, Council Offices, Walton-on-Thames.

WEST DIDSbury.—Aug. 19.—For erection of a caretaker's house at the proposed Marie Louise Gardens, West Didsbury, Lancs. Mr. J. Cartwright, Peel Chambers, Market Place, Bury.

WESTHOUGHTON.—Aug. 13.—For erection of six houses at Westhoughton, Lancs. Mr. Albert E. Suddell, architect, Church Street.

WHITEHAVEN.—Aug. 14.—For erection of a stone bridge over Crossdale Beck, at Crossdale, Ennerdale, Whitehaven. Mr. Geo. Boyd, surveyor, 33 Queen Street, Whitehaven.

WHITEHAVEN.—Aug. 15.—For alterations to the Methodist Free church. Mr. A. Huddart, architect, 22 Lowther Street, Whitehaven.

WHITLEY.—Aug. 31.—For erection of a police-station and petty sessional court at Whitley, Northumberland. Mr. John Cresswell, county architect, Moothall, Newcastle-on-Tyne.

WROUGHTON.—Aug. 17.—For rebuilding the Three Horse-shoes inn, Wroughton. Messrs. William Drew & Sons, architects, 28 Regent Circus, Swindon.

ANSWERS TO CORRESPONDENTS.

ARCHITECT'S FEES.—(H.E.H.)—(a) There was a clerical error in the reply to the legal inquiry in last week's *Architect*. The charge for obtaining tenders should be $\frac{1}{2}$ per cent. extra, not $2\frac{1}{2}$. The mistake was caused by one of the copying clerks.

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An interesting archaeological search has just been concluded at a tumulus on the property of Mr. H. J. Smith-Bosanquet, at Hoddesdon, Herts. An excavation was made right into the centre of the mound, when a basin-shaped hollow about 15 feet across was found. In the middle of the hollow was charcoal of wood, and it is thought of bone also. The results of the search point to a cremation on a big scale, apparently on the level surface of the ground, the remains being afterwards covered with a mound of earth dug from all round the spot, and leaving it surrounded by a trench of considerable depth.

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S. WALKER, Cockfield, Darlington *(accepted)* . £410 0 0

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For erection of a new children's ward and new entrance and approach at Beckett Hospital. Messrs. R. & W. DIXON, architects, 5 Eastgate, Barnsley.

Accepted tenders.

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S. Rushforth, plumber.

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E. Fleming, slater.

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BATLEY.

For erection of the whole of the works of six scullery houses at Snowden Street, Dark Lane. Mr. ALBERT ALLATT, architect, 39 Gordon Terrace, Dark Lane, Batley.

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S. S. Bains & Sons, Dark Lane, Batley, mason . £390 12 0

R. Charlesworth, High Street, Heckmondwike, joiner 210 0 0

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H. HEATHFIELD, 29 Kent House Road
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For erection of five dwelling-houses, boundary walls, &c, at Bigrigg, Cumberland. Mr. J. S. MOFFAT, architect, Whitehaven.

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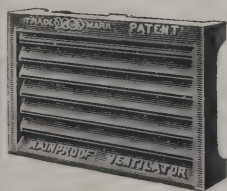
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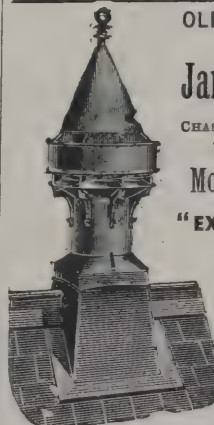
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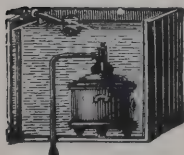
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Clapham & Taylor, Harrogate, joiner . . .	950	0	0
J. Lindley, Leeds, plumber . . .	370	0	0
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W. Coughlan . . .	19	10	0

For erection of business premises in Castle Street and St. Peter Street, Nenagh, co. Tipperary. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

J. BURKE, Nenagh (accepted) . . .	£2,740	0	0
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For erection of six houses near College Road, Cork. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.

S. HILL, Anglesea Place (accepted) . . .	£2,500	0	0
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For erection of a medical officer's residence and dispensary house at Kilcooney, Dungarvan.

D. McGRATH & SON, Mitchell Street (accepted). . .	£1,118	0	0
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For seweragework at the workhouse, Larne.

J. Lowden & Co. . .	£81	5	6
G. Trotter . . .	72	2	6
W. McNeill & Sons . . .	64	8	0
D. DOWDS, Main Street, Larne (accepted) . . .	63	8	8

IRELAND—continued.

For erection of a pair of semi-detached villas in the Magazine Road, Cork. Messrs. W. H. HILL & SON, architects, Cork.

A. Gaul . . .	£530	0	0
D. Hegarty . . .	530	0	0
M. Galvin . . .	525	0	0
A. O'Connell . . .	499	0	0
P. Spillane . . .	490	0	0
J. Delaney & Co. . .	480	0	0
J. KERNS, 34 Fish Street, Cork (accepted) . . .	429	0	0

For construction of a sewer in the village of Conna, Fermoy.

T. CASEY, Conna, Fermoy (accepted) . . .	£30	0	0
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KEIGHLEY.

For supply of furniture, bedclothing, linen, cutlery and ironmongery for the new pavilion at the isolation hospital, Morton Banks.

Accepted tenders.

A. Lord & Co., West Lane . . .	£81	18	0
T. B. Dickinson, 32 South Street . . .	74	13	3
S. Thompson & Co., Honduras Works . . .	25	15	6
J. Rushton, Bingley . . .	25	11	8
J. Judson, North Street . . .	12	14	10
W. Rhodes, East Morton, near Bingley . . .	2	18	6

For erection of a Sunday school, West Lane. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.

Accepted tenders.

M. Sunderland, Keighley, mason . . .			
S. Foster, Ingrow, joiner . . .			
W. Thornton, Bingley, slater . . .			
W. Bottomley, Keighley, plumber . . .			
J. Greenwood, Crosshills, plasterer . . .			
F. Petty, Keighley, plasterer . . .			

LEAVESDEN.

For erection of a mortuary at Leavesden Asylum, near Watford. Mr. T. DUNCOMBE MANN, clerk to the Metropolitan Asylums Board, Embankment, E.C.

General Builders, Ltd. . .	£1,297	0	0
R. L. Tonge . . .	1,021	0	0
CLARK BROS., Watford (accepted) . . .	925	6	4

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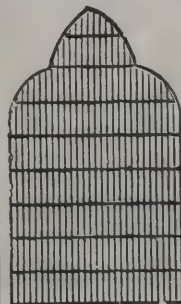
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LONDON SCHOOL BOARD.

The exteriors of the following schools will be painted between September 28 and October 26, 1901 :—

Westville Road.

Bristow & Eatwell	£159	0	0
G. Neal	143	0	0
W. Hammond	138	0	0
F. T. Chinchon	133	0	0
W. BROWN & SONS (accepted)	129	0	0

Westbourne Road.

Stevens Bros.	199	0	0
Marchant & Hirst	179	0	0
McCormick & Sons	168	0	0
W. Chappell	165	0	0
J. Grover & Son	153	0	0
C. & W. HUNNINGS (accepted)	150	0	0

The "Slade."

Johnson & Co.	£222	0	0
W. Banks	149	12	6
E. PROCTOR (accepted)	102	0	0

Daubeney Road.

C. Willmott.	£190	0	0
Barrett & Power.	187	0	0
Stevens Bros.	182	0	0
W. Silk & Son.	181	0	0
Marchant & Hirst	174	0	0
G. BARKER (accepted)	158	0	0

Glyn Road.

W. Silk & Son	£167	0	0
McCormick & Sons	161	0	0
T. Cruwys	150	10	0
C. Willmott.	144	0	0
Barrett & Power	141	0	0
G. BARKER (accepted)	139	0	0

Bromley Hall Road.

Vigor & Co.	£194	10	0
A. W. Derby	192	0	0
D. Gibb & Co.	189	0	0
J. T. Robey	173	16	0
J. Haydon	158	0	0
J. F. Holliday	154	10	0
CORFIELD & Co. (accepted)	148	0	0

LONDON SCHOOL BOARD—continued.

Upton House (truant school).

C. Dearing & Son	£292	0	0
Corfield & Co.	198	0	0
T. Cruwys	185	0	0
W. Silk & Son	170	0	0
G. Barker	166	0	0
G. WALES (accepted)	143	9	0

Crampton Street.

J. Garrett & Son	£601	0	0
Rice & Son	512	0	0
W. Sayer & Son	497	0	0
W. V. Goad	473	0	0
W. DOWNS (accepted)	449	0	0

Credon Road.

H. Line	£299	0	0
G. Brittain	296	0	0
W. Downs	270	0	0
J. Garrett & Son	249	0	0
Holliday & Greenwood, Ltd.	248	0	0
H. J. Williams	246	0	0
JOHNSON & CO. (accepted)	235	0	0

Ivydale Road.

H. Line	£180	0	0
H. Groves	169	0	0
J. & C. Bowyer	150	0	0
Rice & Son	125	0	0
G. Kemp	121	0	0
J. Garrett & Son	119	0	0
MAXWELL BROS., LTD. (accepted)	106	0	0

King and Queen Street.

J. F. Ford	£247	0	0
Holliday & Greenwood, Ltd.	245	0	0
W. Sayer & Son	236	0	0
H. J. Williams	179	10	0
W. V. Goad	178	0	0
E. TRIGGS (accepted)	164	0	0

Mansford Street (J.M. school).

J. F. Holliday	£170	10	0
Stevens Bros.	166	0	0
C. Willmott	164	0	0
G. Barker	139	0	0
J. HAYDON (accepted)	116	0	0

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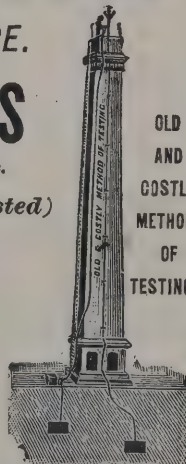
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Upper Kennington Lane.

J. & M. Patrick	£244	0	0
W. Downs	198	0	0
W. Smith & Son	195	0	0
G. Brittain	171	0	0
J. F. Ford	159	0	0
Rice & Son	139	0	0
E. B. Tucker	127	0	0
MAXWELL BROS., LTD. (accepted)	123	0	0

Brecknock.

A. Balfour & Co.	£430	3	4
H. Wall & Co.	290	0	0
Marchant & Hirst	282	0	0
Stevens Bros.	279	0	0
R. S. Buckeridge	210	0	0
BRISTOW & EATWELL (accepted)	195	0	0

Stanhope Street.

T. Cruwys	208	15	0
R. S. Buckeridge	185	0	0
H. Wall & Co.	179	0	0
F. Chidley	176	0	0
Bristow & Eatwell	175	0	0
Marchant & Hirst	168	0	0
F. T. Chinchin	167	10	0
W. CHAPPELL (accepted)	135	0	0

Berner Street.

Johnson & Co.	£317	0	0
Corfield & Co.	315	0	0
Vigor & Co.	306	0	0
A. W. Derby	290	0	0
J. T. Robey	268	10	0
J. Haydon	254	0	0
D. Gibb & Co.	249	0	0
J. F. HOLLIDAY (accepted)	235	0	0

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NORMAN SCORGIE, borough surveyor.

W. Griffiths & Co., Ltd.	£708	16	0
T. Adams	704	3	0
Grounds & Newton	681	7	5
G. Porter	675	15	7
A. T. CATLEY, Lloyd Square, W.C. (accepted)	646	4	6

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For drainagework and arrangement for automatic closets at
Peel Street Board schools.

A. FAWCETT, Peel Street (accepted) £74 10 0

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H. FOTHERBY & SON, Burnley (accepted).

NORBURY.

For laying sewers and surface-water drains and forming and
making road on the Norbury Station Estate, Surrey. Mr
WILLIAM HUNT, surveyor, Norfolk Street, Strand.

J. Jackson	£1,526	0	0
H. Bentham & Co.	1,492	0	0
H. WOODHAM & SONS, Catford (accepted)	1,477	0	0

PATELEY BRIDGE.

For erection of minister's house at Pateley Bridge.

D. LAWSON, Pateley Bridge, Leeds (accepted) . £450 0 0

RAUNDS.

For erection of new shoe factory, Raunds, Northants.

Tate & Eastwood	£1,798	0	0
Freeman & Son	1,700	0	0
M. J. Allen	1,667	9	0
Johnson & Phillips	1,599	13	0
J. Laurence	1,599	0	0
SMITH & SON, Raunds (accepted)	1,537	0	0

SCOTLAND.

For erection of a teacher's house at Drumlithie, Glenbervie.
Mr. GEORGE GREGORY, architect, Stonehaven, Kincardine.

Hunter & Co., mason	£240	0	0
A. Gordon & Son, carpenter	180	0	0
J. Valentine, plasterer	59	9	0
J. L. Warden, plumber	53	0	0
F. Morrison, slater	40	10	0
H. Murray, painter	18	0	0
D. J. J. Mitchell, electric bells	6	0	0

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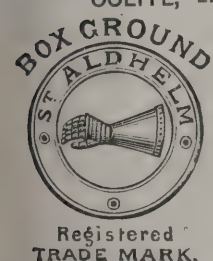
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F. Talbot	661	7	6
W. Reeves	639	10	0
FREE & SONS, Maidenhead (<i>accepted</i>)	630	0	0

Salisbury Road.

C. Harper	974	10	0
F. Talbot	959	13	0
W. Reeves	947	17	0
FREE & SONS (<i>accepted</i>)	880	0	0

Catherine Street.

C. Harper	543	0	0
F. Talbot	526	3	6
W. Reeves	519	15	0
FREE & SONS (<i>accepted</i>)	490	0	0

Curzon Street.

C. Harper	571	3	4
F. Talbot	554	14	6
W. Reeves	537	0	0
FREE & SONS (<i>accepted</i>)	515	0	0

SOUTHBOROUGH.

For construction and completion of roads, paths, drains and boundary fencing in connection with proposed new cemetery at Southborough, Kent. Mr. WILLIAM HARMER, surveyor, 137 London Road, Southborough.

Weston & Hale	£1,234	18	0
J. Jarvis	1,005	15	0
T. Hallett	906	9	6
E. Punnett & Son	903	0	0
A. C. Soan	874	6	9
Peerless, Dennis & Co.	864	0	0
Strange & Sons	851	0	0
W. Arnold & Sons	849	17	1
W. Wilson	761	10	0

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For construction of a cement concrete footpath, with kerb and channel, &c., on the main road between Barkham Street and the Market Place. Mr. T. A. BUSBRIDGE, district surveyor.

A. Walker & Son	£109	3	10
J. Pogson	51	10	0
S. Parker & Son	49	0	0
W. B. Wilkinson & Co., Ltd.	48	16	7
J. T. TURNER & SONS, Wainfleet All Saints (<i>accepted</i>)	35	2	8

STOCKPORT.

For sewerage Tatton Road South and Heaton Road (late Parsonage Road). Mr. JOHN ATKINSON, borough surveyor.

Accepted tenders.

Hayes Bros., Stockport, Heaton Road, £71 os. 6d.; Tatton Road South, £70 11s. Gosling & Stafford, Hazel Grove, Heaton Road, £70 os. 6d.; Tatton Road South, £79 10s. 6d.

STOCKTON-BROOK.

For erection of a cottage on the Edgefields estate. Mr. W. H. WHALLEY, architect, Queen Street, Burslem.

C. Frost	£790	0	0
Beech & Adkins	760	0	0
W. Howe	726	0	0
J. H. Ford	695	0	0
J. Cooke	640	0	0

UPHOLLAND AND ORRELL.

For construction of a new goods yard between Upholland and Orrell stations, for the Lancashire and Yorkshire Railway Company.

TATE & GORDON, Manchester (*accepted*).

WALES.

For erection of a girls' school, Cwmbran. Messrs. B. LAWRENCE & SON, architects.

Mainwaring	£4,455	0	0
Leadbeter	3,893	0	0
J. Davies	3,683	0	0
Poulton & Whiting	3,785	0	0
J. JENKINS & SON, Newport (<i>accepted</i>)	3,525	0	0

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For taking-down present farmhouse and erection of a new house, with outbuildings, stabling and other conveniences at Bowlers' Barn farm, near Abergavenny; erection of an additional boiler-house and chimney shaft, 112 feet high; erection of new stores, sheds and yard for masons, &c.; and conversion of the present stores into pathological rooms at the Monmouthshire Asylum, Abergavenny. Mr. B. J. FRANCIS, architect, Abergavenny.

Bowers & Co.	£5,623	9	6
W. T. Sier	4,407	16	11
D. Thomas & Son	4,400	0	0
P. Gaylard	4,358	12	0
J. G. THOMAS & SONS, Abergavenny (accepted)	4,207	0	0

WHITEHAVEN.

For alterations to 7 Lowther Street, Whitehaven. Mr. J. S. MOFFAT, architect, Whitehaven.

J. YOUNG (accepted).

WHITTINGHAM.

For outside painting at the County Asylum, Whittingham, Preston.

T. CHALLONER & SON, Blackpool (accepted).

WITTON-LE-WEAR.

For rebuilding the Witton-le-Wear Primitive Methodist chapel.

W. G. WESTGARTH, Wolsingham (accepted).

WITHERNSEA.

For erection of two houses. Mr. T. BEECROFT ATKINSON, architect, 11 Trinity House Lane, Hull.

Accepted tenders.

W. H. Carr, Withernsea, builder	£610	0	0
J. Stephenson, jun, Hull, joiner	256	10	0
W. Kirkwood, Withernsea, plumber	137	7	9
Christie Patent Stone Co., Hull	64	10	0
M. Woodcock, Hull, slater	57	12	0

WOODFORD.

For repairs, repainting and cleansing works in connection with the Churchfield schools, Woodford. Mr. EDWARD TIDMAN, C.E., architect to the Board, Connaught Mansions, 34 Victoria Street, Westminster, S.W.

Poole	£185	3	0
F. RANGER (accepted)	184	10	0
H. Wells	155	0	0
Osborne	126	0	0

For repairs, repainting and cleansing works at Woodford Green schools. Mr. EDWARD TIDMAN, C.E., architect to the Board, Connaught Mansions, 34 Victoria Street, Westminster, S.W.

H. Wells	£140	0	0
Osborne	139	0	0
Poole	124	1	0
F. J. Hill	78	0	0
F. Ranger	62	0	0

Received too late for Classification.

KING'S LYNN.

For alterations and additions to the Naval Reserve public-house, St. Ann Street, Lynn. Mr. HERB. TILSON, architect, Railway Road, King's Lynn.

W. H. Brown	£1,292	0	0
Tash, Langley & Co.	1,275	15	0
Spragg & Son	1,247	0	0
Hill & Horsley	1,229	0	0
J. Medwell	1,159	10	0
Read & Wildbur	1,116	10	0
J. Bone	1,089	0	0
H. W. BARNES & Co., Lynn (accepted)	1,080	18	0

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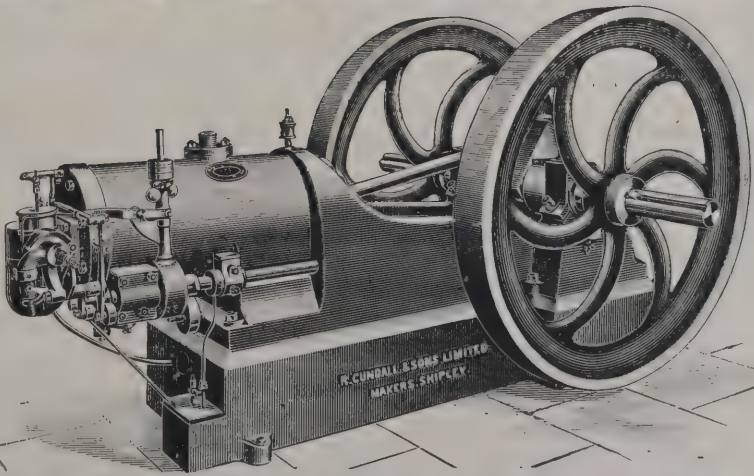
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A NEW SAFETY WINDOW FITTING.

THE frequent occurrence of accidents arising from that obviously dangerous but apparently only method of cleaning windows by sitting or standing upon the sills, although long calling for some system of fitting windows that will entirely obviate the necessity for the continuance of this practice, has not yet led to any general adoption of what are known as "safety" windows. And although the by-laws recently made by the London County Council, which provide for a penalty from "any person ordering or permitting anyone in his service to stand on the sill of any window for the purpose of cleaning such window when above 6 feet from the ground immediately below it without sufficient support to prevent such person falling," and also from any person who is engaged in this act, have led to a fair amount of inquiry for "safety" windows, there have been, so far as we can judge, but a very small percentage fixed.

It has not been, however, so much the absence of these by-laws that has hitherto prevented the more general use of "safety" windows, but rather that the experience of those who have adopted many of the patents brought before the public has, unfortunately, been that from one cause or another they have proved unsatisfactory. There has, therefore, naturally been a desire to see something more practicable before deciding to experiment with others.

Another reason for their rather infrequent use has been the increased cost. In applying them to houses in the course of

erection owners naturally hesitate to incur the extra outlay on fixtures that might not be appreciated by the tenants, and the householder is unwilling to spend money on a house he may be leaving at any time. But we believe that a "safety" window which is safe, with an absence of intricate fittings and scarcely costing more than the ordinary kind, would be readily taken up, and that fittings which could be applied to existing windows without damaging in any way either the window or the walls, which are easy of attachment and, above all, moderate in price, would not fail to induce owners to supply and householders to adopt this very necessary safeguard.

Before giving a description of the "All England" safety window fittings, which we have carefully inspected and tested, we would call our readers' attention to the advantages they possess and which overcome the objections we have mentioned. One of the most important is that they can be fitted at a trifling cost to any ordinary window, enabling it to be raised or lowered at all times in the usual manner or opened into the room, so that the outside of the window can be cleaned, and without the use of steps, for the upper sash. When applied the windows are made rigid and rendered weathertight. Once fitted the "A. E." require no attention or outlay for upkeep, and, as will be seen later, are so simple that they can be operated by any domestic servant. The only alteration necessary to existing or new window frames is that the beading and the batten on one side must be hinged to enable the window to be swung into the room. This is held in place when not in use by means of a spring. Briefly described, the fittings and method of fixing the "A. E." are as follows. Two rods are fixed on the frame of the window, the one opposite the upper sash being on the parting-bead, and the one against the lower on the batten. These are held in position by brackets. At the sides of the sashes are fixed other brackets, through which the rod passes. When the upper sash is pulled down, the brackets coming together form the hinge on which the window swings, and the lower sash, when closed, holds the brackets in proper position.

The accompanying section will readily explain the system.

A, Sliding Bracket; B, Fixed Batten-rod Bracket; C, Parting-bead Bracket; D, Rod of Hinge; E, Roller with Strap-iron on Pulley stile; F, Spring; G, Batten Rod-hinge; H, Parting Bead-hinge; I, Sash-weight.

The fittings are well and strongly made, and while sufficient for carrying the heaviest sashes, are in no way clumsy or unsightly in appearance. The bracket used for the separating

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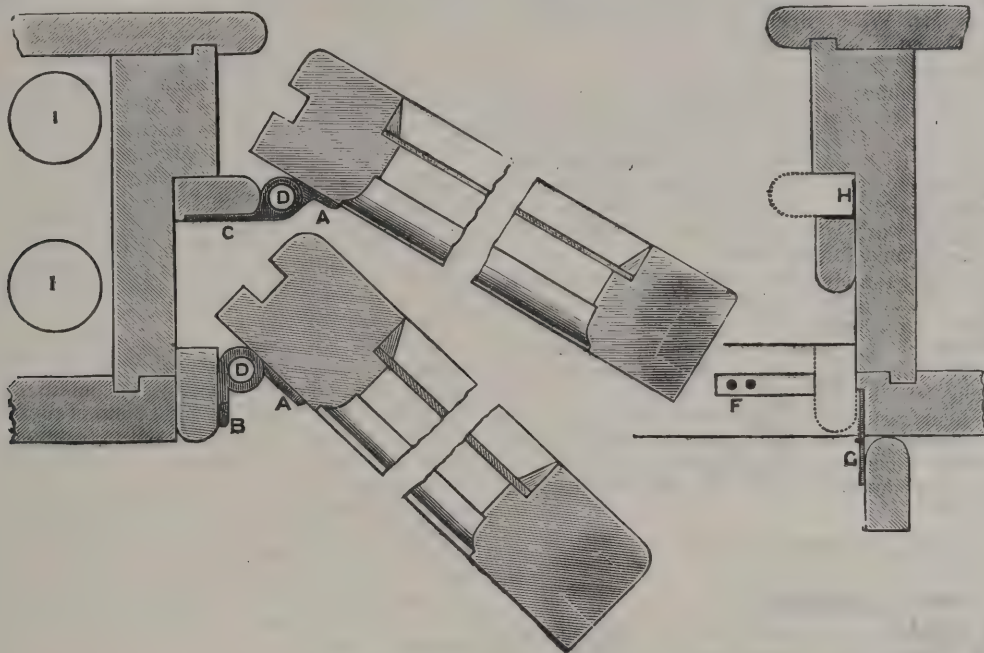
SANITARY PIPES.

GLAZED BRICKS.

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bead on the upper sash is rivetted into a metal back-plate, as well as screwed into the pulley-stile, and can be relied upon to be always secure, notwithstanding that the bead gives such small holding surface. After they are fixed all that is necessary to swing the window into the room is to press down the spring, F, fold back the batten rod, raise the window slightly and turn it on its hinges.

This is effected by the windows having the fittings attached, the top batten of the window frame being hinged and acting as an automatic flap, which when the casement is raised turns inwards, allowing a current of air to pass as well as through the space left at the bottom. It is necessary to attach a sash weight as in the ordinary windows, to keep them in position when raised.

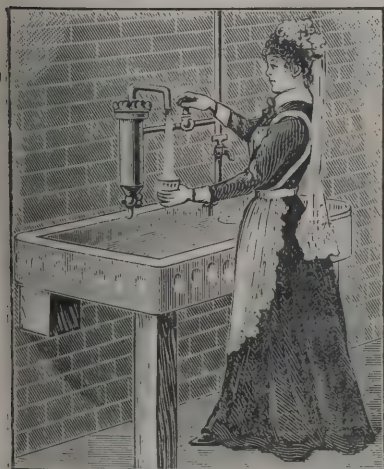


The "All England" Window Fittings Company, of 13 Victoria Street, S.W., who are now placing these fittings on the market, have also adapted them to French casements, by means of which, while acting in every respect in the ordinary way, they can be slightly raised to give ventilation without the objection of too much wind being admitted, causing doors to slam and the contents of the room to be blown about.

Taking into consideration their simplicity, the ease with which they are fixed and operated, and the absence of any parts liable to be damaged, we believe the "A. E." fittings are worthy of the attention of architects and owners of property and householders, and that they are not only a safeguard against personal accidents, but afford a simple solution to the difficulty of cleaning windows, no matter in what position they may be.

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TRADE NOTES.

THE isolation hospital, Rochford, is being warmed and ventilated by means of Shorland's patent Manchester grates by Messrs. E. H. Shorland & Brother, of Manchester.

THE heating of the new Peel Brow Board schools for the Walmersley and Ramsbottom School Board is to be by Spencer's patent "Ventilo" radiators, of which the patentee and sole maker is Mr. W. F. Spencer, Cross Bank Works, Oldham, and 145 Queen Victoria Street, London, E.C., who is installing the apparatus.

A NEW clock and chimes has been erected at the parish church, Waddington, West Clitheroe, showing the time upon two large external dials. The clock was set going at twelve o'clock noon, August 1, by Master James Walmsley, son of the late Mr. Walmsley, New Hall, Waddington, to whom the clock has been erected as a memorial by his widow, Mrs. Lois Walmsley. The work was carried out by Messrs. W. Potts & Sons, clock manufacturers, Leeds.

THE new schools for the Hendon (London) School Board at Burnt Oak, Bell Lane, Algernon Road and Child's Hill are ventilated and warmed on Key's improved "Plenum" method, whereby the air, after being filtered and warmed in winter and filtered and cooled in summer, is propelled into the rooms and halls in such volume as will renew the air from seven to fourteen times per hour positively, and without draughts, the designing of the scheme and the whole work of fitting up the apparatus, including steam boilers, gas-engines and air-propellers, &c, being carried out by Mr. William Key, of London and Glasgow.

VARIETIES.

THE church at Llanddowror, which has been restored as a memorial to the Rev. Griffith Jones, was reopened on the 1st inst.

MR. HENRY SAGAR, assistant town clerk of Lancaster, has been appointed deputy town clerk of Richmond, Surrey, in succession to Mr. H. A. Millington, the newly-appointed town clerk of Great Yarmouth.

THE new Wesleyan chapel and schools at Monkton Hill, Chippenham, are to be erected from designs by Mr. R. Curwin, architect, of London. It is proposed to build the schools first,

and they will contain eight classrooms. The work will not be started until early next year. The total cost will be about 6,000*l*.

THE dispute in the slating branch of the Bolton building trade, which has extended over about fifteen weeks, has now been arranged, and the men resumed work on Monday last. About seventy slaters engaged by seven or eight firms were affected by the strike. The plumbers' dispute is referred to arbitration.

IT is officially stated that a contract has been concluded between the Mersey Railway Company and the British Westinghouse Electrical and Manufacturing Company for the construction of the works necessary to enable the Mersey Railway to be worked by electric traction.

THE Local Government Board has given its sanction to the proposed new electric-light works at Eastbourne, and has given the Corporation authority to borrow for that purpose sums of 43,287*l*. and 7,500*l*., the former for a period of twenty-four years, and the latter, which is expected to be realised within the next two years by the sale of the present generating station, in two years only.

DURING the course of excavations at Caersws, near Llanidloes, for a new house, the workmen discovered a Roman well 12 feet deep and 3 feet wide, containing 3 feet of water. The well, which is in a splendid state of preservation, is situated within a few yards of Caersws railway station, on the boundary side of the Roman encampment at one time in Caersws district.

At a new building on the Quayside for Messrs. Pyman, Bell & Co., shipowners, Newcastle, on Wednesday, a workman stumbled on a platform at a height of 40 feet. The son of the builder, Mr. Maughler, was close to him at the time, and the man, in falling, clutched young Maughler, and both were precipitated to the ground. The workman was killed on the spot, but the other escaped without hurt, he having fallen on the one who stumbled.

THE excavations for the foundation of the new Gaiety Theatre are now almost complete, and the foundation-stone will, it is hoped, be laid in a few days. The new house, which is situated at the western or Waterloo Bridge spur of the new street between Holborn and the Strand, will be ready by the autumn season of next year, and it has been arranged that the present Gaiety shall not be pulled down till the new theatre is opened. Attached to the house will be an hotel as well as the Gaiety restaurant and the well-known Short's new habitation.

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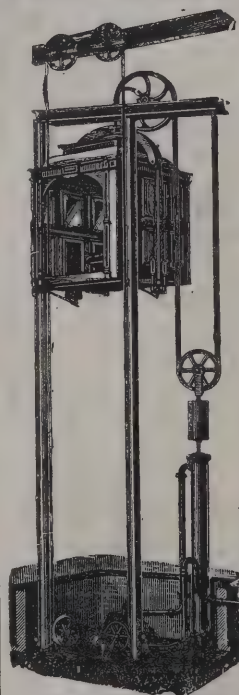
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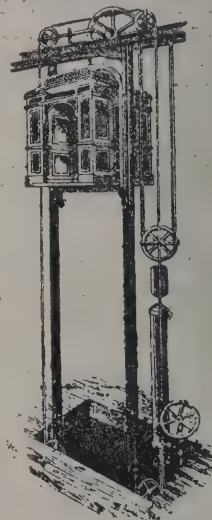
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SINCE the opening last year of the new court-house and police-station at Halifax, alterations have been in progress of the interior arrangements at the Town Hall. Amongst them has been the adaptation of the old police-court as a new council chamber. There is a stained-glass ceiling. The new chamber will probably be ready for occupation for the October meeting of the Town Council.

THE last stage in the construction of the north pier at the mouth of the Wear has now been entered upon, the caisson to form the round head having been sunk into its place. When both piers are completed another harbour of refuge on the north-east coast will have been formed, while the depth of water at the entrance to Sunderland harbour has been very considerably increased. The caisson is 101 feet by 96 feet, has a depth of 26½ feet, and was sunk at a depth of 23 feet below low-water mark. It rested on a bag-work cement foundation, the bottom of the bag-work being at a depth of 55 feet below low-water mark. The caisson weighed 3,000 tons; and when completely filled with concrete blocks and granite rubble will weigh 10,000 tons. Upon this will be built the superstructure with ordinary granite-faced blocks of cement, varying in weight from 43 to 57 tons, and on the top the lighthouse. The total weight of the round head will be about 28,000 tons.

THE Institution of Junior Engineers will hold a summer meeting at Plymouth and Devonport, August 12 to 17. Visits will be paid to H.M. Dockyard, Devonport, H.M.S. *Cambridge* (gunnery ship) and H.M.S. *Defiance* (torpedo school ship), Keyham Dockyard Extension Works, Keyham Steam Yard and Royal Naval Engineering College, Royal William Victualling Yard, Saltash Tubular Bridge and other works and places of engineering interest in the neighbourhood. The summer dinner of the Institution takes place at the Hôtel Continental, Plymouth, on Friday, August 16.

THE new hall at Larbert, built and presented to the district by Major Dobbie, was formally opened on the 5th inst. by the Duchess of Montrose. The new building is commodious and comprises both a large and a small hall. The latter is to the front and has accommodation for about 200 persons. The main hall, which is lighted by ten largewindows, accommodates 700 persons below and 300 persons in the gallery which runs round three sides of the building. There is a wide recessed platform at the end, framed in by an ornamental archway and flanking pillars. The high ceiling is divided into panels, from which the gas pendants for the artificial lighting are suspended. Adjoining the platform are retiring-rooms and other accommo-

dation. To the right of the main entrance of the building there are also cloak-rooms, ladies' retiring-room, and a kitchen with a lift to the service-room on the floor above. The architects were Messrs. A. & W. Black, Falkirk.

AT a sitting of the Consistory Court in York Minster, Rev. G. Trundle, surrogate, acting on behalf of Mr. C. A. Cripps, chancellor of the diocese, granted the following faculties:—To the vicar and churchwardens of Ackworth, to rebuild the roof of the nave, to build a clerestory and make certain other alterations; to the vicar and churchwardens of Marske-by-the-Sea, to take down the west wall and rebuild it at the extremity of a proposed addition to the churchyard; to the vicar and churchwardens of Skipton Thorpe, to erect a lych-gate at the entrance to the churchyard; to the vicar and churchwardens of St. Augustine, Sheffield, to insert stained glass in the east window in memory of William Fisher Fovell, erected by his daughter; and to the vicar and churchwardens of Clifton, York, to build a new vestry on the north side of the organ chamber and a porch on the west side of the north transept, thereby making a new entrance at that point.

THE new workhouse for Wolverhampton which is being erected at New Cross, Wednesfield, has been visited by a number of members of the Board of Guardians and their wives and many of the leading residents of the neighbourhood to inspect the progress of the work. Mr. A. Marshall, the architect, of Nottingham, with Mr. Smyth, the clerk of the works, conducted the party over the various buildings, which practically cover about six acres. The total area of the sites is 50½ acres, about 40 acres being utilised as airing grounds or for cultivation. The cost of the land was 11,128*l.*, while the contract for the buildings was placed with Messrs. Fish & Sons, of Nottingham, whose tender for the whole of the work reached 156,879*l.* The latter sum, however, is not inclusive of the cost of furniture, road-making and the cost of the greater part of the boundary walls. Provision will be made for 1,142 officials and inmates, the former numbering sixty. The main buildings are set well back from the road, and parallel to it, in the centre of which will be found the administrative offices, dining-hall, stores, &c., and a little in the rear the engine-house, laundry, workshops, &c. The infirmary pavilions are some distance in the rear of the main building, while provision for a resident medical officer is to be found in the centre. The pavilions are connected on the ground floor by enclosed corridors, the roofs of which provide means of communication between the upper wards. Contiguous to the infirmary pavilion

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on the right is the nurses' home, which will contain mess-room, sitting-rooms, library, &c., on the ground floor, and twenty bedrooms. An isolation hospital to accommodate two males and two females, and rooms for a nurse, are placed near the boundary of the site on the right and furthest from the road. The contract with the builders was dated December 4, 1899, and the buildings are to be completed in three and one-third years from that date.

BUILDING AND BUILDERS.

THE Metropolitan Asylums Board invite tenders for the erection of four seaside homes for children at Rustington, near Littlehampton, Sussex, according to drawings by Mr. Rowland Plumbe.

THE foundation-stones of the new Sunday school adjoining the Baptist chapel at the pretty little village of Littleover (Derbyshire) were laid on the 31st ult. The new building, which will consist of one large room, will cost about 190*l*.

THE ceremony of laying the foundation-stones of the new Sunday school room which is to be erected at the rear of the Wesley English church, Pontmorlais, Merthyr, over the Morlais Brook, took place on the 1st inst. The cost of the proposed structure will be 975*l*. The architect is Mr. W. Jones (Messrs. Williams & Jones), and the builder Mr. S. Hawkins.

MR. F. H. TULLOCH, one of the Local Government Board inspectors, held an inquiry into the application of the Farnborough Urban District Council to borrow 20,000*l*. for the purpose of sewerage and sewage disposal. The clerk having given statistics and particulars as to the needs of the district, the inspector proposed to visit the site, and afterwards to go into details with the surveyor, and report thereon to the Local Government Board.

THE foundation-stones of the block of public buildings to be known as the Camberwell Institute and Baths, in Wells Street, S.E., close by St. George's Church, near the canal, have been laid by the Lord Mayor. The land was given for the purpose by Lord Llangatock. The entrance to the public library is in Neate Street, the porch leading into a top-lighted central hall, where the borrowers' space faces the vestibule beyond the arch below the dormer gable. To the right is the news-room and to the left the reference-room, with the lending library to the rear—all these departments being divided by

glazed screens. In the basement are stores, staff-room lavatory and w.c. accommodation for the librarian's use. The baths include fifty slipper-baths, the women's two classes being on the first floor. The office is central and the ticket clerk can serve all four departments as well as the laundry. The wash house accommodates thirty places, and to the front are the mangling-room, bonnet-room and stairway to basement. The establishment laundry is placed in the basement, with engineer's shop, boiler-house, messroom and other conveniences. Mr. H. L. Holloway, of Union Works, Deptford, is the general contractor. The contract, exclusive of engineering works, is between 18,000*l*. and 19,000*l*. The elevations are in red brick with Portland stone and Hopton Wood stone dressings. Glazed brick is extensively used inside and Broseley tiles for the roofs. Norwegian granite will be used for the bath entrance. Messrs. Maurice B. Adams and William Oxtoby are the joint architects. Mr. J. Lake is the clerk of works.

THE Duke of Portland has laid the foundation-stone of a church which is being erected at East Kirkby, Notts, at a cost estimated at 5,000*l*. The building will consist of a nave 78 feet long and 27 feet wide internally, with aisles (merely passages 4 feet wide), a chancel 30 feet long and 21 feet wide, vestries for clergy and choir, with heating chamber under and bell turrets at the west end. The principal entrance will be at the west end facing Lowmoor Road, the highway between Nottingham and Mansfield, and an internal porch will be formed by a screen and swing-doors. The style of architecture is English Gothic of the early fifteenth century, and the church is planned to accommodate about 360 adults, and to admit of lateral extension by increasing the width of one or both the aisles according to future requirements. The nave and aisles are divided into five bays, with octagonal stone columns and moulded arches springing from the piers without capitals. The chancel arch will be enriched with carving. The roofs will be of open timber construction, with hammer-beam trusses, the wood being stained dark walnut colour. The floor under the seats will be of wood blocks, and in the passages, &c., of "terrazzo" and marble mosaic. The walls will be of brick, with red facings and stone dressings externally, and plastered and distempered internally, except where stonework is used. The windows will be of stone, the arched heads being filled with tracery, that of the large west window being of a rich character. The glazing will be of leaded cathedral glass in small quarries. The roofs will be covered with red tiles and the turret roofs with lead. The

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heating will be by means of hot water on the low-pressure system, with pipes chiefly above the floor level, and occasional radiators. The ventilation will be by means of hopper casements to some of the windows and ventilating tiles in the ridge of the roof. It is intended to have the choir seats and clergy stalls of oak, and the general seating of pitch pine stained brown. Space for an organ is provided between the chancel and vestry. The architect is Mr. Louis Ambler.

ELECTRIC NOTES.

A SPECIAL service has been held in St. Lawrence Jewry, Gresham Street, to inaugurate the installation of the electric light in that church.

THE electric-lighting and power committee, in their monthly report to the West Bromwich Town Council, state that they have been waited upon by a deputation from the West Bromwich Tradesmen's Association asking for a reduction in the prices charged for current for lighting purposes, and after carefully considering the matter they recommend that the alternative charges from April 1 to September 30 be on the basis of a flat rate of 4d. per unit, and further, that the maximum demand system be continued from October 1 to March 31 at the present rates. They also recommend that customers be allowed the option of paying upon either the maximum demand or the flat system during the summer quarters by giving notice of such intention in April. They further recommend that a flat rate of 4d. per unit all the year round be fixed as the charge for electric current supplied for lighting churches and chapels, which is in accordance with the practice in other towns of making special rates for places of worship.

A MOVEMENT for the introduction of electric lighting into North Berwick has been on foot for some time past, the Town Council having been in correspondence with a London firm regarding the matter. The Board has provisionally adjusted an agreement with that firm for the supply of electric energy for the burgh. Under that agreement the firm in question is bound at its own expense, within eighteen months of the Town Council obtaining a provisional order, to erect and completely equip the necessary plant, with all modern appliances for the supply of electricity within the burgh, and is bound to carry on these works for at least twenty-one years, unless they are

sooner acquired by the Council. Satisfactory terms for the acquisition of the whole works at varying periods by the Town Council have been adjusted. The community are now being asked by plebiscite if they are in favour of the supply of electricity to the burgh by the said firm, or if they would be in favour of carrying out the whole scheme by the Town Council themselves.

NEW CATALOGUES.

MESSRS. BARFORD & PERKINS, of Peterborough, take the opportunity afforded by the issue of a new and up-to-date catalogue to draw the attention of managers of all large establishments, public and private, county councils, boards of guardians, workhouse masters, &c., to the efficiency of their improved steam-cooking, heating, laundry and drying apparatus, for which they claim a large amount of merit from the point of view of economy, cleanliness, simplicity and expedition. The catalogue contains numerous illustrations of the various appliances and of actual installations where they are employed, as well as a lengthy list of testimonials from those who have them in use.

FROM Messrs. Saunders & Taylor, Ltd., of Manchester, we have received an illustrated price list relating to their "Waverley air inlet ventilator," a good point about which is the efficacy of the filter. The front valve of this ventilator, which is made with embossed metal fronts, carved hardwood fronts and plain hardwood fronts, can be easily removed for cleaning, &c.

ST. NINIAN'S CATHEDRAL.

A DEDICATION service has been held in St. Ninian's Cathedral, Perth, in connection with some considerable extensions, inclusive of a chapter-house, which have just been completed. The present additions do not quite mark the completion of the full architectural scheme for a cathedral in Perth as it was originally drawn up more than fifty years ago; but they go a long way towards that consummation, and they go far enough to make St. Ninian's Cathedral, as it now stands, one of the most complete and handsome places of public worship of its size north of the Tweed. The church, as originally opened in 1850, consisted of choir, dwarf transepts

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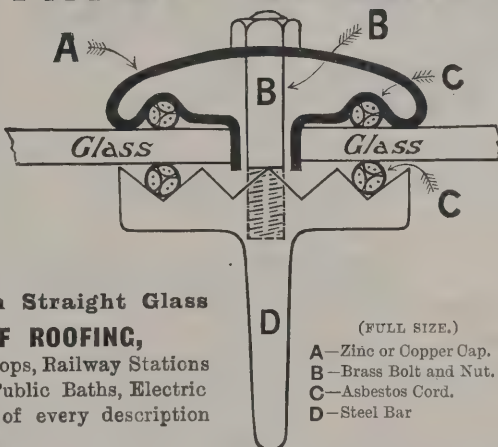
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and one bay of the nave; forty years later there were added three new bays to the nave, along with the transepts, and the space under the proposed tower; and now the choir has been extended internally across the transepts, a new episcopal throne, canons' and choir-stalls and pulpit have been provided, vestries for bishop, clergy and choir have been erected, and, not the least important of all, a tastefully-designed chapter-house has been built as a memorial to the late Bishop Wordsworth, who presided so long and so honourably over the diocese. For the remodelling and the furnishing of the chancel the same style of architecture has been adopted as that in which the rest of the structure had already been built, namely, Early Middle Pointed; but for the additions—the chapter-house, vestries and cloister—recourse has been had to what is known as "Jacobean Gothic." Into one of the walls of the chapter-house has been inserted a memorial tablet bearing a Latin inscription, of which the following is a translation:—"In pious memory of Charles Wordsworth, for almost forty years Bishop of St. Andrews, and for the use of the chapter of this church, this house built by his friends and dedicated to God, 1901. Here let the hope and clear faith of the clergy shine. Here ever let there be heard from the choir of the brethren Christian truth spoken in love." The present extensions, together with the cloistered passage from which access to the new apartments is obtained, represent an outlay of about 13,000*l.*, and bring up to about 20,000*l.* the amount which has been expended upon the church buildings within the past ten or twelve years.

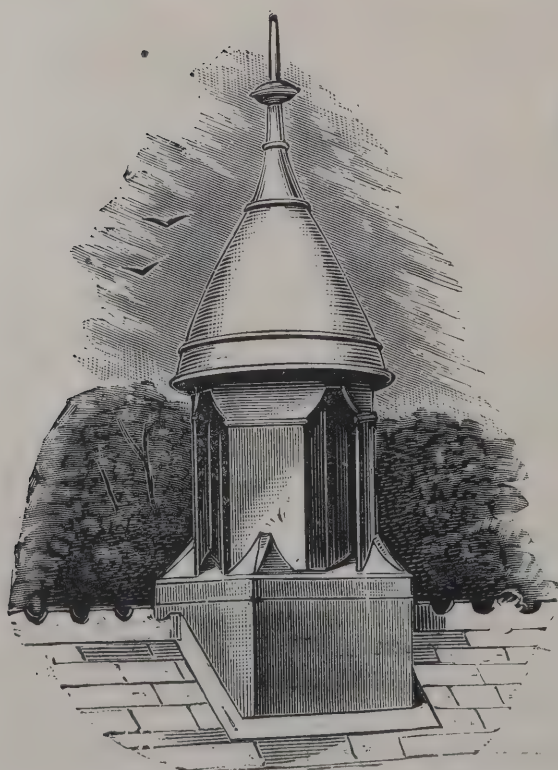
FORESHORE PROTECTION.

A PAPER on "Foreshore Protection" was read by Mr. R. G. Allanson-Winn, M.I.C.E., of Dublin, at the Health Congress, Eastbourne. He first emphasised the fact that any methods or devices which tended to safeguard and improve the general condition of seaside health resorts conferred distinct benefits on hundreds and thousands of city toilers who annually seek a renewal of health and strength at those watering-places. Of the two chief means employed for the protection of the coast line from sea encroachment—groynes and sea walls—the former were probably the most important, since by their judicious application they might dispense with costly sea walls, induce the sea to do much of the work, and generally improve the shore. The duty of the foreshore engineer was to endeavour

to do first-class and effective work for his clients at the lowest cost, and not to show off his own skill at wall construction at those clients' expense. The speaker therefore placed groynes first on the list of protective devices, because they helped to utilise the current and wave forces of the sea, and at the same time might lead to an enormous saving in the expense. Of all the methods that employed by the late Mr. Case appeared to be the most scientific and successful. He described the benefits the groynes had conferred on Dymchurch and Deal, and said that Worthing and Eastbourne might be cited as examples, where the Case system had not yet been tried, though a few groynes on the Case principle had been put down on the shores, and it was to be regretted that Mr. Case ever gave his sanction to experiments on such a limited scale.

Criticising the high groynes which engineers had for years past adopted round these shores, they would find that in 99 cases out of 100 scours were caused at the very points it was necessary to protect. The Hastings and St. Leonards foreshore furnished an excellent example. There were deep scours on the lee sides of all the groynes, and the shore had the appearance of a large saw when viewed from the sea. Each groyne was a distinct source of weakness to the wall as a whole. The scours to the lee were turned into small deep fjords at high tide, and into those the sea rushed with terrific force whenever there was a storm dead on shore or from the south-east. On the Hastings shore they would observe that there was a marked scour all along the sea ends of the high groynes, the soft yellow sandstone being exposed and constantly subjected to erosion through the sawing action of flint shingle, which was carried laterally along the shore with every tide. In the course of time this encroachment must reach the line of the esplanade wall many feet below its present foundations, and the expense of underpinning, toe walls, sheet piling, &c., would be very heavy. He summed up the objections to high groynes as follows:—(1) Scour close up to wall; (2) scour at or about mean sea-level and general denudation of the shore between mean sea-level and low-water mark; (3) danger to children; (4) impossibility of getting along the beach without the exercise of more than ordinary agility in climbing up or down vertical structures of 8 or 10 feet in height. The Brighton authorities had expended, and were expending, large sums of money on the unsightly high groynes, and it was not going too far to say that the Brighton shore would be more attractive and more safe had these high groynes never been constructed. The speaker proceeded to advocate a slanting groyne, constructed

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in such a manner as to be easily removable and adaptable to the varying conditions of the beach. In conclusion, he referred to the efforts that had been made to induce the Government to establish a department to undertake various duties in connection with the protection of the coast of the country against erosion by the action of the sea, and said that the serious disturbances in South Africa rendered it impossible to worry the Government department with a matter of secondary importance.

PROTECTION OF FACTORIES.

AN arbitration was held at the Royal Courts of Justice on July 29 between the London County Council and the Morgan Crucible Company, Limited, of Battersea, which involved a question of considerable interest to owners of factories and to the building trade in general, as to what is or is not a reasonable requirement on the part of the London County Council, as sanitary authority under the Factory and Workshop Act, 1891, in regard to the provision of a means of escape in the case of fire for persons employed in a factory. The Morgan Crucible Company's premises are in Church Street, Battersea, and consist of several blocks of buildings. Early in 1900 the premises were being reconstructed, and after inspection by an architect on behalf of the County Council certain requirements were made by that body that alterations should be carried out with a view to providing adequate means of escape for persons employed on the premises. The Morgan Crucible Company carried out the alterations in accordance with the requisitions made on them, so far as they thought them reasonable or necessary. Blocks A and B of the premises in question were practically one block and communicated with each other. Block A was provided only with an internal open wooden staircase, but at the corner of Blocks B and D an external iron staircase was erected. The owners considered that the internal staircase in Block A, together with the iron staircase in Block B, to which there was access from Block A, was amply sufficient as a means of escape from Block A in case of fire. The London County Council contended that this was not sufficient, and they required the owners to provide an external iron staircase at the south-east corner of Block A in addition to the staircases already provided. The owners declined to accede to this requisition, and the matter was therefore referred to arbitration.

The arbitrators were Mr. Thomas Blashill, representing the London County Council, and Mr. Maurice Adams, for the

Morgan Crucible Company; with Mr. F. R. Y. Radcliffe, barrister-at-law, as umpire.

Mr. Horace Avory, K.C., appeared as counsel for the London County Council, and Mr. Wood Hill was for the Morgan Crucible Company.

On the part of the London County Council evidence was given by Mr. W. E. Riley, architect, who surveyed the factory for the Home Office, and Mr. Roland Plumbe, architect, who inspected the premises at the request of the London County Council. They expressed their opinion that the present means of escape from Block A were insufficient and an additional staircase was necessary. They believed that in the case of fire the internal staircase in Block A would become filled with smoke, and the inmates of the block would be prevented from reaching Block B. Mr. Chatfield Clarke, surveyor to the Board of Trade, expressed a similar opinion.

For the Morgan Crucible Company Mr. Basil E. Peto, a director of the Company, said that when they received in January last year a notice from the London County Council alterations were being made in the premises, and the Council's requisitions were complied with, except so far as the erection of a staircase at the south-east corner of Block A was concerned. The owners considered that the present outside staircase in Block B was amply sufficient. There was practically no danger of fire, and no inflammable material was used for the premises. The ground floor at the time of Mr. Riley's inspection was used for packing, but now was only used on the storage of crucibles. The premises were fitted with all necessary appliances in the case of fire, and the men could clear out from the top floor in a little over a minute. He did not think that there was the slightest danger of the men in Block A being caught by fire. The estimated cost of the staircase proposed to be erected was 600*l.*, and it would involve a loss of 9,600 cubic feet of space, which represented a loss of 34*o*l.

The company's fireman, who had charge of Blocks A and B, said that thirty-six persons were employed on the top floor and twenty-two on the next floor. He found that it was quite easy to get away from the top floor of Block A by the iron staircase through Block B. There was no danger of a panic amongst the workmen.

The superintendent of the fire brigade at Leicester, who was also an inspector of factories, said that there were between 400 and 500 factories at Leicester. He had inspected, at the request of the Morgan Crucible Company, their premises in Church Street, Battersea, and he considered the means of

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escape from the building ample. It was also easily accessible to a fire-escape.

The arbitrators reserved their award.

ST. PAUL'S CATHEDRAL.

A REPRESENTATIVE of the *Globe* has had an interview with Mr. E. J. Harding, the clerk of works at St. Paul's, from whom much of the following information was obtained:—

It may be said at once that there are numerous cracks in the Cathedral; in fact, the building "settled down" even in Sir Christopher Wren's time, and the famous architect had to carry out certain works for the purpose of remedying the evil. These precautions were continued for about one hundred years; iron ties were fixed in the walls where the cracks appeared, and the latter were carefully "stopped." The cracks, however, reopened at intervals, showing movement on the part of the building. It may be explained that the Cathedral, contrary to the generally accepted view, is not built on a bed of concrete, but on what is known as potter's earth—yellow clay—which needs moisture to keep it solid. If the clay is drained it becomes like powder, rendering the surrounding buildings very unsafe. Asked as to what had caused the recent fissures, Mr. Harding was very cautious in his reply, declining to give any definite opinion; but he stated that it had been known for many years that the walls of the building were cracking. When the District Railway was made, followed by the construction of the electric line from Waterloo to the City, and the numerous tunnelling operations carried out by various authorities, the cracks, which had been carefully filled up, again reopened, while others appeared. These were on the south side of the Cathedral, the nearest point to where the tunnelling work had been done. And it is a significant fact that the slight fissures in other portions of the sacred edifice remained practically stationary.

The Cathedral authorities are doing everything in their power to lessen the evil caused by the withdrawal of moisture from the clay. One of the windows in the south transept and the wall which is vis-à-vis to it are in the worst condition. The bars of windows just below the Whispering Gallery are slightly buckled, and underneath are several cracks; while on the corresponding side there are similar fissures, and in addition the cornice beneath has "settled down" at one end. A number of strong ties have been fixed in the walls on either side, and as

the results of the movements of the building are imperceptible to the naked eye, ties of cement, which stand out about a quarter of an inch, have been placed across the cracks, so that the slightest movement will cause the cement to break, thus indicating at once the seat of the mischief. These ties of cement are examined at stated intervals, and if anything wrong appears steps are immediately taken to put matters right. It may be pointed out that experience has proved that the public works carried out during the last twenty or thirty years have had the effect of drawing away some of the moisture from the clay.

The foundation of St. Paul's is several feet below the floor of the crypt, or about 15 or 20 feet lower than the street level. The proposed new electric line from the City to Kensington, which, if sanctioned, would pass under Carter Lane, close by, has caused some anxiety to the Dean and Chapter, for, although in theory the driving of the shield (by means of which the clay is got out to make room for the "tube") is absolutely without danger to surrounding buildings, in practice it is not always the case, because it cannot be foretold what kind of strata is likely to be tapped; and even when the operations have apparently been successfully carried out fissures may appear years later in these buildings. The walls on the south side of St. Paul's, as has already been pointed out, contain many cracks; but owing to their slow development it is very difficult to localise them. In no part of the Cathedral is there a great fissure, only a number of small ones, all tending in the same direction, thus increasing the danger by aggravating the older ones. As showing that the authorities are fully alive to the importance of keeping the Cathedral in thorough repair, it may be stated that there are about forty men, representing practically the whole of the building trades, permanently employed in carrying out what may be described as repairing work. These are, of course, in addition to those who are engaged from time to time in executing the larger alterations.

It has not yet been definitely decided what action the Cathedral authorities will take in view of the proposed new electric railway; in fact, great reticence is being observed in the matter, but it is understood that Mr. Somers Clarke, the consulting architect, has been in communication with a well-known builder, and it may, we think, be taken as practically certain that the scheme will be opposed on the ground that it will tend to weaken the structure which the genius of Wren erected, and which is regarded as the central object, the very palladium, of modern London.

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The Architect.

THE WEEK.

THE opposition to the appointment of the late Mr. BRYDON's principal assistant by the Office of Works, in order to insure the faithful realisation of the designs for the public offices in Westminster, is unreasonable. It is well known that when an architect attains the position of Mr. BRYDON the greater part of his time cannot be occupied at the drawing-board. He has to trust to the skill of others, and the chief assistant has necessarily to be imbued with the spirit of the principal. The assistant sometimes is a more able architect, but out of loyalty he accommodates his own style to whatever is supposed to be the characteristic of the office. He has, moreover, to be self-suppressing, and cannot by speech or writing suggest the extent of his principal's indebtedness to him. To say, as Professor AITCHISON has done, that "BRYDON's draughtsman is unknown to most of us, and though he may be the most brilliant of architects we do not know it," is to pay a tribute to the fidelity of that gentleman. To suppose that any architect in large practice would entrust the direction of a drawing-office to an assistant who was no more than a substitute for a machine, would be as absurd as saying that the great legal firms employ men taken from law stationers' desks as managers of departments instead of fully trained solicitors. Professor AITCHISON's own practice hardly qualifies him to pose as an authority on the conducting of a large office with many draughtsmen, and the "most of us," to whom he refers, we believe to be gentlemen in a similar position. Through the modern system of architectural procedure it is indispensable that assistants who are competent in all branches of office work, and yet reticent about their abilities, should be available. Sometimes their engagement is intended by them to be no more than temporary, and it must be allowed that in the majority of cases the prospects of a "clerk," if he possessed the ability of a STREET or a NORMAN SHAW, are rarely encouraging. The late J. M. BRYDON also occupied that position in several offices, as did the late WILLIAM YOUNG, but both were shrewd enough to realise how duteous services were likely to be rewarded. If assistants are to be deprived of the very few opportunities which arise for making their work known to "most of us," or to the small clique who, without any authority or right, assumes to judge the ability of architects, it must be expected that only inferior men will seek for employment in architects' offices.

ARCHITECTS who visit Paris during the present season will find interesting studies in the premiated buildings selected for the "Concours de Façades," and which have received official approval. In 1899 a competition was organised among Parisian architects, in which those houses built during the year that were judged to be most beautiful were to be distinguished by rewards to those who could be considered as their creators. The names of the architects and the houses which have gained success for them are M. BOUVENS VAN DER BOYEN, jun., for No. 8 Rue de Lota; M. BRUNEAU, for No. 270 Boulevard de Raspail; M. MARCEL, for No. 17 Avenue de Breteuil; M. MORIN-GOUSTIAUX, for No. 1 Rue Le Peletier; M. RIVES, for No. 45 Rue du Château-d'Eau; and M. SINELL, for No. 11 Rue Edmond-Valentin. A report by M. NÉNOT, the architect of the New Sorbonne, gives the reasons for the selection. Of the first house it is said the façade is of a charming and artistic simplicity. Its character, slightly inspired by Florentine architecture, has been modernised and becomes French by the judicious employment of ceramics and coloured bricks. The façade in the Boulevard Raspail is of brick and stone; the ornaments are described as sober and well studied. The building is in harmony with the district, and the seven storeys have been superposed with good taste and without monotony. The façade in the Avenue de Breteuil is said to show a charming design, the whole being well united; the bow window is in harmony with the other features, and an elegant solution of an architectural difficulty is seen in the treatment of the bays under the grand balcony. In the house

in the Rue Le Peletier, according to M. NÉNOT, the climax and the maximum of architectural decoration have been reached. The eye is charmed by all the statues, ornaments, gilded grilles, and there is boldness shown in the design of the upper part of the entresol sustaining the balcony on the first storey. The house in the Rue Château d'Eau is recommended especially for the bow window and the able superposition of the three principal storeys. Finally, the example in the Rue Edmond-Valentin is mentioned as exemplifying the progress which has been made in the past thirty years in modern construction.

IT was long supposed that the greatness of Genoa had passed away, for although there might seem to be activity in the port the trade was thought to be only local, for TASSO'S "la reale, la nobil città," appeared ill adapted to compete with younger and more go-ahead seaports. The construction of the Saint-Gothard railway caused a change. Genoa became the principal port for Switzerland and Germany, and attracted much of the traffic which used to find its way to Marseilles. When the Simplon railway is completed it is anticipated that Genoa will make a still further advance. The inhabitants, who always seem to carry about with them the state and glory of their superb ancestors, have realised that a different manner must be assumed if they are to have a share in modern commerce. The chief contest is with Marseilles. Both cities realise that improvements are indispensable, and it may be expected that during several years there must be a large outlay in both on hydraulic works.

AN addition has been made to the series of tractates on the designing of ironwork by Mr. HENRY ADAMS. It relates to built-up steel stanchions, and about fifty varieties of sections are discussed. From the author's experience as a professor, he is able to communicate his knowledge to the student in a very clear manner, and with ordinary diligence what is said can be understood by novices in designing. Unlike many similar treatises, the pages do not bristle with formulæ requiring advanced mathematics. The little book will consequently be found most useful to those who are engaged in a variety of engineering which is in constant demand.

OLD railway carriages have long been used for occupation as if they were cottages and also as small stores. Although they are not more dangerous than caravans, still few people would care to have them near their houses. Whether they can be treated as buildings is a question which has several times been tried in the law courts with varying results. Tram cars are, however, more easily obtainable, and generally are in a better condition. Occupants must have a very humble opinion of the requirements of a home who would venture to live in the cast-off carriages of several English railways. If sanitary laws were administered as they ought to be a great number of those carriages still in use would be at once consumed by fire, for they are storehouses of infection. The tramway cars have to be kept in cleaner condition, and they are therefore more eligible as residences. It must be owned, however, they do not comply with the ordinary by-laws relating to buildings. But it is difficult to discover points which will insure conviction. The Sheffield Corporation have just had to encounter those difficulties. They summoned a possessor of transformed cars for neglecting to give notice to the city surveyor of his intention to erect a new building, and also for failing to make the roof and walls of incombustible materials. The magistrate dismissed the summonses relating to the notice. One of the cars was to be used as a meat-shop and the other as a warehouse for oil-cloth and linoleum. Neither was considered as a "domestic" building. There was, in the absence of fireproof materials, the magistrate said, an infringement of the law. Owing to the obscurity in the term "new building," the offence was so trifling only a nominal punishment was inflicted, and so the order made was to pay 2s. and costs on each of the two summonses upon which conviction was made. The defendant was allowed costs on the two summonses dismissed. After the decision we may expect to see a rise in the value of cars which are no longer adapted to run on rails.

THE NEW YORK STOCK EXCHANGE.

AMERICAN architects are not afraid to have particulars of their latest works divulged. They know that one of the best means of securing new clients is by explaining how they had met the demands of those who had given them commissions. There is no desire to conceal new arrangements from other architects. The rivalry of competitors is not to be overcome by darkness. Like DIBBIN'S "Poor Jack," it is believed that "the world's wide, and there's room for us all," since in a country that is every day extending with the rapidity of the United States it would be impossible for any individual or firm of architects to be able to carry out more than a very small fraction of the commissions which are constantly arising. It is stated, for example, "that the yearly cost of building in New York amounts to more than the yearly cost of the food for its inhabitants." There is more likelihood the amount will be increased than diminished. An American building must be an exemplification of scientific improvements, and in order to introduce in it some new method of ventilation, electric light or heating an existing building is sacrificed without scruple. American inventiveness is, therefore, one of the best auxiliaries to new commissions which architects can utilise. This is to a large extent exemplified by the history of the New York Stock Exchange which is now approaching completion, and of which the *Architectural Record* of New York publishes an elaborate description.

The building which has had to be supplanted did not date beyond 1870, and could not be considered as ancient, but the American financial system is being expanded from year to year, and it was found that the convenience of members could not be secured in premises which were thirty years old, in spite of the numerous alterations which were accomplished at a large expense. It was therefore resolved to meet the difficulty by the erection of a new building. The committee had two projects prepared by Professor WARE and Mr. C. W. CLINTON to guide the selected competitors who were to be invited to contribute designs. The difference between the two was whether the ground floor should be arranged as a large bank, which could be let to a company and bring in a revenue. Each competitor had therefore to prepare two designs. Those by Mr. GEORGE B. POST, who is responsible for many of the lofty buildings in New York, were approved. The committee decided to abandon the banking storey at the desire of a majority of members. But they wished that the elevation, of which it formed a prominent part, should be preserved and adapted to the new conditions.

The principal elevation to Broad Street therefore shows a structure of the Corinthian order, with a sculptured pediment, which to some extent recalls the Pantheon of Rome, but instead of standing on the ground it is supported by a podium pierced by two rows of doors and windows, which correspond in number with the openings between the columns. There is in consequence no grand entrance. The columns, which are 52 feet 10 inches in height, with a diameter of 6 feet 10 inches, stand in front of an immense window which stretches between the piers or pilasters at the sides, and has therefore an area of about 50 feet by 100 feet. This window, with another of equal size, gives light to the great Board-room, which has a floor area of about 15,000 square feet and is the essential part of the structure. In other words, the members of the Exchange, instead of entering the hall from the street-level have to ascend about 12 feet at one side. So much American business is transacted in upper storeys the ascent does not count for much, and on one side of the building the height is greatly diminished. By the building committee's project the Board-room would have been placed on the second storey about 20 feet above the level of Wall Street, and over 30 feet above that of Broad Street. But the brokers gave more attention to the contingencies which might arise on occasions of failure or of panic, when members would be eager to reach their offices without loss of time, and as staircases were impracticable on account of height and insufficient space, the rush for the lifts or elevators was likely to bring about dangerous consequences.

The site was difficult to deal with, especially as water was to be met with at different levels, and could not therefore be easily controlled by one system

of conduits. The architect decided to have a caisson foundation, and the question then arose whether the foundation should be carried down to the rock, a distance of 60 feet, or only a part of that depth. The foresight of Mr. POST determined the difficulty, for we are told he "discovered by computation that, owing to the fact that there were no interior supports in the immense Board-room, the upward pressure of the water in the subsoil would be three times greater than the superimposed weight, which would have resulted in the upheaval of the Board-room floor, together with the storeys underneath." Another impediment to planning was an existing safe deposit vault which, having resisted the ingenious methods of American thieves, found favour with the committees. It was therefore necessary to arrange the new deposit vault in such a position that the older one could remain in use until nearly the completion of the building. Beneath the Board-room there are consequently three basements and a cellar. The subterranean part serves a variety of purposes. There will be found hat and cloak-rooms, the inevitable barber's shop, baths, private rooms, toilet-rooms, locker-rooms. Special accommodation is found for the employes, who henceforth need not mingle with the members unless when on business purposes.

It is not uncommon in the Exchange for over three millions of shares to be made the subjects of financial transactions during one day. To aid in the work 500 telephones are put up in the Exchange, and they are generally in constant use. The arrangement of the telephones was one of the difficulties of the planning. They have been placed in one group in the New Street end of the building. The loss of a second might mean a serious blow to a member, and everything has therefore been done to facilitate the use of the telephones. We are told "that despite the large amount of space which the great piers take up on the floor, they are turned to such good purpose by the system of encircling telephones that an actual saving in space is effected; for more telephones have been designed in these positions than would have been possible had the piers been replaced by a simple running wall only thick enough to support the end of the building."

The old Exchange was not well lighted, and it may be on that account it was decided to obtain the utmost amount of daylight. There are two storeys above the Board-room, which measures 112 feet by 130 feet by 80 feet. Mr. POST therefore decided on his colossal screens, by which there would be one window occupying the front of the Board-room on two streets. It is not enough in such a case to propose and design. It is no less necessary to provide for the needs which will be involved by the existence of the vast masses of glass. In the first place there is wind-pressure, which at 35 lbs. per square foot would average a force of 75 tons on each window. In addition each window weighs about 13 tons. Mr. POST has arranged to use 18-inch iron mullions, which will be placed in pairs directly at the back of the Corinthian columns and hung from girders overhead as window frames. The temperature in New York is sometimes freezing, and, as the two end walls of the Board-room can be considered as entirely glass, an immense amount of cold air will be introduced to the Board-room. To compensate for this the following arrangement has been adopted:—"Steam radiators will be installed at the bases of the windows for the express purpose of heating their interior surfaces. The glass for a certain distance up will be made double, the space between serving as a cold air slit through which the air will circulate down and over the steam coils placed at the gallery floor. The heated air then arising will be dispersed over the interior surface of the window." Provision has likewise been made for cleaning the windows, and blinds have been invented which can be drawn backwards or forwards by touching electric buttons. A large skylight will also be constructed; the room will likewise be illuminated by means of electric and incandescent lights. If Sir JOSEPH PAXTON were still on earth he would be the first to congratulate Mr. POST on his success in drawing inspiration from the Exhibition building of 1851, and improving on the original model. Assuming the Stock Exchange screens can withstand the elements and the

settlements of the building, which are inevitable, we may expect to hear from America of the revival of projects for hospitals, convalescent homes and similar buildings, in which glass would be used instead of other materials.

One feature in the Board-room is the "bulletin-board." This is an arrangement of 1,200 squares in a space of about 300 square feet. Each square has a number which belongs to a member of the Exchange, who pays for the privilege. If any member is required the appearance of his number attracts his attention amidst the utmost din of the Exchange. In the bulletin which will be used in Mr. Post's Board-room, the numbers will be inscribed in opaque glass, which will be illuminated by various coloured electric lamps, according as the member is required to return to his office or meet a visitor in a particular part of the building.

The Corinthian façade does not occupy the whole frontage of the site in Broad Street. On one side of it is a strip of building containing no less than seven storeys. The windows are of the plainest, as if it were intended to suggest how little importance was to be attached to any other part of the building except the great Board-room. It was an architectural problem that might have been turned to account in an artistic sense, although not to financial profit. So much austerity appears to express the belief that unless a Classic façade is imitated there is no power in America that can produce a Stock Exchange that will answer its purpose, and be adapted to the necessities of the site. If there must be masquerading in Classic forms, the poor relationship of the seven-storeyed structure should at least have some superfluous Classic odds and ends cast to it in order to conceal its poverty. Perhaps, however, it was intended to make the front symbolic of DIVES and LAZARUS; but, whatever the meaning, it would be an advantage if so elongated a fabric, which is even unfitted to serve as a foil to the Board-room, and can only be detrimental to its effect, should be removed.

The building is likely to cost 3,000,000 dols. The committee declined to adopt the system of tenders, and the work was entrusted to Mr. C. T. WELLS, who has been largely employed in New York.

ON A POEM BY SCHILLER.

ACCORDING to CARLYLE, the poets GOETHE and SCHILLER lost much precious time through *Kunst*, or art, which could be more usefully employed. The assertion was partly inspired by his own aversion to art. He records with so much delight the expression he heard uttered by a politician, "May the devil fly away with the fine arts," we are surprised he did not write a biography in several volumes of that approved individual. There was, however, another reason. CARLYLE was undoubtedly a great writer, with a marvellous command over words; but his was not a creative genius. His best writings deal with the demolition of theories or institutions that were obnoxious to him. He was incompetent to give outlines of the substitutes for them which would bring happiness to the world. Now artistic power is simply creative power. CARLYLE was deprived of it, and therefore it became to him as sour grapes, and all those who devoted themselves to its consideration became in his eyes mere dilettanti folk, windbags with a peculiar vocabulary which was of no use for the salvation of man.

GOETHE is like a world, and it would be ridiculous to attempt any description of his theories about art in a very limited space. But SCHILLER's genius is of a simpler class, and art was so potent with it we can at least obtain a glimpse of some of the results which followed. In one word, art with SCHILLER became almost synonymous with law. This will appear rather remarkable to those who have not given more than a passing attention to his career, for he began as a law-breaker. The first work that made SCHILLER's name known to his countrymen was the chaotic drama of "The Robbers," which out-horrored any known example of the Early Elizabethan drama. Now "The Robbers" was a protest against life as it existed, and was inspired by the too rigid system of instruction through which SCHILLER had passed. The Grand Duke of WÜRTEMBERG, under whom the poet's father acted as inspector of forestry, was desirous of establishing a school or institute for favoured

youths in which law in the form of military discipline was to be supreme. SCHILLER, who believed he was destined for a pastor's life, was unable to follow the training which was to prepare him for the army. He was therefore drafted to jurisprudence, but he could not relish a science that was expounded by professors who seemed to derive their pedagogy from drill-sergeants. Then he was turned over to another class of professors who taught medicine as if it were exercises in a barrack-yard. Finally, as he found he could not comply with the conditions of the ducal seminary, SCHILLER ran away from Württemberg to Mannheim, having the manuscript of "The Robbers" as his only worldly wealth. He consequently was held to be a deserter, a rebel, an ingrate, and not until his name had become famous was he allowed to revisit the house of his parents.

From such a start in life it might be concluded that SCHILLER was destined to lead a revolt against everything sacred or secular which was upheld by authority, and that all established institutions would appear to him as only variations of the Württemberg Academy. But his genius was too just, his observation too keen to allow him to fall into an error of that kind. The professors had endeavoured to enslave his mind; at least he thought so, and against such a system he rebelled. But there was never a poet who was more amenable to discipline when properly applied. That he could discriminate between license and liberty, the greater part of his works in prose and poetry are sufficient evidence. All the hours which he devoted to *Kunst* and which CARLYLE thought were spent in pastime, were in reality an exhausting investigation of the rule and restraint which every artist must observe if he would attain to perfection. In saying this it should be remembered that to SCHILLER art was a vast power, whose operations were to be observed in every variety of creation which could be regarded as worthy of man.

The earliest exhibition which SCHILLER gave of his principles may be taken as being found in the poem of "Die Kunstler," or "The Artists." It was written at the end of the eighteenth century, when, as is common in modern times, imaginative men believed that a new era was about to commence which was destined to surpass all its predecessors in obtaining happiness for the human race. The poem also marks the close of SCHILLER's second period, although from its character it seems better adapted to stand at the head of those of his third and greatest period. It cost him more time than any of the poems he had previously written, and he admitted that he was satisfied with it, which was unusual for SCHILLER.

He begins by representing Man as standing haughtily on the incline of the eighteenth century, feeling the pride which was natural with the ripest son of time. Reason had made him free, law had given him strength. He could believe he was lord of nature, that appeared to love the fetters he imposed, and served his purpose in thousands of ways. Man might become intoxicated with the thought of his victories over nature, but the poet asks him to remember in his exultation the hand that was first stretched out to him on the barren strand of life where he was left a forsaken orphan. It was Art who rescued him, and by slow degrees taught him moderation in all things, and inspired him with ideas of goodness, duty and virtue. Science at the close of the eighteenth century appeared to be the coming providence of man, but the poet tells him to bear in mind that in industry the bee is superior to him, in craft a worm can be his teacher, in all his knowledge he never can approach the seraph. Art, however, he could claim as his special prerogative, "Die Kunst, o Mensch, hast du allein." When Mr. RUSKIN, in the article by means of which he expected to win a bride, told his readers that in the railways of which they were so proud they were merely trying to emulate the swiftness of the gnat and of the swallow he was expressing a truth in SCHILLER's spirit. The pith of much of RUSKIN's teaching is also conveyed by the two lines in which SCHILLER informs his representative man that it is only through the beautiful as a gate he can enter into the region of knowledge:—

Nur durch das Morgenthor des Schönen
Drangst du in der Erkenntniss Land.

The poet was a faithful believer in the law of progress.

although it had not been explained with the precision which belongs to the special studies of the nineteenth century. In the remote period when man struggled to rise from the savage state no one can say what it was that compelled him to become differentiated from the mammoths and other beings who shared the world with him. It was, therefore, allowable to SCHILLER to suppose that ideas of order and of law were introduced when rude attempts were made to produce art. It matters little whether the initial experiment was the scratching of the portrait of a reindeer on a bone, as the geologists would have us believe, or the burning of lines on a gourd, which, according to Mr. WHISTLER, was the earliest symphony in black and yellow, or the arranging of threads with bone needles in zigzags, which was SEMPER'S theory; once the first step was made in creation it became possible to go further and to continue the operations until human thoughts and nature's works were exhausted for representation. The important postulate is, Can we grant that progress of civilisation or intellectual development began with very crude experiments in art? and if so the rest becomes easy. SCHILLER'S contemporaries who followed science would give a negative answer.

It is difficult, if not impossible, for an ardent man to go on repeating his first success; he is always aspiring for something better. In course of time, and just as men surpassed one another in lifting weights, shooting with arrows, in wrestling or swimming, we can suppose that less imperfect representations of objects were produced and admired. If a woman of a tribe produced angular lines on a piece of stuff she would have to hide her diminished head if another woman made use of double lines, or reversed the position of the angle. Every endeavour in competition would diminish the vast distance between the contours of a living being and the sketchy strokes on a bone, a gourd, a piece of stuff, or a stone. Once let a few imperfect lines be accepted as representative of the form of something else, in course of time lines or marks would be employed which would also serve to express qualities. In that way symbols would be introduced. SCHILLER, let us remember, was to some extent combating science, and he therefore urges that thousands of years before SOLON and other law-makers had written their edicts, the virtues which were desirable for man to practise were made plain to a childish understanding by the aid of artists. With much subtlety he suggests that VENUS who was taken simply as a beautiful woman, that was not always believed to enclose a moral spirit was originally intended to be URANIA, who was so resplendently virtuous that only the purer celestial spirits could gaze upon her as she sat upon her sun throne. She it was, however, who came down to man and endeavoured to give him some consolation by painting on the walls of his earthly prison (Kerkerwand) a vision of Elysium. At a later time her beneficence was entrusted to artists. Men of letters, says CARLYLE, are a perpetual priesthood; but before him SCHILLER had expressed a similar idea, although artists took the place of writers. They were, he affirmed, the purest out of millions who were consecrated to that service, for they alone were able to see the bodiless URANIA ("Vor deren Aug' allein sie hüllenlos erscheint"), and to tend the fire on her altars here below. To MILTON also she was a goddess. SCHILLER was a devotee of the ideal, and he believed it was possible to have notions of beauty which no pencil could express or any words describe.

It is reasonable to suppose with SCHILLER that to savage man the earth appeared a terrible wilderness, which was as fearful as fields in the dark may still be to young children. To the uncultured mind it was immeasurable and black as night ("ein unermessner Bau im schwarzen Flor der Nacht"). But as soon as it became the subject of representations much of the terror must have vanished. It grew more familiar, and the rudest attempt became like a reflection on the water, a sort of duality which made the artist a wonder-worker and a possessor of mysterious power. We cannot in referring to those primitive times count by centuries any more than by days, and the poet is not to be blamed if he only mentions the visions which passed before him, without any regard to the intervals of time that came between them. We must therefore accept what SCHILLER says, that imitation in time brought men to creation, and that the obelisk, the pyramid, the hermes, the column were all derived from imitations of natural objects; that

through the reed torn from the river came a faint echo of forest melodies, and that victorious deeds were made to live in primitive song.

SCHILLER lived at a time when the study of man was not pursued in a scientific manner. He does not attempt to make any research about the first experiments in art. He could not have known of the carvings of animal life then lying in the Kesserloch Cave in Switzerland, and there were no prehistoric collections to excite thought about the origin of the curved lines which are to be seen in weapons, ornaments and utensils. He had, no doubt, read about the contest between the Greek painter and GLYCERA, the flower-girl, in which the latter made more beautiful garlands than the artist could paint. He therefore boldly says that art began with the arranging of flowers, that the nosegay or bouquet subsequently became a crown, and later man did his best to imitate the flowers. In the same way, as flower was added to flower, there was a combination of distinct existences for the sake of unity; pillar was added to pillar, and ballads relating to individual heroes became the elements of an "Iliad":—

Die Säule muss, dem Gleichmass unterthan,
An ihre Schwestern nachbarlich sich schliessen,
Der Held im Heldenheer zerfliessen,
Des Mäoniden Harfe stimmt voran.

SCHILLER would expect that an example of modern art should express individuality; but he could not help realising how much in ancient art was repetition, and as a lover of Greek architecture he must have felt that the temples in which the columns belonged to one order were preferable as exponents of law, which is the basis of all art, to buildings such as some Early Christian churches which were made up from the spoils of temples and in which the majority of capitals were of a different form. It was the regularity which was exemplified in his own works, and especially in architecture, which made man come to the conclusion there was law all round him and above him. Thus it happened that laws of nature, harmony of the spheres and similar expressions were known long before experimental philosophy discovered there was a mathematical expression for many of the laws of nature:—

In selbstgefall'ger jugendlicher Freude
Leiht er den Sphären seine Harmonie;
Und preiset er das Weltgebäude,
So prangt es durch die Symmetrie.

Again and again SCHILLER returns to the same theme, that whatever was best in science, as known in his day, was earlier suggested by the artist. It may not be evident how far a building, a statue or a picture, can express facts in physical science, but if their works are supplemented by those of the artist-poet the difficulty is diminished. When SHAKESPEARE makes a character promise that he will be "true as earth to the centre," he must have had in his mind's eye that law of gravitation which NEWTON was afterwards able to demonstrate by the fall of an apple.

SCHILLER wrote much which was due to inspiration in the truest sense of the word, but there never was a poet who laboured with more assiduity to obtain the facts to which genius could impart life. He was the first of the labour-poets, for to him the ordinary workman, or rather craftsman, could be as interesting as any painter or sculptor. Large prints made up of a series of illustrations from his noble poem, "The Lay of the Bell," can consequently be seen in many workmen's rooms in Germany. They are as encouraging as any treatise on political economy. In the poem he exhorts the workman to have pride in himself by showing how important a part an ordinary church bell in a village can play in relation to the lives of the inhabitants. But, as the founder declares, it is not merely the labour of the hands that suffices to gain recognition, for every true man must despise all those who execute work without giving it a thought, and everyone should in his inner heart be able to trace out whatever he has to create with his hands. Indeed, all that CARLYLE says about the dignity of labour is only cold and pessimistic if compared with the glowing lines of the German poet, who still remains the idol of his countrymen, especially in their youth and in their old age.

Many poets draw varied illustrations from natural objects in the fields and woods and from lakes and rivers

because they believe with COWPER that GOD made the country while man made the town. SCHILLER loved the beautiful landscapes which are to be seen in so many parts of Germany, and which even humble people can enjoy from little summer-houses. But his delight was no less found in places where men congregated. In the "Spaziergang" we have country and town united. But the town was dear to him because there the arts flourished. An artistic heaven is described by him as resting on slim Ionic columns, and the whole of Olympus was revealed within its dome. Lightly as IRIS springing through the air or as an arrow from the cord the bridge crossed the impetuous stream. The painter imparted a new life to his subjects, and the sculptor's mallet infused a soul in stone. In all this SCHILLER could see no difference from nature, for as became a student of SHAKESPEARE he believed that nature can only be bettered by some means which should be described as nature's creation.

LYCH-GATE, BOGNOR.

THIS lych-gate has recently been erected at the Royal Naval Academy, Bognor, Sussex, for Mr. H. WILLIAMS-WHITE, B.A., the Principal of the well-known Academy for special tuitions for cadetship in the Royal Navy. The gateway, which has been erected as a memorial



to the late QUEEN, is built entirely in English oak, which has been specially selected for the purpose, and the roof is covered with plain brown tiles. The work has been well carried out by Mr. T. START, builder, of Bognor, from the designs and under the superintendence of Mr. W. PUTTICK, architect and surveyor, of 56 East Street, Brighton. Other important alterations and additions have also recently been carried out at the Academy from Mr. PUTTICK's designs.

FURTHER DISCOVERIES IN CRETE.

LIKE other Cretan traditions, says Mr. D. G. Hogarth in an article in the *Times*, the claim of the island to have had a hundred cities is proving not altogether vain. Remains of primitive settlements, too considerable to have been villages, are coming to light at far more points of the Cretan coast than

bear a name in classical atlases. There are half a dozen such in a part only of the eastern half isle, and the recent exploration of two among these supplies a key to the rest. One now suspects a "Mycenæan" site in every larger plain of the periphery. So far as searched at present, these towns show little or no sign of having continued into the historic period. Their civilisation was blotted out with the "Mycenæan" domination. The succeeding class of remains is found for the most part higher up inland, on difficult heights or in remote gorges. The coastal plains were secure no longer. An age of seafaring and communication between ancient seats of luxurious life had given way to one of local and jejune development. But why and how we may only guess.

The crown of the great Cretan civilisation was in Mindan Knossos. No other site in the island has furnished, or is likely to furnish, evidences of so high artistic achievement. But there is at least one notable site better preserved. Knossos, owing to its revival in later epochs and the proximity of its site to the Mediæval capital of Crete, has suffered wreck and plunder beyond other sites. Much knowledge and more imagination are required to invest with full significance its "shorn and parcelled ruin," which, lying low in a featureless valley, conveys no immediate impression of magnificence. One must study its cracked and faded fragments of fresco, and look narrowly into the work of its reliefs and stone vases, to realise why it claims to rival Mycenæ in interest. The house must be reconstituted from its furniture rather than the furniture from the house.

The ordinary visitor, not a specialist, will, therefore, prefer the ruin at Phæstos, on the south of the island, the full revelation of which has certainly been the sensation of the past spring. When Professor Halbherr announced in 1900 that he had begun upon a lesser Knossos no one expected that he and his Italian colleagues were to find in the event a palace more uniform, complete and imposing. What they have now laid bare stands alone in Crete as a spectacle. Even those fresh from the Mycenæ walls and the Treasury of Atreus, or even from Egypt and Syria, must admire the broad staircases and majestic courts of Phæstos, all on so intelligible a plan and preserved to a point which excites without overtaking imagination. The ruin covers a promontory of rock. Far below the greatest of Cretan plains stretches to Mount Dicte in the blue distance. Ida hangs right over the site, and through a gap in the screen to west show the snows of Sphakia, all three high-masses of the Cretan relief being visible from this one point. In so superb a setting it is the more pity Phæstos should be so difficult of attainment. It may, indeed, be reached in an hour from the sea, but it is from the stormy, harbourless Libyan Sea. A steamer that had landed its passengers in the sunrise-calm at Dybaki would often be unable to re-embark them at noon. One must ride, therefore, from Candia, making a three-days' expedition, which will include also Gortyna; but the days are long and the paths are rough.

This palace of Phæstos is contained in a vast rectangle, obvious at first sight. There has been an earlier structure, but the building now revealed is of one character and period—that of the acme of the "Mycenæan" age in Crete. The visitor, approaching from the north, sees, from a terrace, the ruin below distinguished into three main quarters. On his left a broad stairway descends to a spacious paved court, containing an altar and tiers of stone seats built up against the rock, evidently to hold an assembly. Flanking this on the east and raised high above it is the main building, entered by a truly majestic flight of steps, extending the full width of the fine pillared hall at their head. But the entrance from without is from the opposite side, where a second and larger paved court stretches to the brink of the precipice. Thence is admittance not only to the pillared vestibule and main hall, but to a double rank of galleries, and a maze of small chambers to southwards, which form the third quarter. This great court, round which the walls and doors are admirably preserved, vies with the region on the west, where the two main stairways meet, as the best point of view on the site. To one standing in it the uses of the various blocks about it are manifest. Here were the living and sleeping rooms of men, there of women. Their common hall of assembly occupies half another side; the store galleries for the produce of the plain fill the other half. In the chambers to south they bathed, worshipped and lodged their retainers and their beasts.

All this is constructed of an excellent limestone, which has retained its sharp and square outlines, while the Knossian gypsums have crumbled and collapsed. The general impression, therefore, is the more convincing. But in details the inferiority of Phæstos is unquestionable. The elaborate frescoes, the sculptured friezes and the delicate plaster relief of Knossos were never here. Phæstos was provincial. It could command good stone and good masons, but not the materials or the men for the more subtle crafts. The noble shell was decorated only in the rudest manner, and its ruin is not comparable to that of Knossos as a museum of art. On its plastered walls appear none but conventional patterns of

primitive sort: the only sculptured thing of any note yet found is a fragment of shell; the clay vases are interesting, but of common ware, and fine stone vases have not come to light at all: trinkets in the precious metals or stones have not been found, and two small tablets make a poor show beside the immense clay library of Knossos. Indeed, all the smaller finds are conspicuously wanting. For example, clay impressions of lost signet intaglios, a most valuable class of which Knossos has yielded to Mr. Evans scores of admirable examples, and Zakro some hundreds to me, remain unrepresented among the Italian discoveries.

Certain problems raised by these mid-Cretan excavations it was hoped would be resolved by exploration in the east of the island, the reputed home of the Eteocretan aborigines. There a non-Greek tongue long survived, and at Præsos a short inscription, couched in this language, but in Greek script, had actually been found. The further exploration of that site by the British School of Athens has indeed resulted in a second inscription, broken and imperfect, but containing more words. But no writing in the primitive scripts has come to light there, nor indeed anywhere else in East Crete but at Zakro. Nor has Præsos, while yielding to Mr. Bosanquet several notable objects, been fruitful of anything else having much bearing on the prehistoric problems. Its remains seem to be the leavings of earlier plunderers on the site of a comparatively wealthy community of the Hellenic and Hellenistic ages.

What the Eteocretan capital, however, has failed to produce has come in abundance from two unknown sites, Zakro and Gorynia. These, to compare small to great, stand to one another as Phæstos to Knossos. Gorynia is the more complete and comprehensible. Indeed, it is the most perfect example yet discovered of a small "Mycenæan" town, unconquered with later remains, and at this moment after the two great palaces, it is the "sight" best worth visiting in Crete. It lies on the deep gulf of Mirabello, at the head of the lowest and shortest pass to the south coast. Unobserved till now, though close to the main road from Candia to Sitria, it was discovered by the perseverance of the American lady, Miss Harriet Boyd, who has been directing its excavation. Her workmen have now laid bare two narrow and tortuous streets, paved, and here and there ascending by flights of steps, on either hand of which are preserved to a considerable height houses of stone with party-walls of brick. This style of structure, often suspected on Ægean sites, has never been actually found before. The two streets converge towards a large building of fine masonry, on the highest point of the knoll, in which it is easy to recognise the house of the local chieftain or governor. The contents of these buildings are as interesting as their structure. If almost everything in precious metal has vanished, everything in bronze seems to have remained, in the shape of weapons, tools and vessels. Among the many clay vases occur complete specimens of types previously inferred from fragments only; and among the chambers is one which, from the objects and symbols found in it, may safely be inferred to have been a small shrine.

These houses, however, and their contents, though the more intelligible from belonging all to one primitive epoch, are, for that reason, less instructive than the scantier remains which I found at Zakro. For these illustrate all the immense interval between the Neolithic and Hellenic ages. Zakro lay (and lies) remote from any centre of civilisation, behind high mountains on the extreme south-east angle of Crete. But every captain of sailing craft in the Levant knows its safe bay, and there the sponge fleets, bound in spring for the Libyan shore, muster, take in water, receive the blessing of a priest, and await a favouring norther. It is not wonderful, therefore, that the little plain of Lower Zakro is full of primitive remains, mostly like those of Gorynia, illustrating the close of the "Mycenæan" age. There are, however, earlier things, for a pit in the limestone rock had been filled with discarded vessels in clay and stone belonging to a previous epoch. Vases in a delicate painted fabric of the same type as the "Kamâres" ware of mid-Crete occurred here, but they seem more deeply affected by foreign influences. The caves about the plain contained still earlier evidence, having been used for sepulture in an age verging on the Neolithic. But the native objects from all these sources are mixed with elements of outside origin, parallel to things Cypriote and Egyptian.

The main site has suffered greatly from denudation, but the ruins of the town show it to have been of more massive character than that at Gorynia. The houses have like party-walls of brick, but their outer walls are true cyclopean. They are also of great size; one, for example, was found to contain over twenty chambers, and, utterly ruined though it was, it yielded over seventy vases besides many fragments, and objects in silver, bronze and stone. The most productive structure lies on the crown of the knoll, a fragment of a large group of connected blocks, which probably formed the residence of the chief. In one room of this were found not only the two inscribed tablets mentioned above, but a deposit

of bronze implements and vases, among which one with decoration of shells and marine stars may claim to be the most graceful of "Mycenæan" ceramic products. Here, too, were found the hundreds of impressions of lost signets already alluded to, lying in a heap as if once contained in a box, long ago perished. The separate types represented number 150, and illustrate in a remarkable way not only late "Mycenæan" glyptic art, but also "Mycenæan" religious symbolism. For instance, we note several bull-headed human figures, associated in two cases with women draped in the typical flounced skirts of the period, pre-Greek Minotaurs and Ariadnes. So well preserved are these impressions that it has been possible to take casts of them for study in England.

The general result of East Cretan exploration seems likely to establish the fact that the Pan-Ægean civilisation, which it is agreed to call "Mycenæan," was foreign in that part of the island, and that the native civilisation, existing before and coincident with it, was much ruder than, and perhaps of different character to that of mid-Crete. If this be really the case an important inference must be drawn, viz. that the Knossian tablets have probably nothing to do with the Præsos inscriptions, and that the non-Greek language of the latter, if ever interpreted, will supply no key to the most interesting puzzle that Cretan excavation has supplied.

RECENT DISCOVERIES IN ARMENIA.

EXPEDITIONS have recently been engaged in exploring the ruins of Armenia on behalf of the German Government. The first of these was under the direction of Dr. W. Belck in 1891, and he likewise conducted a second course, in which he was assisted by Dr. C. F. Lehmann, in 1898-99. The reports of these expeditions, which are now issued, contain most important discoveries.

The history of the Armenian kingdom is an extraordinary example of the recovery of a nation, all traces of which had been entirely lost. Similar results have taken place with regard to the Hittites, the people of Mittani or Northern Mesopotamia and the pre-Hellenic inhabitants of Crete. But the present is an age of resurrections. The restoration of the history and the civilisation of the pre-Aryan race of Armenia is, however, most important, as it fills up a gap which has long been open in any attempt to reconstruct the history of Western Asia.

It is evident that in the latter part of the tenth century B.C. the Assyrian kings pushed their forces into the mountains of Uratu or Ararat (as the country was then called). They invaded the regions round Van, and exacted tribute from the King Sardur. To commemorate these victories the Assyrian monarchs carved upon the rocks of Tebenek-su and other places near the head waters of the Tigris, long inscriptions. These incited the Vannic kings to have similar records, but they possessed no script of their own. Assyrian scribes were accordingly employed to cut them, and both Sardur I. and Ispurnis (the contemporary of Samsi-Rimman, king of Assyria B.C. 825-12) had such inscriptions carved. The Armenians soon adapted the Assyrian syllabary to their own tongue, and Mermas, who reigned with Ispurnis for a time and then succeeded him, placed his records on rocks all over the country, no less than seven long inscriptions of his having been copied by the German expedition.

The capital of the empire at this time was Van, known then as Duspuria (the modern Topsh), but it was also known as Khaldistun, from the national name Khaldini, the Khaldai of Xenophon and Herodotus. The chief royal residence was in the palace temple, the ruins of which are known as Toprak-Khalah. This site was partially explored by Mr. Hormuzd Kassam, and the British Museum possesses some shields of Rusas and Argistes, kings who ruled there about B.C. 700-660. But the German expedition has brought to light many inscriptions and some fine bronze shields and part of an altar, all now in the Museum at Berlin. There was also a fine Hittite inscription, no doubt captured by King Mermas in his wars with that race.

The remains of Armenian art are extremely interesting, as, like the writing, the style has been borrowed from the Assyrian; but the winged bulls, the lions and the curious thrones supported by lines of captives (similar to the throne of Sennacherib in the Lacish sculptures) are all somewhat conventional. It is, moreover, important to note that these conventional forms are reproduced in the Persian sculptures at Persepolis. It is impossible that Persian art could have been borrowed direct from Nineveh, and in Armenian art we have manifestly the connecting link. In the same way it was the Armenians who first taught the Persians to set up rock inscriptions. On the fortress at Van there is a tablet with a trilingual inscription of Xerxes, but it was really cut for Darius, and it was probably during the suppression of the Armenian revolt that the Persian king saw this, and formed the desire to have such an inscription. The Behistun text is certainly later. A fine copy and photographs of this were obtained by Dr. Lehmann.

KING'S COLLEGE, LONDON.

THE following prizes given by the Carpenters' Company have been awarded in the Division of Architecture at the recent examination:—

Architectural History (third year)—Silver medal and prize of 2*l.* in books, Stanley Churchill Ramsey (*Occ.*). Architectural Studio—Silver medal and prize of 2*l.* in books—Stanley Churchill Ramsey (*Occ.*); bronze medal and prize of 1*l.* in books—Gilbert Warren Rogers (*Occ.*); bronze medal and prize of 1*l.* in books, Leslie Kenneth Wright (*Occ.*). Architecture and Building Construction—Silver medal and prize of 2*l.* in books (second year)—Alfred Henry Bristow; bronze medal and prize of 1*l.* in books (second year)—Thomas Harry Vitty; silver medal and prize of 2*l.* in books (first year), Frederick Richard Fairmaner; bronze medal and prize of 1*l.* in books (first year), Stanley Churchill Ramsey (*Occ.*). Architectural History—Professor's prize for best note-books (third year), Gilbert Warren Rogers. Building Construction—Professor's prizes for best note-books (second year), Luis Baldasano-y-Lopez; (first year), José P. Katigbak and Alfredo Rodriguez (*eq.*).

Certificates were granted as follows:—Building Construction (second year)—William John Marlow and Oliver Charles Thompson, certificates of distinction; Arthur Henry Imber and Ernest Arthur Soames (*eq.*), John Gardner and Edouard Karam (*eq.*), Edward Woodward and Robert Melville Smith, George Purdon Geen and Harold Osmond (*eq.*), and Herbert Charles Swayne, certificates of merit; (first year)—Reginald Victor Gregory and Thomas John Rawsom Kiernan, certificates of distinction; James Howard Priestley Bilbrough, George Henry Rutland, George Wright Norton Rose and José P. Katigbak, certificates of merit. Architectural History—Gilbert Warren Rogers, certificate of merit.

TESSERÆ.

Jewish Architecture.

THE Hebrews borrowed from the art of every people with whom they had relations, so that we encounter in the few extant remains of their architecture Egyptian, Assyrian, Phœnician, Greek, Roman and Syrian-Byzantine features, but nothing like an independent national style. Among the most interesting of these remains are tombs of various periods, principally occurring in the valleys near Jerusalem, and erroneously ascribed by popular tradition to the judges, prophets and kings of Israel. Some of them are structural, some cut in the rock; the former (tomb of Absalom, of Zechariah) decorated with Doric and Ionic engaged orders, were once supposed to be primitive types of these orders and of great antiquity. They are now recognised to be debased imitations of late Greek work of the third or second century B.C. They have Egyptian cavetto cornices and pyramidal roofs like many Asiatic tombs. The openings of the rock-cut tomb have frames or pediments carved with rich surface ornament showing a similar mixture of types—Roman triglyphs and garlands, Syrian-Greek acanthus leaves, conventional foliage of Byzantine character, and naturalistic carvings of grapes and local plant life. The carved arches of two of the ancient city gates (one the so-called Golden Gate) in Jerusalem display rich acanthus foliage somewhat like that of the tombs but more vigorous and artistic. If of the time of Herod or even of Constantine, as claimed by some, they would indicate that Greek artists in Syria created the prototypes of Byzantine ornament. They are more probably, however, Byzantine restorations of the sixth century A.D.

Choragic Monument of Lysicrates.

This interesting monument consists of a circular building surrounded by a colonnade of the Corinthian order, resting on a square base, and surmounted by a cupola. On the top of the cupola, which appears to imitate a covering of leaves, is a sort of flower, similar to a Corinthian capital. The ornament on the top, the cavities for the reception only of which are now remaining, appears to have been a tripod. The frieze, by the sculpture on which travellers appear to have been puzzled, is ornamented with a variety of figures; the story they are intended to represent Stuart explains to be Bacchus and the Tyrrhenian pirates, the scene of action being on the seashore. On the architrave is a curious inscription, which has been translated as follows:—"Lysicrates, the son of Lysithides, of Cicynna, exhibited a musical instrument; the boys of the tribe of Achamas gained the victory; Theon was the flute-player; Lysides of Athens composed the play; Euenetus was Archon." From the Fasti Attici we learn that this was in the second year of the 111th Olympiad. From this inscription, compared with another which is recorded in the life of Themistocles by Plutarch, Stuart infers that the game mentioned was not an

athletic combat, but a musical or theatrical entertainment. The prizes obtained were called choragic tripods, since they were bestowed on such choragi as had exhibited the best musical or theatrical entertainments.

The Venetian School.

Chiaroscuro and colouring, being but varied effects of the same medium, assimilate so kindly together, that since the time of their junction at Venice, no school and scarcely any individual artist has existed who has been eminent in one of those branches, without at the same time possessing considerable excellence in the other. By this union, aided by the introduction of oil-painting, which supplies, through the medium of glazing, richer, deeper and more perfect shadows and tones than any other method, the Venetians were enabled to give that clearness, force, relief—in short, that perfect illusion which amounted in their limited conceptions of the subject to a complete representation of nature. Their conceptions were limited because, though "the gorgeous East, with richest hand," showered pearls and gold into the lap of Venice (and painting was, in consequence, liberally and enthusiastically encouraged), she possessed no remains of antique sculpture to elevate the imaginations of her artists, generate ideas of true beauty and lead them to attempt combinations of greater purity and consistency than are to be met with in ordinary life. Acquainted more with Asiatic luxury than with Grecian taste, the painters of Venice sought rather for magnificence than grandeur, are more remarkable for splendour than for elegance, and possess more truth of effect than refinement or character in their works. Correctness of design being in no wise necessary to illusion was, of course, neither attempted nor thought of by them, and painting, under their tuition, instead of speaking an universal language, equally intelligible to all nations and in all ages, only learned to speak with surprising volubility her mother-tongue. It cannot be denied that they painted nature, but it was nature in its everyday dress, disfigured by accident, unchosen, unimproved and "sent to its account with all its imperfections on its head."

Polygnotus the Painter.

The first great name of that epoch of the preparatory period of painting in Greece, when facts appear to overbalance conjecture, is that of Polygnotus of Thasos, who appeared in Athens about 463 B.C., and who painted the Poecile at Athens, and the Lesche, or public hall, at Delphi. Of these works, but chiefly of the two large pictures at Delphi, which represented scenes subsequent to the eversion of Troy, and Ulysses consulting the spirit of Tiresias in Hades, Pausanias gives a minute and circumstantial detail, by which we are led to surmise that what is now called composition was totally wanting in them as a whole, for he begins his description at one end of the picture, and finishes it at the opposite extremity, a senseless method, if we suppose that a central group or a principal figure, to which the rest were in a certain degree subordinate, attracted the eye. It appears as plain that they had no perspective, the series of figures on the second or middle ground being described as placed above those on the foreground, and the figures in the distance above the whole. The honest method, too, which the painter chose of annexing to many of his figures their names in writing, savours much of the infancy of painting. We should, however, be cautious to impute solely to ignorance or imbecility what might rest on the firm base of permanent principle. The genius of Polygnotus was, more than that of any other artist before or after—Phidias, perhaps, alone excepted—a public genius, his works monumental works, and these very pictures the votive offerings of the Gnidiens. The art at that summit, when exerting its powers to record the feats, consecrate the acts, perpetuate the rites, propagate the religion or to disseminate the peculiar doctrines of a nation, heedless of the rules prescribed to inferior excellence and humbler pursuits, returns to its elements, leaps strict possibility, combines remote causes with present effects, connects local distance and unites separate moments. Simplicity, parallelism, apposition, take place of variety, contrast and composition. Such was the Lesche painted by Polygnotus, and if we consider the variety of powers that distinguished many of the parts, we must incline to ascribe the primitive arrangement of the whole rather to the artist's choice and lofty simplicity than want of comprehension. Nature had endowed him with that rectitude of taste which in the individuum discovers the stamen of the genus; hence his style of design was essential with glimpses of grandeur and ideal beauty. Polygnotus, says Aristotle, improves the model. His invention reached the conception of undescribed being in the dæmon Eurynomus; filled the chasm of description in Theseus and Pirithous, in Ariadne and Phædra, and improved its terrors in the spectre of Tityus, whilst colour, to assist it, became in his hand an organ of expression. Such was the prophetic glow which still crimsoned the cheeks of his Cassandra in the time of Lucian.

NOTES AND COMMENTS.

THE outcry about the condition of St. Paul's has had one important effect. Public opinion exercises an influence on Parliament, and any shrewd solicitor or agent with experience in the conduct of private Bills must know that no line of railway would be allowed to succeed in a committee-room of the Lords or Commons which proposed to run through the strata on which the cathedral is built. One scheme of the kind has been abandoned, and it is proposed to modify the plan of another in such a way as to remove any likelihood of danger. The determination to keep St. Paul's safe which has been already so efficacious must surely convince the Dean and Chapter of the wisdom of their policy in playing with decoration while dangerous forces were undermining the structure. It is possible, moreover, that the danger was not entirely caused by underground railways. Sir BENJAMIN BAKER, in a recent letter, says:—"It may be well for me to state on the basis of the experience gained in driving more than 20 miles of 'tubes' that no such settlement ever has occurred or ever can occur with the cast-iron tube and shield construction carried out with the usual precautions. Bow Church steeple is 1 foot 9 inches out of the perpendicular, not on account of the Central London Railway, but because WREN ventured to build a tower over 200 feet high on no better foundation than an old Roman paved road, the stones of which, judging from a similar road which I came across in constructing the Metropolitan Railway, in all probability rested on consolidated mud with occasional layers of brushwood." The appearance of defects in the walls of St. Paul's, it is true, was manifested after the District Railway had been for some years in operation. But engineering authorities do not agree that the excavation of the latter was the cause of the evil. WREN, it should be recollected, was no more than an able amateur, and there is no evidence to show that he made a special study of foundations, or instituted experiments like those which would be carried out if a similar building were now to be erected.

THE late GUSTAVE MOREAU was a painter who never was appreciated by his countrymen as he merited. He seemed to have taken a lesson from the system of the English pre-Raphaelites. Instead of laying on his colours boldly and with broad strokes, he preferred to work up a picture by a series of most delicate touches. His pictures were very brilliant, but it was thought there was too much labour in them, and that he had not learned the art of concealing his art. Modern life had also little charm with him, for he preferred to draw inspiration from old legends, poems and chronicles. If his works were better known in this country they could hardly fail to be favourites. MOREAU possessed one friend, or rather worshipper—a writer, M. RUPP—who was grieved by the general lack of admiration of the painter's works. He resolved that posterity at least should be able to judge of the greatness of a genius who, although he was a member of the Institut, never succeeded in obtaining from his brother artists a higher reward than a second-class medal. M. MOREAU was not only laborious in painting, but he devoted a long period to making preparations for every picture he produced. In the course of fifty years some thousands of these designs, studies and other drawings were accumulated, and they were left, with the house where the painter lived in the Rue de la Rochefoucauld, to M. RUPP. He resolved to constitute the property as a GUSTAVE MOREAU museum or gallery. But the State and the municipality already possess so many institutions of the kind in Paris, there was no desire to accept the gift. M. RUPP resolved, therefore, to bestow a sufficient sum to enable the authorities to undertake the charge; this will amount to nearly 15,000*l.* Paris will consequently be enriched by a collection which must always have a special interest for artists. M. RUPP's generosity is enough to refute the cynical theories about the non-existence of friendship that imposes self-sacrifice.

THE history of Carthage was better known than its position. Ruins were found on the coast which indicated Roman Carthage, which was the first city of Roman

Africa, but it was, and to some extent still remains, doubtful whereabouts the great commonwealth which so long defied Rome was to be found. From the explorations which are in progress by the French Government, under the direction of M. GAUCKLER, we may expect that many of the uncertainties will be removed. The ancient cemetery of Desmesch has for some time been the scene of excavations. All that were discovered, however, were several Punic and Roman graves. Recently a more important find has been made. The ruins of a great building of the late Roman period have been disclosed. It is now evident it was surrounded by a wall of great thickness. The water supply was a serious consideration, both with Carthaginians and Romans, and for a long time the only memorials of the renowned state were the remains of its cisterns. An immense cistern has been found which formed part of the theatre, and probably was occasionally used as a property-room. There is much confusion in the intermingling of the remains, but enough has been brought to light to show the grandeur of the theatre. The building was evidently adorned with columns of vert-antique and other costly marbles. The name of the building appeared on the front in bronze letters, which were gilded, and the builders were apparently called VIGELLIUS SATURNINUS. M. GAUCKLER has been also fortunate in revealing, besides numerous fragments of inscriptions, no less than seventeen marble statues of deities and emperors, which have, however, suffered from the action of time and vandals.

ILLUSTRATIONS.

THE NEW CATHEDRAL, WESTMINSTER.

THE progress of the work at the new Cathedral can be judged from the view given this week. Owing to the position of the site, which is behind the lofty houses in Victoria Street, residents in London are not acquainted with the character of the building unless from occasional paragraphs in the newspapers; while to country visitors that part of London is an unknown region. It will be seen from the amount of work executed there is a possibility of having the Cathedral sufficiently advanced to allow of its opening in next July. But the decoration, which is so essential a part of every building in the style adopted, will require many years to accomplish. The erection of a structure 360 feet in length, and in a style that was novel to builders, was an ambitious undertaking, especially when it is remembered how poor are the majority of the people belonging to the Roman Catholic Church. The numerous and large subscriptions which have been received have justified the courage of Cardinal VAUGHAN and those who shared the responsibilities which so vast a building imposed. That Mr. J. F. BENTLEY was capable of successfully designing a remarkable structure would not be doubted by any architect who had seen his churches, colleges and schools in the Mediæval style. Moreover, he has shown himself to be a master of detail, and skill of the kind is indispensable in such a building as the Westminster Cathedral, which will contain so little that can be considered as familiar to architectural sculptors or other ornamentists.

NEW ACADEMY, LINLITHGOW.

THE foundation-stone of the new Academy for Linlithgow was laid by the Earl of HOPETOUN. The style adopted is the Scottish Baronial, simply treated. The outstanding features are two circular towers at the principal entrances, after the style of the round towers of Holyrood and Falkland Palaces. There is a large main hall for examination purposes, and in two of the classrooms provision for the teaching of science and cookery. The front elevation faces to the south, with a slight angle to the west. The building, including the laying-out of playground and the erection of a wall round it, cost about 7,000*l.* The architect is Mr. J. GRAHAM FAIRLEY, F.R.I.B.A., of Edinburgh.

CATHEDRAL SERIES.—CHICHESTER. CAPITALS, SOUTH CHOIR AISLE.

SKETCHES AROUND WARWICKSHIRE.

INGATESTONE.*

IN Ingatestone we have a very good centre; within a radius of four or five miles we have Mountnessing, Stock, Margaretting, Blackmore, Chipping Ongar and Chelmsford. A stroll through the town cannot fail to give points to all of us. The varied styles of building, and often old-fashioned customs we find in its houses, the undulations of its roads, the little jutting-out steps which are possibly intended to hinder the hurrying man, the curious mixture of the trades carried on in the same shop, the charm of foliage interspersed, and above all the splendid brick tower of the church with its own glorified colour in the western sunlight, appeals to all alike, only in such different wise that nature alone can appeal in to every human being, to each individual mind.

From the town to the Hall is but a short walk through



INGATESTONE HALL.

characteristic Essex roads, which are not flat in accordance with the popular idea of them. Under shady trees, through the avenue to the Clock gateway, with its motto, "Sans Dieu rien"—without God nothing—above us, and we reach the ancient Hall of the Petres.

There is little fear that we shall meet Lady Audley or the ghost of her husband as we approach the lime-tree walk to the south; but should we do so we pass her ladyship with whatever feelings and views of her conduct we choose, and we arrive in front of the house. We look around and can see for ourselves that we are in a large square or quadrangle, three sides of which only remain. Morant says that the scarcity of building materials in Essex is believed to have been the cause of the destruction of many of its architectural antiquities; this probably was one of the causes, but there has been a lack of reverence for old work in every period of building—the old has had to make way for the new, from the Roman to the Norman, from the Norman to the Early English and so on to the degraded taste in such matters of the Georges. There is now a strong feeling and desire to look upon a building as it stood in its newness 500 or even 800 years ago, as witness Hever Castle.

Ingatestone Hall was in the fifteenth century a grange belonging to the Abbey of Barking; it became part of the estate of William Petre, LL.D., in December 1539, granted to him by Henry VIII. in consideration of the sum of 849*l.* 12*s.* 6*d.*, and Sir William then made Ingatestone Hall his residence. It had been of course monastic property, and little is known of its early history, but it has fared better than many others, which were allowed to fall into ruin altogether and simply become a source of income to their owners as old building materials. The hall was originally built in the form of a double square, but is now greatly reduced in size. The family and servants occupied the south wing, the prominent feature of which is the octagon turret containing an oak staircase. The centre is now the chapel and the north wing is assigned to visitors. Modern considerations and the removal of the family caused a subdivision of the building into several much smaller but still roomy residences.

But the general outlines, the picturesque gables and octagon-shaped chimney-stacks, well-broken wall surfaces, which give so much light and shade, the mullioned and latticed windows, all tend to increase one's interest in the old pile, which somewhat reminds one of the older parts of Hampton Court.

I have already mentioned the turret staircase. Little change has been made here except that a roof of conical shape has taken the place of a flat one, with the embattled parapet.

* A paper read at Brentwood before the members of the Upper Brentwood Athenaeum by Mr. H. G. Quartermain on July 27.

The oaken steps and newel are as good as ever, and up this staircase we go, our guide proceeding to take us along a corridor, through a bedroom to a trap-door in a corner, which gives access by way of a step ladder to the priest's hiding hole. It must have been a dreary place to have remained in even for only a few hours—a narrow space of about 2 feet wide, but rather long (14 feet and 10 feet high), with no light and with little air, and only a sanded floor. For a seat there was a long trunk or chest used at that time for secreting vestments, altar furniture, books and perhaps the sacred vessels. Discovery meant certain punishment, and perhaps death.

Such, however, was the place, when in 1855 it was reopened, and there was found a chest with a rounded top used for the above purpose; beside a packing case directed "For the Right Honourable the Lady Petre at Ingestall Hall, in Essex." The Petre family left the Hall between 1770 and 1780.

Newcourt says:—"William Petre, LL.D., ancestor of the noble family of Petre, having grown so eminent in his profession in the time of Henry VIII., he was employed in divers important affairs, especially in what conduced to the dissolution of religious houses, and as a reward for his services obtained grants of their possessions, of which this manor and advowson of Ingatestone were a part."

But in Queen Mary's time, with whom he was in no less esteem, discerning that the restoration of the Romish religion might endanger his enjoyment of those abbey lands, he got a special dispensation from Pope Paul IV. for retaining them on promising to employ them for spiritual uses; one promise to Ingatestone was to build an almshouse for twenty poor people, with allowances of 2*d.* a day, to each a winter gown and two loads of wood, and amongst them all feeding for six kine winter and summer, also a chaplain to read service daily.

Sir William had been Secretary to the Privy Council to four kings and queens (Henry VIII., Edward VI., Mary and Elizabeth) and seven times an ambassador in foreign parts. He died January 13, 1572, and lies buried in the parish church.

The almshouses, founded in 1577, were removed by the railway company, and others erected on a new site.

In 1565 Sir W. Petre added eight fellowships to Exeter College, Oxford, for the counties of Devon, Somerset, Dorset, Oxford, Essex, and any others in England in which he or his heirs might have lands or possessions. These are called Petrean. His second daughter became the wife of Nicholas Wadham, of Merryfield, Somersetshire, the founder of Wadham College, Oxford, and at his death she gave the manor of Fryening and the advowson of the church to that college. An enumeration of his lands and possessions as confirmed to him by a bull of Pope Paul, and as given by Morant, is too long to read now, but he had manors formerly belonging to Barking, London, Waltham, Colchester, Westminster and many other abbeys.



CHURCH PORCH, MARGARETTIN

To see his monument and those of his immediate descendants we must go into the church, of which I now proceed to give some poor description. In the north and south chapels of the church for more than two centuries members of the family of Petre have been buried, and in them are contained some very handsome monuments to their memories.

The church is, as a writer remarks who has greatly assisted me by his careful work on some Essex churches, "worthy of attention, if only for the magnificent brick tower and stately monuments within its walls." It is dedicated to the Virgin Mary, and consists of west tower, nave, south aisle, chancel, with north and south chapels.

We have seen the red brick tower of Rochford Church, and some of us have seen that of Fryening close by, but the chief of them is Ingatestone. It is remarkable for its beautiful proportions and detail.

As it rises upward the builder-artist has diminished its outside size in all its storeys, the buttresses also following the same lines. Yet they are so arranged that perfect quoins or angles rise nearly to the full height. Its form by these methods is made most pleasing. Many towers appear to be top-heavy

ness, Avarice, Sloth, Lust and Anger, but for some reason the walls were fresh plastered; this work is lost to us.

There is a quaint Puritan hour-glass fixed where the pulpit used to stand. The bells are not so old as many we meet with, the earliest being dated 1610; they have quite recently been rehung. The roofs of the nave and south aisle are very good, and are now clear of the lath-and-plasterwork once covering them. The font is not remarkable. There are indications of the stairs to a rood-loft, and the arcading between the chancel and south chapel belonging to the Petre family is built of brick, although now hidden with plaster.

Now we come to the very handsome monuments already mentioned. The first on the south side under an arch is to the memory of William, Lord Petre, and Ann, his second wife, daughter of William Browne, a Lord Mayor of London. It is an altar-tomb of alabaster and choice marbles, beautifully carved with panels and columns and armorial bearings, on the top being recumbent figures of Lord Petre and his lady in the costume of the period. A charming bit of wrought ironwork, holding a marble escutcheon, fills up the arch over the tomb.

The walls of this chapel were either rebuilt or cased with



INGATESTONE CHURCH.

because they are built almost the same size at the top as at the bottom; but with this method the result is very satisfactory.

In building this tower you will observe that no other materials except bricks were used. They are the thin bricks generally met with, and five of them make but 12 inches in height, including the thick mortar joints. Our modern brickwork runs four courses to the foot. One of the charms of the work in this tower lies in the fact that no stonework was used for weathering the buttresses, as at Rochford, the effect of which is to make the building look "spotty." This brickwork has all toned down to the rich colour we see. Together with Rochford and Fryening, Ingatestone was being built about the same time in the fifteenth century. Brick was used for the arches and division mullions of the windows, with darker vitrified bricks for diaperwork decoration.

The belfry staircase is interesting in its construction. The interior of the church has undergone many alterations, and several objects of great interest have been destroyed. For instance, there was discovered some years back a painting generally known as a "Doom"; it was of circular form, over 7 feet in diameter, containing seven compartments, each with a figure-subject of a deadly sin, such as Pride, Perjury, Drunken-

ness, Avarice, Sloth, Lust and Anger, but for some reason the walls were fresh plastered; this work is lost to us. Another monument of costly marble to the memory of Robert Petre, youngest brother to Sir William (he died in 1593), is against the east wall—to the left of the chapel.

The north chapel, also called the Petre Chapel, was formerly used by them for burial; but, divided from the chancel by iron railings, is now used as a vestry. Against the west wall is another stately monument of the Elizabethan period, built of coloured marbles (said to be British), commemorating two generations of this family. John, Lord Petre, and his wife Mary, daughter of Sir Edward Waldgrave, and their son William, Lord Petre, and his wife Catherine, daughter of Lord Edward Somerset, Earl of Worcester, are recalled in side compartments.

Near by there is an altar-tomb to the memory of Mary, widow of Lord Robert Petre; she was the mother of three barons, William, John and Thomas, and died 1684-85, aged eighty-two.

Margaretting.

I must now attempt a brief description of the church of Margaretting. This to my mind is of surpassing interest, and I was tempted to bring you here to view an object which I

considered would form a great contrast to the ordinary stone or brick structure most churches consist of.

Morant says it is called Yng Margaret and Yng Magna. The name is derived from that of the saint to whom the church is dedicated, with the addition of the Saxon particle *ing*, referring to its rich meadow lands. The manor belongs to the Petre family, having been held by them since 1572. The church of Margaretting, formerly Yng St. Margaret, is an example of the early Perpendicular style—temp. Henry VI.—and is fairly complete. Its chief feature is in its spacious west tower, which unlike the majority of those we have the good fortune to visit in these rambles, is entirely built of oak timbers of very large dimensions, firmly framed and braced together, and presenting to the unaccustomed eye a most interesting and picturesque contrast to the ordinary four stone walls usually met with.

This tower gives support to a ringing chamber, a bell chamber and to a graceful spire, all of which are constructed in a most workmanlike manner, and possess an interest it is difficult to express in words, alike to the student and the archæo-

nave has been (probably when built) painted in square panels, like the eastern bay over the rood-loft, to represent clouds. The principals forming bold arches, with hammer-beams, collar and braces, were also painted, together with stone corbels, four of which represent St. Luke (an ox), St. John (an eagle), St. Matthew (an angel) and St. Mark (a lion), make up a very pleasing feature. The screen has been cut down and removed, but there remains enough for us to judge of the loss such a fine bit of work must be to the church. There is not much old glass; a few fragments remain in the north windows of the chancel, also in the east window and in the north window of nave, the colours of which are very fine. Some of the remains have been altered and made up of other fragments. The designs are in circles, each containing two robed figures of the patriarchs and prophets with their names inscribed on scrolls, among them being Asa, David, Ozee, Jonas, Roboam, Elind Obeht, Achim, Sadock, Salateil, Yyacc; amongst other fragments is the rose *en soleil*, the badge of Edward IV., and several quarries of the "herb-Margaret." All round this church you will find other points of interest, which time will not allow me to more than



MARGARETTING CHURCH.

logist. The body of the church is made up of the usual chancel, nave and south aisles and south-east chapel. But when we come to examine the south porch, which, like the tower, is also of oak timbers, we view one of those masterly specimens of carved decorative work which absorbs for the time our whole admiration. It is one of several examples remaining to us in the neglected county of Essex. Essex is particularly rich in such ornamental adjuncts, and although these may not be of equal importance to those in adjoining counties, they possess great interest to us. There is that beautiful one at Benfleet, Bloomfield and others; there are the seven round towers; again there are the timber towers of Stock, Blackmore, Mountnessing and Wix, all of which add in their own degree to the abundant architectural variety and wealth of this almost forgotten part of our country. There was, as an able writer described, a magnificent south porch, but the neglect of ages worked the ruin of this part of the building, and no doubt other portions would have gone too had not the ivy's picturesque but destructive growth been terminated. The roofs of both chancel and nave are very good, and similar to many other Essex roofs we have seen. That of the

note. The Perpendicular font is unusually high, 3 feet 11 inches, but its state is perfect. Several old open seats remain, likewise a square piscina, and the brick arch which opens between the nave and tower, to which I feel I must again refer. You will notice it is built in three divisions, as it were, a nave and side aisles; the clear space is 11 feet wide, and some of the timbers are 18 inches by 22 inches square; these are supported by arched pieces in the side spaces or aisles, acting as buttresses which support the spire.

You will notice the wooden west window and door, also the quaint memorial inscriptions in the floor.

Climbing up into the bell-loft you will find the four old bells in their original frames put together with oak pegs. Each bell has its dedication, some of the letters of which are crowned, such as the M in Margaret, whilst others show signs of an attempt to destroy the words which follow the name of each, e.g. that to St. John—Sancte Johannes, *ora pro nobis*—which is the smallest bell, and it is said to be the oldest bell in the country.

The access to the bell-loft is so easy and the light so good that all may see it and judge of the bells for themselves.

With these scanty remarks upon three very interesting places I must hasten to a conclusion, having a wholesome dread of what may fall from the lips of our editors, whose friendship may it ever be preserved to me.

The illustrations are from photographs by Mr. H. G. Quartermain, M.S.A., and Mr. Arthur J. Quartermain.

ROYAL ARCHÆOLOGICAL INSTITUTE.

(Concluded from last week.)

THE annual meeting of this Institute was concluded on Saturday and Monday, July 27 and 29, by the following visits:—

Newark Castle.

The members spent Saturday in Newark and the neighbourhood. Within the Norman gateway of the castle Mr. John Bilson, F.S.A., delivered an address on the history and architecture of the building. He said that the earliest mention of Newark was in a charter, marked, however, as doubtful, of the reign of Edward the Confessor, in which Newark was given to the church of Stowe, then a newly constituted church of secular canons, by Leofric, Earl of Mercia, and his wife Godiva. Remigius, the first Norman bishop of Lincoln, held the manor of Newark at the time of Domesday Survey. Robert Bloet, successor of Remigius, redeemed the lands, which had been given to Stowe, and Bishop Alexander (1123-47), nephew of Roger, bishop of Salisbury, erected the castles at Newark and Sleaford. Mr. Bilson referred to the surrender of the castle to Stephen by Alexander in 1139, to the siege by the barons under Gilbert de Gaunt, Earl of Lincoln, and to the death of King John in 1216. Tradition said that the monarch died in a room in the western tower, but there was nothing to verify this surmise. The fortress was visited by Henry VII. on his way to the battlefield of Stoke in 1487, and by Cardinal Wolsey in 1530 on his way to Southwell. The castle was then in the hands of the Bishops of Lincoln, but seventeen years later it alienated to the Crown, with whom it remained until a short time ago, when a lease of it was taken by the Corporation from the Commissioners of Woods and Forests. Newark took an active part in the Civil Wars, and in 1646 the earthworks were destroyed and the castle dismantled. The site of the castle was between the river and the Fosse way, and Bishop Alexander obtained a license to divert the road in order to obtain more space for his castle. A second license was obtained for the same purpose, and a third to build a bridge over the Trent. The castle area measured 294 feet along its western side, but the extent of it in other directions was doubtful. It was 84 feet from the north-west angle to the centre of the gatehouse, and the gatehouse might have been in something like the centre of the northern side, but there was no information as to the eastern boundary of the enclosure. It was protected by the Devon on the west, and no doubt by a moat on the other sides, with a barbican over the moat in front of the principal gatehouse, which was the finest part of Alexander's work remaining, and one of the finest castle gateways we had left. There were very few of these twelfth-century gateways remaining, and this at Newark was of unusual size. Mr. Bilson then proceeded to point out the chief architectural features of the gateway, remarking that there was some Decorated work in the upper storeys, which was exceedingly nice, like the work of Alexander's time, of which they saw a good deal in the western part of Lincoln Minster. In a little room off the terrace they would see a fragment that had lately been uncovered of zigzag moulding with a sort of ball between which was reused work of Alexander's time. There were traces of considerable rebuilding during the thirteenth century, to which period probably the hexagonal turrets might be referred.

Mr. Bilson then gave a description of the crypt, and pointed out other features of interest in the building. In answer to Mr. St. John Hope he said nothing was known of the keep. He did not think anybody had any definite information about any of the building except what they saw above ground.

Sir Henry Howorth expressed the thanks of the members to Mr. Bilson, and said they were indebted to him for having given them direct information without rhetorical phrases. With regard to the early charters in which Newark was mentioned, the fact of their being marked with an asterisk did not imply altogether that they were spurious, but that they were replacements of charters destroyed by fire and other means. He noticed that when they came to these castles they had elaborate descriptions of the stonework as it remained, and as they supposed it to be original, but he often wished attempts were also made to depict the wooden parts as they saw them preserved on the Moselle and in some parts of southern Germany.

Mr. Bilson acknowledged the compliment, and alluding to the beautiful oriel window said it was of the fifteenth century and had a coat of arms of three stags over it, but he did not know whose it was.

Hawton Church.

The party proceeded to Hawton Church, which was described by Mr. St. John Hope, particular attention being paid to the Easter sepulchre, one of the finest of its kind to be found anywhere, and to the richly decorated sedilia and other features of architectural interest, including the founder's tomb. At the Town Hall the church and corporation plate, together with the original grants of arms, were laid out for inspection and greatly admired.

Newark Church.

At the parish church an address was delivered by Mr. John Bilson. He said the church had been described in two papers read in 1856, one by Mr. Dimock on the documentary history, and the other on its architecture by Sir Gilbert Scott, both of whom had, in their opinions, been more or less followed by subsequent writers. In the main, he must follow their description, but there were certain points in regard to which it might not be too rash to differ from the conclusions then arrived at. He referred to the early history of the town in his paper on the castle. With regard to the church, Robert de Chesney, bishop of Lincoln (1147-67) founded the Gilbertian priory of St. Catherine, near Lincoln, and Newark was one of the churches which the bishop bestowed on his new foundation. Important works were undertaken. Fragments remained which might possibly represent the complete rebuilding of the earlier church. Alexander had built the castle, and they had seen the importance of its connection with Lincoln, and the priory might have had to do with the rebuilding of the church on a larger scale. The early fragments included the crypt, which consisted of two bays, and which presented in its features an interesting study of mid-twelfth century vaulting. Another fragment of the same date was the four pillars only complete on the south side next the nave, where they consisted of three shafts, the centre of which was larger than the two flanking ones. The capitals were characteristic specimens of the third quarter of the twelfth century. The four piers indicated a cruciform church, and Sir Gilbert Scott thought that their small size showed that a central tower was not contemplated or erected. He found it difficult to accept that view. The complete pier which existed meant an arch of 3 feet 8 inches in thickness, sufficient to carry a low lantern tower, while the walls of chancel, transept and nave would be a sufficient abutment to these crossing arches. The work of the western tower dated from 1230, and was designed on a grand scale. During the progress of the work the design was altered, and the tower, which was originally intended to stand clear, had aisles carried up to the western face. Of aisles thus carried up to the western face of a tower, the earliest example was at Conisborough, but the northern and eastern arches of the church of Tick Hill were more in line with Newark. Mr. Bilson went on to point out the gradual growth of the church, coming to the early part of the fourteenth century when the south aisle was erected, likewise the upper stages of the tower and spire. There was documentary evidence with regard to the south aisle, for in 1312 Archbishop Greenfield granted a license to Henry of Newark to remove a chantry chapel in the churchyard, and to convert the materials to the use of the church, and "the fabric of a certain aisle which it was proposed to construct anew." This proved the intention in 1312 to build a new aisle, but he thought the work was of a somewhat later character, though it was exactly in line with the extremely fine fourteenth-century work found in South Lincolnshire, and especially in the neighbourhood of Boston and Sleaford. The aisle was set out the same width as the nave, designed for a pitched roof, and was probably only just completed before the Black Death of 1349. The effect of the Black Death in Newark might be seen by a license to enclose a new churchyard. Of the later rebuilding after the Plague they had the nave, the north aisle and transept, and a chancel. There was little difference in detail in the work here; in fact, no difference in the north side until they came to the extreme east end, where there was a slight difference in moulding which might indicate a little later date. Documents showed that in 1460 payments were made for church work, and in 1483 Nicholas Cayser bequeathed money to the new building of the chancel "in case it should be built anew." The fourteenth and fifteenth-century builders modelled the church into a harmonious whole, working round the parts of an earlier date. The preservation of the early pillars was probably due to the fact that the work was undertaken in sections, and the pillars afforded a convenient point around which it could be carried out. Mr. Bilson went on to speak of the large number of chantries which existed and of the adornments of the church, noticing the reredos, the chantry chapels, the screen, and other features of interest.

Holme.

Mr. Bex spoke of the brasses, notably the Fleming brass, and thanks having been given to Mr. Bilson for his admirable paper the party left Newark for Holme, where an account of

the church was given by the Rev. A. F. Sutton. He said the estate was at one time in the possession of the Bartons, who had considerable property in Lancashire, and one of whom, according to Thoroton, built a fair stone house, and being a merchant of the staple, placed in the windows of it this poetry:—

I thank God, and ever shall,
It is the sheep that paid for all.

From the Bartons the estate passed to the noble family of Bellasis, the gallant defender of Newark, who died in 1689 and was buried at St. Giles-in-the-Fields, London. The church, some parts of which were of great antiquity, owed much to the Barton family, in whose chantry chapel was a raised tomb with effigies. The lower part of the tomb did not seem to belong to the rest, and the whole had the appearance of having been reconstructed. Under the arch was the figure of a skeleton with a winding sheet, of which there was a similar example in Lincoln Minster. There was an old altar slab with five crosses, and other interesting remains. Mr. Sutton described the porch, adorned with seven shields of arms, particulars of which were given by Bishop Trollope in 1871.

After a few remarks from Mr. Mickelthwaite and the vicar (the Rev. J. Barry), Mr. Sutton was cordially thanked for his excellent paper.

Worksop Priory Church.

On Monday the Priory Church, Worksop, was first examined. The Rev. H. T. Slodden, vicar of Worksop, said it afforded him much pleasure to welcome the members, and to show them the only relics of Mediæval times which remained in a town which was sadly becoming modernised in every sense. Parenthetically, he might mention that up to a year or two ago there existed, about a quarter of a mile from that church an old house, called Jesus House, which was supposed to have been connected with the priory as a sanatorium, but the building had given way to a modern cottage erection.

Before describing the architectural history of the church, Mr. Slodden gave a brief account of the ancient lords of the soil, with whose history the foundation and subsequent elaboration of the church was closely interwoven. For this purpose he quoted from a book by Richard Nicholson, the architect, who restored the church in 1850. The Manor of Worksop, which had formerly been held by Elia, a Saxon, was given by William the Conqueror to a certain Roger de Busli, a man of great possessions, whose principal residence was at Tickhill, a few miles away. From him it passed to Sir William de Lovetot, who founded the monastery in 1103. The lordship continued in this family for three generations, when Matilda de Lovetot was married to a noble young Norman, Gerard de Furnival, who thus became lord of Worksop in the right of his wife. This Gerard de Furnival was a Crusader, and served under Richard I. The manor remained in this family till the time of Edward III., a certain Thomas Lord Furnival being present at the battle of Crecy. Thence, the male line being extinct, it passed to Sir Thos Merle, by his marriage to an heiress of the Furnivals. This lady left an only daughter, who was married to the renowned John Talbot, Earl of Shrewsbury (vide Shakespeare's Henry VI.), and from this family the manor passed, in 1617, to the Howards, the family of the Duke of Norfolk, with whom it remained until 1837, when it was purchased by the Duke of Newcastle. The present Duke of Newcastle sold the manor estate a few years ago, but still retained the manorial rights. In passing, it might be mentioned that at the coronation of the Sovereign, the Lord of the Manor of Worksop was to find the king a right-hand glove, and to support the Sovereign's right hand so long as he held the sceptre, and this service was performed at the coronation of the late Queen Victoria by the Earl of Surrey, acting as proxy for his father, the Duke of Norfolk.

In describing the building Mr. Slodden said that the nave of the church was dedicated to St. Mary and St. Cuthbert, and was originally cruciform, the eastern end or choir, together with the transepts, being used by the monks for their monastic services, whilst the nave was devoted to parochial purposes. The nave was 135 feet long, and the columns were alternately cylindrical and octagonal. The pillars were ten in number, and he believed that the two on either side of the extreme east end of the present building were pure Norman work. The rest of the church westward appeared to be of later date, probably about 1117, and it was possible that the choir was built first, the remainder of the original design being abandoned for a less massive style, and were, to his mind, less stately. Mr. Slodden also directed attention to the porch, and particularly to the beautiful ironwork on the lower part of the door. He went on to relate that when the monastery of Worksop was dissolved in 1537, the arches which terminated the nave and aisles were walled up and the windows at the east end added somewhere about 1560. The cloisters were on the north side, as was, he believed, the case only in Augustinian monasteries. A small piece of the cloisters remained, however, and this was now used as a vestry. The beautifully orna-

mented door on the western side was that through which the prior passed when entering the monastic part of the building near the north transept. The triforium was particularly beautiful, and seemed to have escaped the too complete renovation which was so conspicuous in the lower part of the church, restored about fifty years ago, before architects came to understand the proper canons of church restoration. The arrangement of the round-headed clerestory windows, he was told, was irregular, they being placed on the columns instead of over the arches of the nave. The roof of the church was formerly of oak and nearly flat, the present roof dating from the time of the restoration, whilst the font also was modern. As regarded monumental memorials, the church formerly was full of interest, having been the principal burying-place of the Lovetots and Furnivals. They had it on good authority that Thos. de Furnival, the heir of the family, who was slain in Palestine in 1237, was buried in that church, having been, according to an ancient writing, brought home and "tumulat" at Worksoppe, on the north side of the Minster. He was told that the architecture of the arch coincided with the date of Thos. de Furnival's death, but he thought it quite likely that it was the resting-place of one of the priors, as he noted the cross of St. Cuthbert on the slab. They had three figures in alabaster. A female figure which he had had placed at the western end of the church was supposed to represent Joan, wife of Sir Thomas Nevil, and heiress of the house of Furnival, who died in 1466; and one of the last of the Furnivals, possibly the Thomas, Lord Furnival, who was at the battle of Crecy.

After a close inspection of the interior of the church had been made, Mr. Slodden conducted the archaeologists to the interesting remains of the former monastic buildings on the north side of the church, observing that a string-course on the top of a piece of the old wall seemed to indicate that there had once been a building above it—possibly the dormitory. He said that the gem of the monastic remains was the chapel, commonly known as St. Mary's Chapel, at the eastern end of the south transept. When he first came to Worksop this building was in a dilapidated condition, and he called in an architect, who advised that a piece of rough masonry should be built up to keep the western arch from falling. The walls were, however, only pointed, and the building made secure. He had waited twenty years since then in the hope that some person of means might restore the building for use in the daily offices of the Church, but no one had yet come forward. The date of the chapel was about 1250, and might possibly have been built by Maud de Lovetot, who, by her marriage with Gerard de Furnival, carried the Worksop estate to that family. The chapel appeared to have been the burying-place of the Duke of Norfolk's retainers, which possibly accounted for the fact that it, alone of the monastic remains, had had more care bestowed upon it. Before leaving the ruins Mr. Slodden said there was a local tradition that much of the beautiful carved stone of the ancient monastery had been used for repairing the roads, and richly ornamented fragments had been found in all sorts of unfrequented places whither they had been carried by sacrilegious hands. In a brief account of the gateway, Mr. Slodden pointed out that the structure presented a gable to each point of the compass. On the south side was the porch which formed the entrance to the staircase leading to the large room above. In the richly canopied niche within the porch was a shrine with a figure—probably that of the Blessed Virgin. The porch was later than the rest of the building. The whole of the south front was full of detail, and was worthy of careful inspection. The interior of the niches on either side of the window contained the figures of the Virgin Mary and of St. Augustine, whilst in the gable was a figure of the Holy Trinity. But if the interior of the building had been beautifully embellished, the exterior was also possessed of the greatest charm until its ornamentation was ruthlessly destroyed. Even now they could just trace on the east side a sculpture of the Angel of the Salutation, and on the south side a representation of the Adoration of the Magi.

Blyth Church.

The party afterwards went to Blyth, where the church was inspected under the guidance of Mr. W. H. St. John Hope.

The priory church of Blyth, explained Mr. Hope, like the fragment of early architecture at Thurgarton and the magnificent nave at Worksop, owed its preservation to the fact that it was the parish church of Blyth as well as part of the old monastic establishment. A monastery of the Benedictine order was founded at Blyth in 1588. This monastery was an alien one, being dedicated to St. Catherine of Rouen. Nothing was now left of the monastic part of the church, and there was no material to guide in speculation as to what its original plan had been. From an examination of the existing building it seemed as if the church had been built straight away from end to end. On the north wall of the nave there were indications that the setting out was different from what they now saw, and instead of the compartments of the aisles being oblongs they should

have been squares. It was the earliest Norman work seen by the members of the Institute during the week. The elevation showed a storey of arches with the triforium and clerestory above, but, owing to the lowering of the roof, the triforium had been raised and turned into a clerestory. On the south side the groining was work of a much later date. The large south aisle was said to have been erected in accordance with the deed of endowment of the vicarage of Blyth in 1287, but there was no mention of the matter in the deed, and the probability was that the increase in the population of the place, and the fact that a large part of the church was required for monastic use necessitated an enlargement of the structure for parochial purposes. In the fourteenth century the parishioners seemed to come to the conclusion that instead of sharing a bell tower with the monastery they would have one of their own, and so they built one, a curious point in its construction being that instead of adding it to the existing structure, the builder encroached upon two bays of the nave, a parallel instance of which was to be found in Furness Abbey. There seemed to have been no reason why they should have followed such a plan unless there had previously been a fall of part of the building, or there had been no room in the churchyard for a further extension of the fabric westward. The tower was of graceful form and of good proportion, crowned with a very effective though roughly worked parapet of pinnacles and open work. As to the fittings of the church, the blank wall at the east end of the north aisle had been built up into the archway which gave entrance to the Mediæval monastic choir, destroyed with the other parts of the monastery at the time of the Dissolution. The screen placed under the extreme archway of this aisle was in all probability a good deal further east than it had been originally. The screen in the south aisle was formerly, as now, the rood-screen of the parish church. Among the monuments in the church were the interesting fragments of a tomb, with recumbent effigy of a knight of the period of Richard I. In the reign of Henry VIII. the priory was of the annual value of 125*l.*, and it was granted to Gervase Clifton, but the rectory of the church remained in the hands of the king until he made it over to Trinity College, Cambridge.

Mr. Micklethwaite, Sir Henry Howorth, and the Vicar of Blyth pointed out other points of interest. After these gentlemen had been thanked for their services, an external inspection of the church was made, and, by permission of Major Willey, of the fragmentary remains of the old monastery.

The concluding evening meeting, held in the Exchange Hall, was devoted to the passing of votes of thanks to the Mayor and Corporation of Nottingham for their reception of the Institute, to the owners of the historical houses, and the clergy of the churches visited; to those who had offered hospitality, to the authors of papers, to the officials, to the local hon. secretary (Mr. G. H. Wallis), the local committee, and all who had contributed to the success and interest of the meeting.

BASINGWERK ABBEY.*

DURING the Middle Ages devotees from all parts of Christendom were in the habit of visiting St. Winefred's Well. That a place of this religious celebrity should be long without its monastic establishment is hardly to be expected, as such a course would be contrary to the custom of the times. Accordingly we find that a society of monks did exist here previous to the year 1119, for it is said that Richard, the son of Hugh Lupus, Earl of Chester, was attacked by the Welsh on his pilgrimage to the Virgin's Well, and was obliged to take refuge in an abbey in the neighbourhood, but how long it had existed prior to that date we have no means of ascertaining. Nor is it known who the original founder was. The charters of Prince Llewelyn ap Iorwerth and his son David confirm several donations "to God, St. Mary, and the Monastery of Basingwerk," bestowed on them by their predecessors, and from this it may be inferred the founder was a native Prince of Wales. From King Henry II.'s charter to the abbey we learn that the primitive institution consisted only of a chapel in which the monks dwelt. It is probable the Cistercian order was introduced into Basingwerk by Randle, the second Earl of Chester, A.D. 1131. He was one of the greatest benefactors to the abbey.

In the "*Annales Cestriensis*," or Chronicle of the Abbey of St. Werburgh, at Chester, there is the following entry under the year 1157:—"In this year the Abbey of Basingwerk is founded." We are able thus to fix the date when the building (the ruins of which now lie before us) was erected. I will give you the description of the remains as they were in 1846 from the first volume of the "*Archæologia Cambrensis*":—

"The general style of the remains of this religious house is

the Early Pointed, corresponding closely in character to the time of Henry II., or the latter half of the twelfth century. The masonrywork is good and carefully finished, but there are very few traces of ornament remaining, not even any foliations being observable in the windows. The ruins consist of the abbey church, running from west to east, with a little deviation to the south, the refectory, abbot's buildings, barns and grange, and probably a portion of the porter's lodge. The church was cruciform, consisting of a nave, with a single aisle at each side, transepts without aisles, and a chancel, probably also without aisles. Of the edifice nothing is left standing except the southern transept and a few courses of the outer wall of the southern aisle. Nevertheless, from the traces of rubbish, &c., the plan of the church may be made out satisfactorily, except for the chancel. It is probable, indeed, that if some heaps on which trees now luxuriantly grow were dug into with proper precautions many valuable fragments and perhaps tombstones might be discovered. As far as can be guessed, then, from the present condition of the church, the nave was about 80 feet long by 25 feet wide, the aisles were 10 feet wide, the piers of the nave arches were circular or octagonal, massive and supporting bold arches very slightly pointed, like those of Buildwas Abbey; one pier and half an arch are still remaining. The transepts were 20 feet long by 17 feet wide; the northern one had probably lofty lancet windows below and three smaller lancets above in the gable, judging by the analogy of the southern transept, where the upper lancets remain. Against this southern gable the refectory set on so that no lower windows were there practicable, but a low circular-headed doorway, without any chamferings or mouldings, leads from the south-western corner of this transept into the refectory, while at the south-eastern corner of the southern aisle was a circular-headed doorway, with good mouldings and capitals to the shafts, leading probably into the cloisters. The chancel could not have been more than 25 feet or 30 feet long, and was probably as wide as the nave; no traces, however, remain whereby to judge of its architectural character, but the tenant of the adjoining buildings says that a few years ago a gable with three lofty windows fell down, and these might have been either in the chancel or the northern transept. There are no means of judging whether any tower sprang from the crossing of the aisles, but from the plainness of the remaining pier we should infer the negative. A very beautiful and unusual bracket or corbel occurs here, from which the main arch of the southern transept sprang. There was a doorway in the western end of the nave, but no traces are observable of any in the western ends of the aisles; the roof of the southern aisle had probably been altered in its pitch, if we may so infer from a double line of junction observable in the transept wall. The refectory, entered by a circular-headed door from the cloister, extended southwards from the wall of the southern transept, about 75 feet and 17 feet wide; it had the dormitory above, and both apartments were lighted by small lancet windows with very wide and bold internal splays. At the southern end of the dormitory the gable is pierced with three bold lancets still visible, though two had been blocked up by the monks, and the easternmost converted into a fireplace from the outside. Southward of the refectory must have been originally a small court, but this was afterwards occupied by buildings perhaps for the improvement of the abbot's house, for they consisted evidently of two storeys, and in the southern wall is still remaining a fireplace and two perpendicular windows, one of two, the other of three lights. At the north-eastern corner of the refectory was a room, or parlour, entered by two circular-headed archways, the central pier between them being longer than those at the sides, and standing in front of what seems to have been a hole in the ground, the use of which it is difficult to conjecture. This room, 13 feet by 17 feet, is lighted by three lancets in the eastern side and one in the southern, of bold internal splays and deeply cut labels. The roof was vaulted in stone, and above was an apartment approached by a staircase in the wall having a double-light window in the eastern gable and a doorway into the dormitory. The roof of the dormitory seems by the traces on the wall of the church to have been flat at top, and not to have run up into a ridge, at least at the northern end. Westward of the refectory are the remains of one or two apartments, the use of which cannot be assigned, and also a beautiful room or hall, which Tennant and Grose call the Chapel of the Templars. It might very well have been the chapter-house or library. It runs north and south, and was approached (to judge by Grose's view) by a doorway in the south gable under three or five lancet windows. In the western wall is a range of seven lancet windows of unequal dimensions, but of excellent design and workmanship; three of these must have continued to be used as windows till a late period, but the other four had been blocked up, perhaps by the monks. They were divided by banded shafts, have bold splays, and the heads of two of the splays are circular. There are brackets against the wall, showing that probably the roof was of timber, and

* A paper by Mr. Henry Taylor, F.S.A., read at the visit of the Chester and North Wales Archæological Society.

indeed the pitch of the gable was rather low. Eastward from this runs a long range of abbey barns, ending at the eastern extremity in a plain square stone building, which was no doubt the granary, and having a return towards the south, the gable of which still shows its post and pendant. All the lower storey of the barns was of stone, the upper of timberwork, brick or plaster. The beams of the room and walls are untouched, in excellent preservation, all plainly chamfered, and of unusually ponderous dimensions."

I have given this able description almost in full because it is evidently from the pen of some learned ecclesiastical architect and antiquary of half a century ago, and may be of assistance to those of you who are interested in the roof of the ancient church of St. Mary-on-the-Hill, at Chester, which is said to have come from here, and probably from the chancel or choir. You will remember the entry in the churchwardens' accounts of 1536, "also in their tyme (viz. that of the two churchwardens holding office then) the quere (choir) was bought at Besewerke, and sett up with all costs and chargis belonging to the same." There is also a legend that part of the roof of Cilcain Church came from Basingwerk. By taking measurements it may perhaps be possible to ascertain how far both these legends are correct. No doubt the roof of St. Mary's at Chester is Perpendicular work, but then Basingwerk appears to have had alterations and additions made to it about the time of King Henry VII. The late Mr. Loftus Brock, F.S.A., the learned architect of the diocese of Canterbury, in a paper read before the British Archaeological Association, said of Basingwerk:—"The style of the church is Early English of a good type, and when perfect of an excellent effect. The base of the south wall of the south transept seems somewhat earlier, and may be a portion of the 'small cell' which existed in the time of Giraldus Cambrensis. It has a small round-headed opening into the sacristy, a chamber, however, now quite destroyed, but we trace a round-headed and chamfered doorway which afforded entrance to it from the cloisters, and also a portion of a Perpendicular window eastward." This latter, like the roof, may have been made in the time of Henry VII. There is a tradition about this king with regard to church building and restoration in the neighbourhood. You will remember the Stanley family were very powerful in Flintshire and Denbighshire. Sir William Stanley, of Holt and of Flint castles, had rendered most valuable services to the king at the battle of Bosworth; yet upon suspicion of favouring the cause of Perkin Warbeck the king had him seized at his castle of Holt and beheaded. At that time the first Earl Derby of the Stanley family had married Margaret, the king's mother, so to soothe the feelings of his step-father he honoured him and his mother with a visit in 1495 at their castle of Hawarden for the amusement of stag-hunting, and, it is said, to show his repentance for the death of Sir William Stanley, he assisted with money the restoration of the churches of Wrexham, Gresford and Mold, as well as the little chapel over the holy well at Holywell, which in the time of Richard III. was served by a priest from Basingwerk, the abbot and convent being paid by the Crown ten marks annually as a salary for his maintenance.

In 1188 Giraldus Cambrensis, in the train of Archbishop Baldwin on his progress through Wales to preach the crusade, lodged a night in this monastery, and King Edward I. made Basingwerk his headquarters while he was building Flint Castle, but before then Henry II., as I have already mentioned, had been a good friend to the abbey. He became acquainted with the monks on his military expedition into Wales, and by a charter (the first witness to which was the great martyred Thomas à Becket, Archbishop of Canterbury) the king granted to them considerable lands in Glossop, Chatsworth and other parts of the Peak of Derbyshire, which they held at the time of the Dissolution, and both the native princes of Wales and their rivals, the earls of Chester, made them considerable grants of property. They had property at West Kirby and Caldy in Wirral. With respect to the right of presentation to the living of West Kirby, they had a long dispute with the monks of St. Werburgh at Chester. At Northwich they had a salt pit, at Chester, the Lache and Saltney; they also held property as well as the manor of Holywell, and their large possessions in this neighbourhood. Tennant mentions that the monks obtained for Holywell the grant of a market and fair, and that both had been lost until the former was renewed in 1703. On the Welsh Recognisance Rolls I find this grant in 1387, and by it the monks were allowed to hold the market every Thursday instead of Friday, as they were accustomed to do by a previous grant of Edward I. The pious monks evidently felt that it was a desecration of the weekly fast day that the market should be held on a Friday, but their good intentions are now frustrated by the townspeople of Holywell, who do their marketing on a Friday as their forebears did in the time of King Edward I. Tennant also mentions that he could recover the names of only two of the abbots, viz. Thomas ap David Tennant, in the time of Guttyn Owain, and Nicholas Tennant, the last abbot, but the Recognisance Rolls mention William in 1316, Ralph in 1351, Richard de Acton in 1362, Henry in 1395

and Henry de Wirehall in 1432. At the Dissolution, or soon after in 1540, the house and lands were granted to Harry ap Harry, whose only daughter Anne, by her marriage with William Mostyn, of Talacre, conveyed them into that family, who are the present owners. So late as 1647 burials took place here.

THE HOSPITAL OF ST. JOHN, BRISTOL.*

I HAVE for some time past been seeking to clear up the obscure history of St. John the Baptist's Hospital, formerly situated in what was called Redcliff Pit, and in some way connected with the neighbouring church of St. Mary, and propose to lay the result of my researches before the Bristol and Gloucestershire Archaeological Society, of which I am an unworthy member. But as the Hospital was formerly a Somerset institution, and may be of interest to some Somerset antiquaries, there will, I hope, be no great impropriety in my first communicating the chief facts I have collected before those who are now honouring this city with a visit.

The date when the Hospital came into existence cannot be precisely fixed. There is, indeed, a very definite statement in the last edition of Dugdale's "Monasticon," but it can be proved to be erroneous. Under the heading, "St. John's Hospital at Bristol," the writers say, "The chief which we know of the Hospital is from the founder's charter," and they proceed to reproduce a charter of King John, confirming a charter granted by him whilst Earl of Moretain, such grant being specifically made to the lepers of Bristol of a croft "extra portam Lacford" on the road to Bath. John's foundation is thus conclusively shown to have been in Gloucestershire, and was, in fact, the Hospital of St. Lawrence, outside Lawford's Gate, situated on what is now known as Lawrence Hill, and suppressed by Edward III. nearly 500 years ago. According to the Little Red Book of the Corporation of Bristol, the real founder of St. John's was one John Farceyn, alias Farcey. But the entry to this effect is near the end of that remarkable volume, upon a page of which the first two items are dated 1481 and 1475, so that the statement seems to be merely the record of a tradition. That the Hospital was in existence in the time of King John can, however, be proved beyond dispute. In the collection of local deeds belonging to Mr. Jerdone Braikenridge, of Bath, is a charter of Robert de Berkeley, Lord of Redcliff, who kept a gallows there handy for the summary punishment of felons. His lordship granted to the church of St. Mary Redcliff a well called Rugewell, with a proviso that the Hospital of St. John the Baptist should have a pipe of the dimensions of a medium-sized thumb for carrying water to their building. One of the witnesses of this charter was John, Abbot of St. Augustine's, who died in the last year of King John's reign. The deed was probably executed about 1207.

I have recently discovered in the archives of the Council House four more charters relating to the Hospital, of about twenty-five years later date, tending to show that the place was founded for the relief of lepers, inasmuch as its beneficent purposes were administered by a mixed community of men and women. In the mayoralty of James la Warre, who became chief magistrate in 1235, Elena Russell granted to the Hospital of St. John of Redcliff, and to the brothers and sisters thereof, a house in the Marsh of Avon, near Baldwin Street, and some adjoining land, in consideration of religious services to be rendered by the grantees for the souls of her late husbands, her children and others. By another charter of the same year this lady made a further grant to the brethren and sisters of all her land in the Marsh, reserving a small quit rent. A third deed, by Adam Havering, attested by several of the witnesses to the above charters, granted in the same way a yearly rent of 5s.; whilst a fourth (Jordan le Vieke) granted the Hospital all the land that his father had in Bristol Marsh. The next document, in point of date, which has also escaped the notice of local historians, and is of greater interest, inasmuch as it affords the only information now extant in reference to the erection of the Chapel of the Holy Spirit, formerly in the churchyard of St. Mary Redcliff, is dated 1254, and is in the archives of the Dean and Chapter of Wells. It is an undertaking of the master and brethren of the Hospital—the sisters apparently being held of no account—and sets off by stating that forasmuch as the late Henry Tessum, Precentor of Wells, and Prebendary of Bedminster in Salisbury Cathedral, had built at his own expense the Chapel of the Holy Spirit in the cemetery of St. Mary Redcliff, and had likewise given rents to the Hospital, the master and brethren undertook to support the chapel and to provide a secular chaplain, or one of themselves to serve therein daily, guaranteeing that the rector of Bedminster should suffer no loss thereby. The precentor's munificence was doubtless due to the fact that sufferers from leprosy, and those succouring them, were forbidden to attend

* A paper by Mr. John Latimer, read at the meeting of the Somerset Archaeological Society.

the daily services in parish churches. This chapel continued in use until the Hospital was suppressed, and remained in the hands of the Crown until 1571, when it was granted by Queen Elizabeth to the parish of Redcliff for the establishment of a free school. It was finally demolished in 1766.

From another document at Wells it appears that the dean and chapter in 1306 confirmed a grant made by their bishop, Walter de Hazelshaw, of a portion of the rectory of Backwell, Somerset, to the authorities of St. John's Hospital on account of their extreme poverty and starving condition. By another deed in the Council House, dated July 1322, Thomas, master of the Hospital, with the consent of the brothers and sisters, sold off some of the Hospital lands in Bristol Marsh, which seems to indicate that the charity was still in financial difficulties. Matters apparently went from bad to worse, for Barrett, without giving his authority, states that about 1442 the community was reduced to the master and a single brother. The history of the house for the next ninety years is a blank, but the place turns up again in 1534 in a manner characteristic of the age. Queen Anne Boleyn, during her brief reign of favour, followed the example of the courtiers around her, who habitually sold what influence they possessed to those willing to buy it, and on January 20, 1534, she addressed what was practically a mandate to the Corporation of Bristol, requiring them to confer the next presentation of the mastership of St. John's Hospital upon two of her servants and a Bristol grocer named Hutton, asserting that they would appoint a fitting person on the next vacancy. The Corporation obeyed the command with the utmost alacrity, their grant of the presentation, which is copied into the Little Red Book, being executed only four days later. Whether Mr. Hutton, who was doubtless the leading spirit in this transaction, got his money's worth for his money is uncertain. Nor can the date be precisely fixed when the Hospital came to an end, the deed of surrender to the king having perished. But proof exists that the Corporation made a vigorous but unsuccessful effort to secure the royal plunder. A deputation was sent off to Court, and the two members for Bristol are recorded to have taken great pains before the Court of Augmentations, for which the corporate body entertained them to a sumptuous breakfast for the small consideration of ninepence. Their exertions were of no avail, for in April 1544 Henry VIII. granted the Hospital and its estates to his physician, Dr. George Owen, reserving an insignificant rent. The buildings seem to have been demolished soon afterwards, and even 120 years ago Barrett was unable to find a trace of them. It is not improbable that the cemetery now belonging to the Society of Friends was adjacent to, if it did not form part of, the Hospital premises. At all events, a hermitage was founded there by Thomas, Lord Berkeley, in 1348, and the hermit's cell, one of the few remaining in England, is still intact, being cut out of the solid rock, and is approached under the original arch.

A few words illustrative of the increasing value of real property in Bristol will bring these dull details to a conclusion. After holding the king's gift for nine years, Dr. Owen, in May 1553, handed over the Hospital estates situated in Bristol to the Corporation, in trust to expend the income, which he estimated at about 15% a year, in maintaining additional almspeople in Foster's Almshouse. So recently as 1836 the rents do not appear to have exceeded 150%. In the hands of the Charity Trustees the profits increased by leaps and bounds, and have now reached upwards of 1,500% per annum, the whole being devoted to charitable and educational objects.

GENERAL.

The Architectural Profession will hear with regret that Mr. Alfred Waterhouse, R.A., is somewhat seriously indisposed at his country residence, Yattendon Court, near Newbury. By the latest account some improvement in his condition is happily apparent.

A Tablet has been erected by the Académie Française on the modest house in the village of Gargilliesse which from 1848 to 1876 was the residence of George Sand. It has been described by her in "Promenades autour d'un village."

M. de Madrazo, painter, has been made commander of the Legion of Honour. He is of Spanish origin, but for the last thirty years has lived in Paris.

Lady Algernon Gordon-Lennox (states the *Birmingham Gazette*) has made some interesting architectural discoveries at Broughton Castle, near Banbury. In removing the plaster from the walls of the great hall, five or six early fourteenth-century doorways have been revealed, which have been blocked up since 1554. Some very fine windows of the fourteenth-century period have also been disclosed, one of them still showing tracery.

The Parliamentary Vote for the British Museum, National Gallery, National Portrait Gallery, Wallace Collection and the universities and colleges of Great Britain, and the National Gallery and the Queen's Colleges, Ireland, &c., has amounted to 208,675%.

Mr. F. Bond, of Lincoln College, on Saturday lectured on "Architecture" at Oxford in connection with University Extension. Mr. E. L. S. Horsburgh dealt with "Early Italian Art."

M. Bartholdi has modelled a statue for the old "Maison des Fêtes," in Colmar, Alsace. The town, of which he is a native, already possesses memorials by the sculptor of General Rapp, Admiral Buat, Martin Schoen the painter, and other celebrities of Colmar.

Sir Charles Robinson, of Newton Manor, Swanage, has made the munificent offer to the Dorset County Museum of his complete collection of antique Roman glass. The glass was collected in Rome by him.

The Sanitary Institute will hold their next congress and exhibition in Manchester in the second week of September 1902, under the presidency of Earl Egerton of Tatton.

A New Bridge, spanning the Seine between the Louvre and the Mint, is to be constructed, in order to afford communication between a proposed extension of the Rue de Rennes and the Rue du Louvre.

Mr. W. Q. Orchardson, R.A., has been commissioned to paint the portrait of Sir John Leng, M.P., for the Art Gallery in Dundee. It is intended as a memorial of Sir John's public services to the city, which he has represented in Parliament since 1889.

The German Emperor has paid visits to Saalburg, near Homburg, formerly a Roman camp, where the architect, Herr Jacobi, is superintending the restoration of the old Roman fortress.

Mr. James Stirling, the Government geologist of Victoria, at present mining representative of Victoria in London, has been appointed to represent the Australasian Institute of Mining Engineers at the meetings of the International Engineering Congress to be held at Glasgow next month.

The Annual Congress on Literary and Artistic Property which was held at Vevey decided, as the result of a report on publishing contracts in artistic matters, to appoint a committee to draw up a model contract applicable to works of art, and especially engravings and sculptures. A report was presented by M. Mack, of Paris, on the suppression of false signatures, and the congress adopted a resolution declaring that special penalties should be provided in all codes dealing with frauds committed by the substitution or alteration of names or marks.

The Bill authorising the expenditure to secure the isolation of the National Gallery has been passed.

The Reparation Committee of South Bersted Church tower have issued a report to the effect that the underpinning and binding of the north buttress of the tower of the ancient church has been well carried out by Messrs. Booker Bros., in accordance with the directions of the architect, Mr. F. L. Pearson. The depth of the new foundation is 7 feet below the surface of the ground.

Leipzig is to have the largest railway station in Germany. The present existing six railway stations of that Saxon city, consisting of one Saxon, one Bavarian and three Prussian stations, are to be united into one huge central station into which all the various lines will in future run.

The Foundations of the Victoria and Albert Museum being completed—the contract was for 33,410%—a second contract has been made for building to the ground-floor level, and this work is now being proceeded with. As soon as this is finished tenders will at once be invited for the superstructure, the plans being now practically ready. No alterations have been made which would reduce the size of the museum, and no delays of importance have occurred, the work being completed within the allotted time. The contract for the foundations was not entered into until some time after the laying of the memorial-stone, that ceremony having taken place in advance to suit Her late Majesty's arrangements.

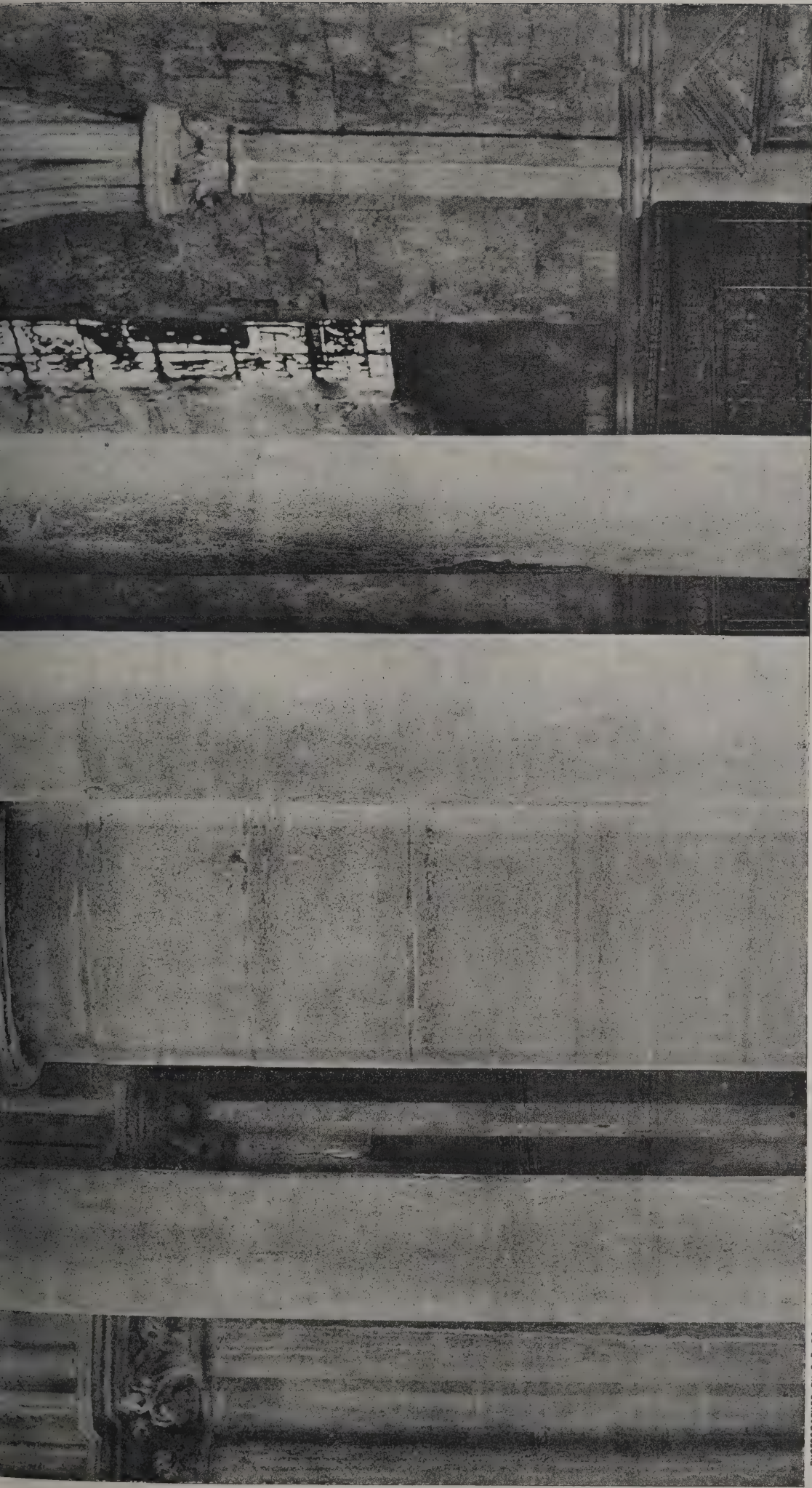
The Sanitary Institute will commence the course of lectures and demonstrations on September 2, and will continue until November 15.

A New Steel Bridge over the Tyne between Newcastle and Gateshead, which has been completed at a cost of 80,000%, was opened last Tuesday. The bridge has been built on the site of the one that existed there previously, and traffic has been carried on uninterruptedly during its construction. The new structure was built round about the old bridge, which was removed piecemeal. The engineers were Messrs. Sandeman & Moncrieff, Newcastle, and the contractors were Messrs. William Arrol & Co., of Glasgow.

Dr. Stein, of the Indian Education Department, has arrived in England from Chinese Turkestan. He has made many valuable archaeological finds dating back 1800 or 1900 years. It is probable that the greater portion of the collection will find its way to the British Museum, where Dr. Stein is at present engaged in the work of arranging them, while the remainder will go to the museums at Calcutta and Lahore.

Öhr Architekt. Aug 16th 1901.





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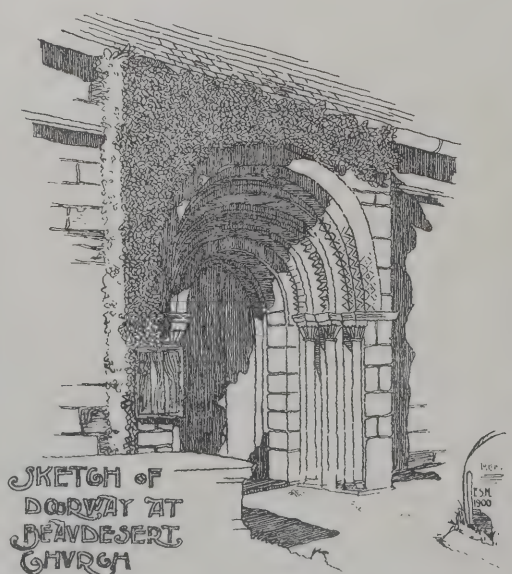
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PARISH CHURCH
SKETCH OF
TOWER



HOLY TRINITY
COVENTRY



SKETCH OF
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PORCH AT ST. ANDREW'S
CHURCH



ST. ANDREW'S
THE TOWER



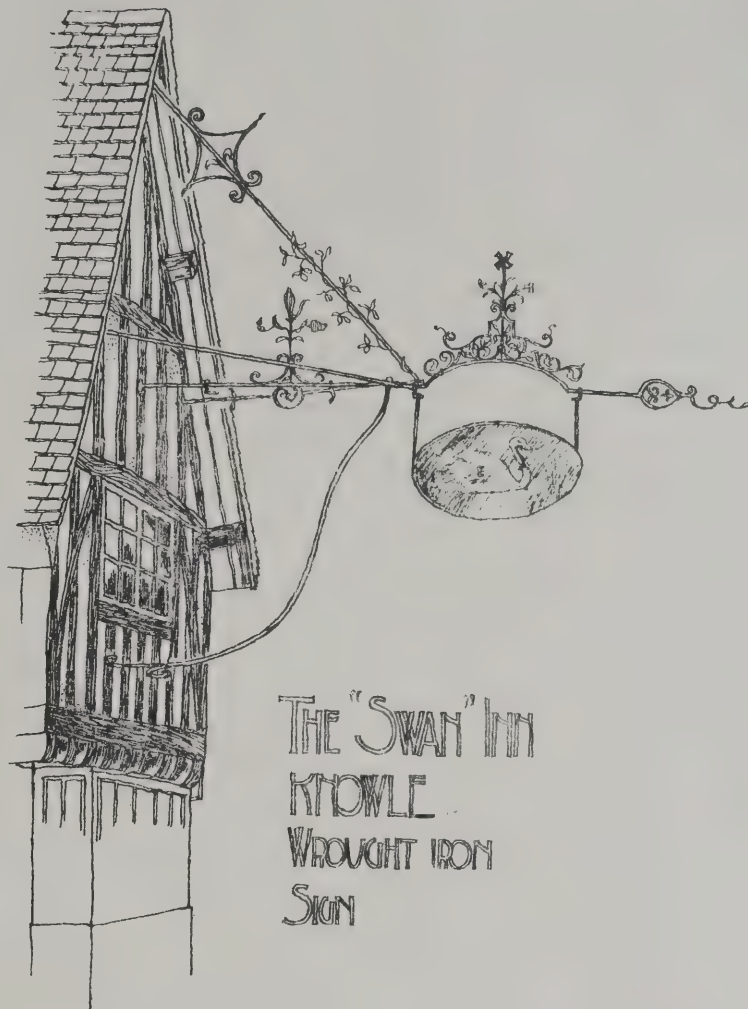
SCHOOL HOUSE TEMPLE BALSALL.



E.S.M.
1900



HAMPTON IN
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THE "SWAN" INN
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E.S.M.
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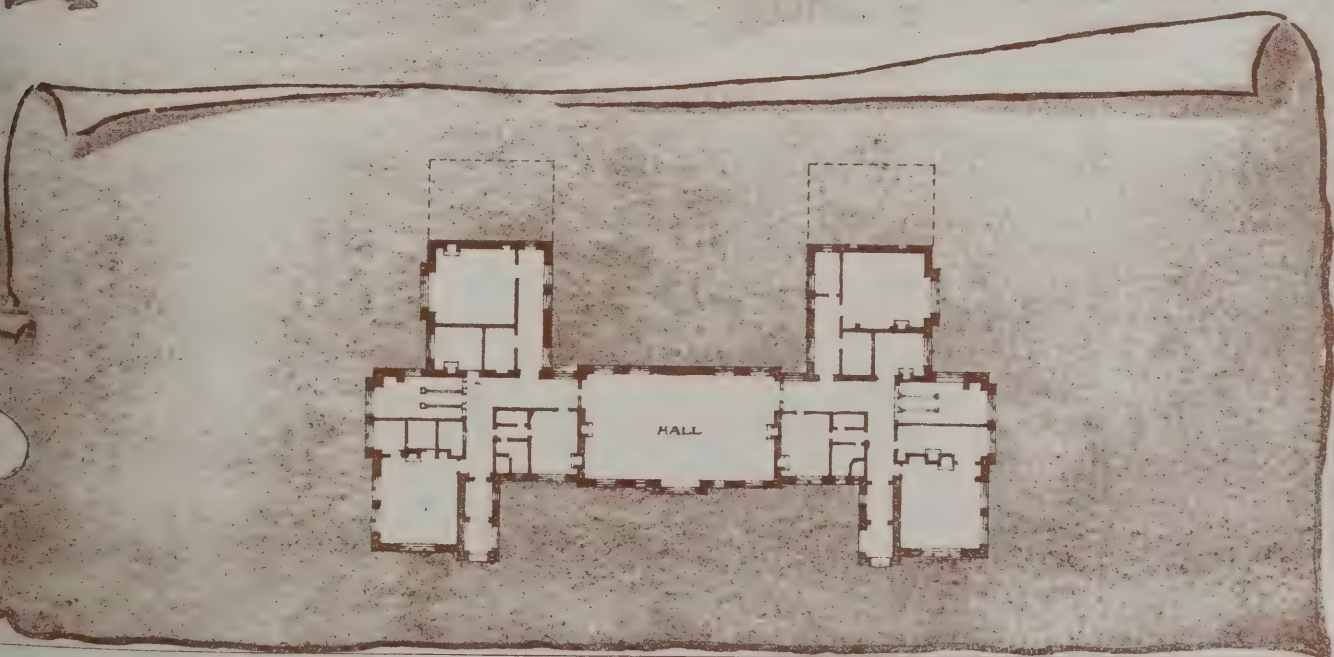


NEW ACADEMY LINLITHGOW



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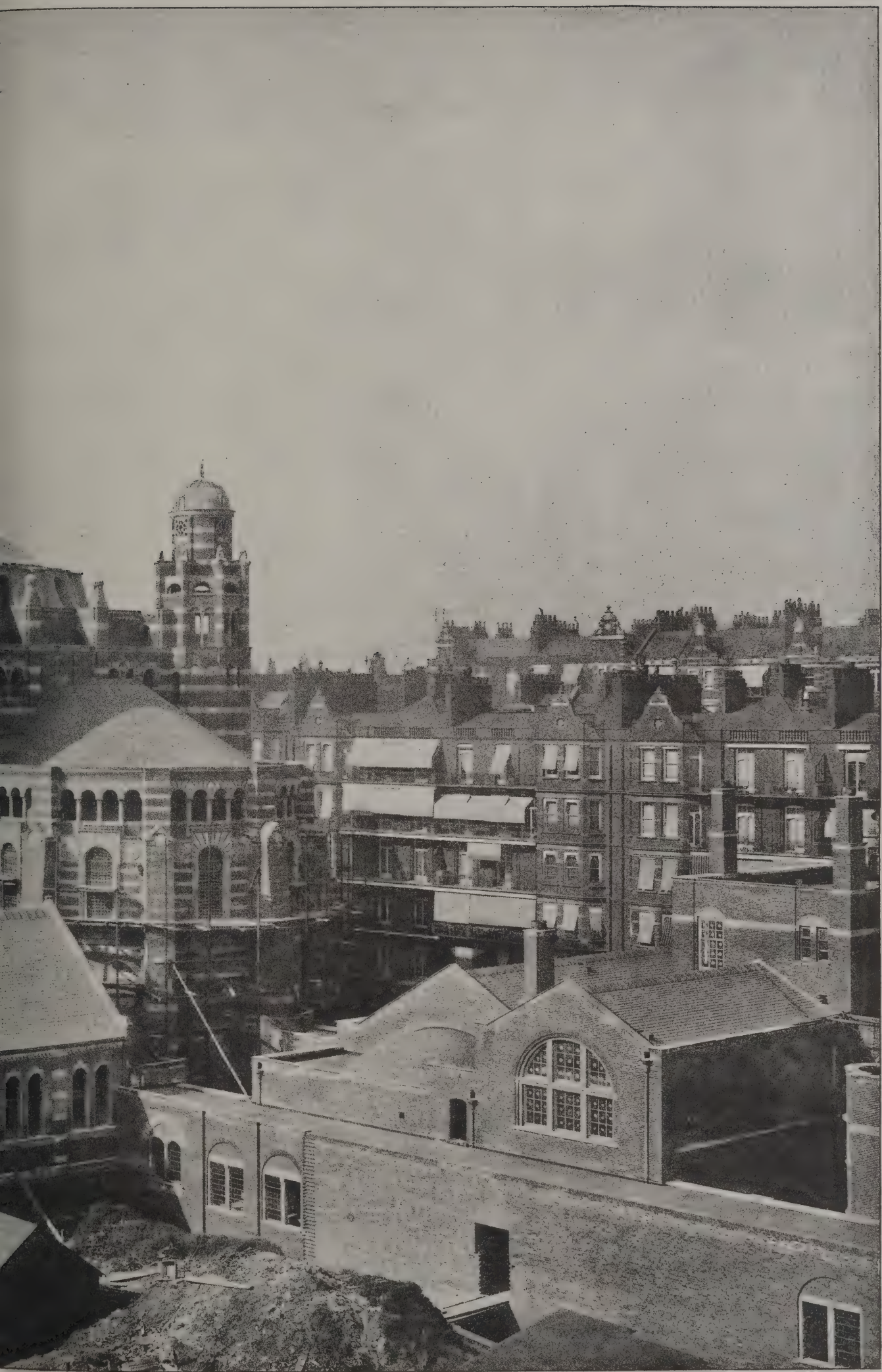
Aug 16th 1901.



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1901.



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WESTMINSTER.

itect.

THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

PENZANCE.—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

SHEFFIELD.—Aug. 31.—Sketch plans, sections and elevations, &c., are invited for the alteration of the Ecclesall Church, i.e. the removal of the galleries, the reseating of the nave and the building of chancel, &c. Accommodation required for about 800. The Rev. T. Houghton, Ecclesall Vicarage.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ARGENTINE REPUBLIC.—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

AUGHTON.—Aug. 22.—For erection of a new pavilion at the isolation hospital at Aughton, Lancashire. Messrs. William Rawcliffe & J. A. Seward, architects, Fishergate, Preston.

AYLESBURY.—Aug. 27.—For rebuilding of two culverts over the road, one situate near the post office, Ludgershall, and the other abutting on the County Council road in Ludgershall. Mr. W. J. Cook, surveyor, 69 High Street, Aylesbury.

BARNSELY.—Aug. 20.—For erection of a Primitive Methodist chapel and Sunday schools, &c., at Hoyland Common. Mr. Walter J. Sykes, architect, Hoyland, near Barnsley.

BATLEY.—Aug. 21.—For erection of buildings and chimney-shaft for the Corporation electricity works. Mr. J. H. Craik, town clerk, Batley.

BETHNAL GREEN.—Aug. 20.—For additions to a bake-house at 24 Calvert Avenue. Specifications, bills of quantities, form of tender and other particulars at the Architect's Department, Housing of the Working Classes Branch, London County Council, 18 Pall Mall East, S.W.

BIRKENHEAD.—Aug. 19.—For erection of engine-house, boiler-house, drying-shed, chimney and kiln at Moreton. Mr. George Howard, Moreton, near Birkenhead.

BIRKENHEAD.—Aug. 27.—For erection of a mortuary in Livingstone Street, Birkenhead. Mr. C. Brownridge, borough surveyor, Town Hall, Birkenhead.

BLACKBURN.—Aug. 22.—For erection of a chimney and buildings at Throstle Street. Mr. William Stubbs, Municipal Offices, Blackburn.

BLACKPOOL.—Aug. 19.—For fitting-up the proposed reference-room at the public library. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BOSTON.—Sept. 3.—For erection of a cookery centre, pupil teachers' centre and evening science classrooms in Norfolk Street, Boston, Lincs. Mr. Jas. Rowell, architect, Market Place, Boston.

BRIDLINGTON.—Aug. 22.—For erection of a dwelling-house, two-storey stables and covered yard. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

BRIMSCOMBE.—Aug. 19.—For erection of a mission-room at Hyde, Brimscombe, Gloucestershire. Mr. G. P. Milnes, architect, Town Hall Offices, Stroud.

BRISTOL.—Aug. 20.—For erection of a disinfecting station at Feeder Road, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BRISTOL.—Aug. 22.—For erection of a coroner's court and mortuary, Quakers' Friars. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

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DARFIELD.—Aug. 20.—For erection of four dwelling-houses at Darfield, Yorks. Plans, &c., may be seen at the Rising Sun inn, New Street, Darfield.

DARFIELD.—Aug. 21.—For erection of eighteen houses and a shop at Darfield, Yorks. Mr. A. B. Linford, architect, Carlton Villa, Wombwell.

DARLINGTON.—Aug. 22.—For erection of three model cottages and a reading-room on the Neasham Hall estate, near Darlington. Mr. G. Gordon Hoskins, architect, Darlington.

ENFIELD.—Sept. 3.—For erection of a junior mixed school at Chesterfield Road, Enfield Lock. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

GOOLE.—Aug. 28.—For erection of porches and other works at the schools, Swinefleet. Mr. F. Chambers, architect, Clifton Gardens, Goole.

HALIFAX.—Aug. 19.—For erection of several blocks of conveniences, outbuildings, &c., at Holywell Green, near Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HOVE.—Aug. 26.—For construction of laboratory and alterations to the town clerk's, rates and sanitary offices at the town hall. Mr. H. H. Scott, surveyor, Town Hall, Hove.

HULL.—Aug. 19.—For erection of a warehouse at the Waterloo Mills, Cleveland Street. Messrs. Wellsted & Easton, architects, Prince's Dock Chambers, Hull.

HUNSTANTON.—Aug. 21.—For erection of a purifying-house and other buildings at the gasworks. Mr. J. S. B. Glasier, clerk to District Council, Hunstanton.

ILFORD.—Aug. 26.—For erection of a 34-bed ward, discharging block, additions to administrative block, two cottages, boiler-house, stable and addition to laundry, at the isolation hospital. Mr. Herbert Shaw, 7 Cranbrook Road, Ilford.

IRELAND.—Aug. 19.—For erection of a tankhouse at the electric-power station, Sutton; and a fitting-shop and a sand-drying store, in connection with the electric-car shed at Sutton, Dublin, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Aug. 20.—For repairs to the old abbey church, Bangor. Mr. Henry Seaver, architect, Royal Avenue, Belfast.

IRELAND.—Aug. 20.—For the formation of an avenue between Malone Road and Lisburn Road. Mr. Henry Seaver, 128 Royal Avenue, Belfast.

IRELAND.—Aug. 21.—For erection of schools for the Sisters of Mercy, Cappoquin, co. Waterford. Mr. Samuel F. Hynes, architect, 21 South Mall, Cork.

IRELAND.—Aug. 26.—For erection of a lecture hall at Stewartstown, co. Tyrone, adjoining Presbyterian church. Mr. Henry Hobart, architect, Dromore, co. Down.

IRELAND.—Aug. 31.—For erection of a rectory at Belmullet, co. Mayo. Mr. Joseph S. Cairns, architect, Dillon Terrace, Ballina.

IRELAND.—Sept. 3.—For erection of a coastguard station at Knightstown, county Kerry. Plans, &c., can be seen at the Office of Public Works, Dublin.

KENDAL.—For alterations and additions to Romney House, altering Romney House and converting back buildings, stables, coach-house, &c., into two cottages. Mr. John Hutton, M.S.I., architect, Kendal.

LEAVESDEN.—Aug. 28.—For certain alterations and additions to the laundry at the Leavesden Asylum, near Watford, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

LEEDS.—Sept. 4.—For erection of twenty-nine blocks of buildings and the alteration of several others, with roads, drains and all fittings forming the extension of the City Hospital, Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LONDON.—Aug. 28.—For erection of an external staircase, composed of granolithic concrete, with iron and concrete enclosure, wooden roof, &c., from the ground to the first floor of one of the buildings at the workhouse in the Fulham Road, S.W. Mr. Edwin T. Hall, 54 Bedford Square, W.C.

LONGTON.—Aug. 22.—For alterations and additions to the Queensberry Road school, Longton. Mr. J. H. Beckett, architect, Stafford Street, Longton.

LUTON.—Aug. 23.—For erection of fire-station and other buildings in Church Street and St. Mary's Road. Mr. Geo. Sell, town clerk, Town Hall, Luton.

MARKET WEIGHTON.—Aug. 24.—For erection of a chapel at Market Weighton, Yorks. Mr. W. G. Smithson, architect, 13 Bond Street, Leeds.

MIDDLESBROUGH.—Sept. 2.—For extensions of the borough asylum. Mr. A. J. Wood, architect, 22 Surrey Street, Victoria Embankment, W.C.

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NELSON.—Aug. 24.—For erection of the new electric-light station in Charles Street, Nelson, for the electricity and tramways committee. Mr. B. Ball, A.M.I.C.E., borough surveyor, Town Hall, Nelson.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

READING.—Aug. 29.—For construction of ladies' swimming-bath and erection of lodge and conveniences. Mr. John Bowen, borough surveyor, Town Hall, Reading.

ROCHESTER.—Aug. 21.—For erection of a cabman's shelter at the Rochester Banks station of the South-Eastern and Chatham Railways. Mr. William Banks, city surveyor, Guildhall, Rochester.

ROTHERHITHE.—Aug. 23.—For erection of a block of dwellings for the working classes upon a plot of ground abutting on Swan Lane. Specifications, bills of quantities, form of tender and other particulars at the Architect's Department, Housing of the Working Classes Branch, London County Council, 18 Pall Mall East, S.W.

RUSTINGTON.—Aug. 28.—For erection of four seaside homes for children at Rustington, near Littlehampton, Sussex. Mr. Rowland Plumbe, architect, 13 Fitzroy Square, W.

SCOTLAND.—For alterations and additions at South Queensferry and Blackridge police-stations. Mr. J. G. B. Henderson, W.S., Linlithgow.

SCOTLAND.—Aug. 19.—For improvements at the Manse of Cluny, Aberdeen. Messrs. D. & J. R. M'Millan, architects, 211 Union Street, Aberdeen.

SCOTLAND.—Aug. 20.—For erection of tenement houses at Springhill, Aberdeen. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

SCOTLAND.—Aug. 20.—For erection of an infectious diseases hospital, a short distance from Stonehaven railway station, Kincardine. Messrs. Brown & Watt, architects, 17 Union Terrace, Aberdeen.

SCOTLAND.—Aug. 22.—For erection of four shops in Woodside, Aberdeen. Mr. R. G. Wilson, architect, 181A Union Street, Aberdeen.

SCOTLAND.—Sept. 2.—For erection of Doune station buildings for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—Sept. 19.—For rebuilding Kirkmichael Hotel. Mr. John Sim, architect, Montrose.

STRATFORD-UPON-AVON.—Aug. 22.—For erection of a porter's lodge and nurses' rooms at the Stratford-upon-Avon hospital. Mr. Roden Dixon, architect, Municipal Offices, Sheep Street.

STROUD.—Aug. 21.—For erection of isolation wards at the workhouse. Mr. W. H. C. Fisher, Rowcroft, Stroud.

SYDENHAM.—For erecting a block of flats. Mr. Philip C. Davies, architect, Estate Offices, Rosendale Road, Herne Hill, S.E.

TOOTING.—Aug. 22.—For erection of two cottage homes for aged deserving married couples at the Tooting Home, Church Lane. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

TRURO.—Aug. 27.—For erection of a cattle market. Mr. Measham Lea, city surveyor, Truro.

TYNEMOUTH.—Aug. 30.—For alterations to the western Board school, Tynemouth. Mr. F. R. N. Haswell, architect, Tyne Street, North Shields.

UPPERMILL.—Aug. 21.—For erection of about 317 yards (lineal) of fence wall and the retaining wall thereunder at Marshbottom, Saddleworth, near Huddersfield. Mr. J. H. Reynolds, surveyor, Council Offices, Uppermill.

WALES.—For erection of an additional classroom and cloak-room accommodation at Powell's Charity Endowed Schools, Llantilio Crossenny, near Abergavenny. Mr. B. J. Francis, architect, Abergavenny.

WALES.—Aug. 19.—For erection of school buildings at Ruddy, Cardiff. Messrs. B. Lawrence & Son, architects, Newport, Mon.

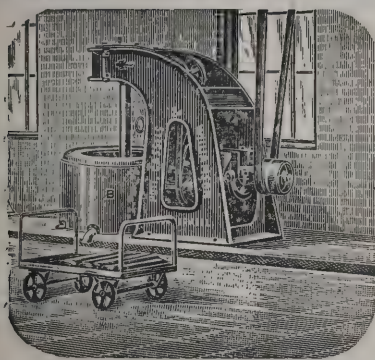
WALES.—Aug. 19.—For erection of a new two-storeyed school in Meyrick Street, Pembroke Dock. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WALES.—Aug. 19.—For erection of a school, Whitchurch, near Cardiff. Messrs. Robert & Sidney Williams, architects, Borough Chambers, Wharton Street, Cardiff.

WALES.—Aug. 21.—For erection of lecture and billiard-room and other extensions to the Wyndham Constitutional Club, Porth. Mr. W. H. Childs, 69 Cymmer Road, Porth.

WALES.—Aug. 22.—For erection of a governor and exhaust house at Tonypany. Mr. Octavius Thomas, engineer and manager, Gas and Water Offices, Pentre, R.S.O., Glam.

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WALES.—Aug. 22.—For alterations, &c., at St. Paul's Church, Llanelly. Mr. W. Griffiths, architect, Falcon Chambers.

WALES.—Aug. 24.—For erection of a schoolroom and master's house at Mynachlogddu, Clynderwen, R.S.O. Mr. William J. Williams, clerk to the School Board, 1 High Street, Cardigan.

WALES.—Aug. 24.—For doing alterations and additions to Siloah Welsh Independent chapel, Hirwain Road, Aberdare. Mr. T. Roderick, architect, Ashbrook House, Aberdare.

WALES.—Aug. 30.—For additions to the lunatic asylum, Denbigh, North Wales. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—Sept. 5.—For erection of a county school at Holyhead. Mr. Joseph Owen, architect, Menai Bridge.

WALSALL.—Aug. 24.—For erection of municipal offices and town hall in Lichfield Street. Mr. J. S. Gibson, architect, 4 Gray's Inn Square, W.C.

WEST DEREHAM.—For restoration of West Dereham Church, Norfolk. Mr. Herbert Green, architect, Norwich.

WEST DIDSURY.—Aug. 19.—For erection of a caretaker's house at the proposed Marie Louise Gardens, West Didsbury, Lancs. Mr. J. Cartwright, Peel Chambers, Market Place, Bury.

WHITLEY.—Aug. 31.—For erection of a police-station and petty sessional court at Whitley, Northumberland. Mr. John Cresswell, county architect, Moothall, Newcastle-on-Tyne.

WREXHAM.—Aug. 20.—For erection of cottage property on land at New Broughton. Messrs. Davies & Moss, architects, 2 Temple Row, Wrexham.

YORK.—Aug. 19.—For erection of sanitary conveniences in Haxby Road Gardens. Mr. A. Creer, city engineer, Guildhall, York.

At last week's meeting of the Middlewich Urban District Council, the recommendation of a committee that the clerk be instructed to ascertain if 4,000*l.* could be borrowed at a reasonable rate of interest by the Council on the freehold property of the Council, or on the freehold property and rates, with a view of building a new town hall, shop and offices, and also with a view to the purchase of premises adjoining the old town hall, was adopted.

TENDERS.

ALFRETON.

For construction of pipe sewers at Lower Birchwood and Greenhill Lane, with manholes, &c. Mr. E. HOUFTON, surveyor, King Street, Alfreton.

M. O. Eyre	£558	3	6
G. M. Kerry & Co.	422	0	0
S. RICHMOND, Nottingham (accepted)	412	0	0

BECKENHAM.

For erection of a brick transformer station, 10 feet by 8 feet in size internally, in Durham Avenue, South Hill Park, Beckenham, and for construction of foundations for a 15-ton weighbridge and erection of an office, 10 feet by 8 feet, in connection therewith, at the electric-lighting station, Arthur Road. Mr. J. A. ANGELL, surveyor.

G. Wilson	£392	5	9
F. W. Green	356	0	0
W. Dimmie	302	15	10
Foster Bros.	297	0	0
W. Wallis	291	10	0
Syme & Duncan	262	13	0
G. HEATHFIELD (accepted)	246	0	0

BISHOP AUCKLAND.

For laying about 72 lineal yards of 9-inch sewer, with manholes, &c., at St. Helen's. Mr. C. JOHNSTON, surveyor.

P. Frater	£29	0	0
G. Hetherington	27	17	0
G. H. BELL, Bishop Auckland (accepted)	23	0	0

BRADFORD.

For repairs and alterations at the municipal technical college.

Accepted tenders.

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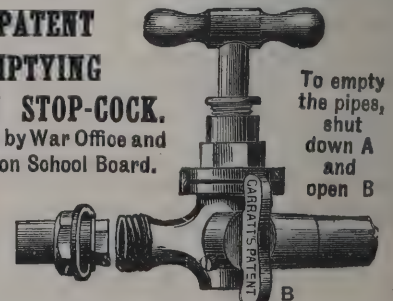
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CAVERSHAM.

For construction of about 470 yards of 9-inch and 6-inch stoneware pipe surface-water sewer, together with man-holes, &c., in Gosbrook Road and Mill Road. Mr. S. PERCY ANDREWS, engineer, 22 Prospect Street, Caversham.
F. Talbot, Reading £279 0 0
COLLIER & CATLEY, Reading (accepted) 254 0 0

CHESHUNT.

For one of Ashley's patent pumps, 16 inches diameter by 2-feet 6-inch stroke, for a working head of 400 feet.
Glenfield & Kennedy, Ltd., Kilmarnock £206 0 0

DURHAM.

For erection of a church hall and men's guild-rooms, with caretaker's house, at Leadgate. Mr. J. E. PARKER, architect, Primrose House, Blackhill.

Accepted tenders.

J. Westgarth, Blackhill, mason and bricklayer.
J. Slater, Leadgate, R.S.O., carpenter and joiner.
G. Nicholson, Leadgate, R.S.O., slater.
W. Stracham, Blackhill, plumber and ironmonger.
G. Cook, Consett, plasterer.
M. Robson, Blackhill, painter and glazier.
Total—£809.

GREETLAND.

For erection of a house at Ellistones, Greetland. Messrs. WALSH & NICHOLAS, architects, Lancashire and Yorkshire Bank Chambers, Halifax.

Accepted tenders.

E. Naylor & Sons, Halifax, mason.
W. Calverly, Greetland, joiner.
J. Riley, Greetland, plumber.
J. Firth, West Parade, Halifax, slater and plasterer.

HACKNEY.

For street works in Durrington Road between Ashendon Road and Colne Road. Mr. NORMAN SCORGIE, borough surveyor.
C. Killingback £1,176 7 8
Williamson & Son 1,144 16 11
T. Catley 1,098 11 8
W. Griffiths 1,086 8 11
Grounds & Newton 1,075 19 1
G. PORTER, 2 Arthur Street, Hackney, N.E.
(accepted) 1,024 15 5

HEREFORDSHIRE.

For alterations and additions at the Upper Baches, Upton Bishop, near Ross, for Mr. Alexander F. Coe. Mr. A. POLE SMALL, architect, Ross.
W. Bowers £1,209 0 0
W. E. LEWIS, Ross (accepted) 1,076 10 0

HIGH WYCOMBE.

For supply of a wrought-iron hot-water circulating boiler tank and fittings at the vagrant wards of the workhouse at Saunderton.
DAVENPORT, VERNON & CO., LTD., High Wycombe (accepted) £37 10 0

HOVE.

For street works in Julian Road and Melville Road, Hove. Mr. H. H. SCOTT, borough surveyor.
Julian Road.
J. PARSONS & SONS, 118 Church Road (accepted) £172 0 0
Melville Road.
J. PARSONS & SONS, 118 Church Road (accepted) 79 0 0

ILKLEY.

For construction of a storage reservoir (to hold 8,000,000 galls.) between Panorama Drive and Heber's Ghyll. Messrs. W. B. WOODHEAD & SONS, engineers, 18 Exchange, Bradford.
A. DICKINSON, Belle Vue Place, Beeston Hill, Leeds (accepted).

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IRELAND.

For erection of an addition to the Eccles Hotel, Glengariff.
Mr. ARTHUR HILL, architect, 22 George's Street, Cork.
S. Hill £5,641 0 0
W. O'Connell 5,580 0 0
W. H. JONES, Dunmanway (accepted) 5,092 9 2

KEIGHLEY.

For erection of offices, showroom and workshops in Cook Lane, for the gas committee.

Accepted tenders.

Waddington Bros., Oxenhope, mason £1,880 0 0
J. Wilkinson, Oakworth, joiner 553 5 0
J. Gill, Keighley, iron and steel 315 0 0
Crabtree & Wallace, Keighley, plumber and glazier 172 19 10
W. H. Clark, Ingrow, Keighley, plasterer and concreter 167 9 0
W. H. & E. Walton, Bingley, slater 86 17 0
A. Tatham, Keighley, painter 34 0 0

KILLAMARSH.

For painting and colouring the Board schools.
S. ROBINSON, Eckington (accepted) £53 0 0

LANCASTER.

For street works.
J. JOHNSON, Aldcliffe Road (accepted).

LIVERPOOL.

For painting works (external and internal) at the workhouse, Brownlow Hill, and other parochial institutions.

Accepted tenders.

F. S. Fowler, workhouse (external and internal) and Dingle Mount branch.
G. L. Desoer, Grove Mount and Mitford Street branch workhouses.

LOWESTOFT.

For erection of additional buildings at the police-station. Mr. H. MILLER, architect, by whom quantities were supplied.
J. & B. Swatman £562 0 0
J. Ashby 437 0 0
R. Brett 430 0 0
J. BLUNDERFIELD, Lowestoft (accepted) 427 10 0

LAMBETH.

For external and internal painting at the infirmary, Brook Street.

Internal.

H. Davis & Co. £870 0 0
W. E. Jaques & Son 402 0 0
Strange & Sons 369 10 0
Castle Bros. 355 0 0
M. McCarthy 350 0 0
Bishop & Christensen 320 15 0
W. Sayer & Sons 292 0 0
E. Mills 255 0 0
H. G. Horswill 214 0 0
E. Wall 206 3 0
J. J. Richards 173 0 0
H. KENT, Lewisham (accepted) 134 0 0
A. Brown 89 7 0

External.

H. Davis & Co. 1,990 0 0
W. E. Jaques & Son 987 0 0
Bishop & Christensen 835 12 0
Castle Bros. 785 0 0
W. Sayer & Sons 741 0 0
H. G. Horswill 695 0 0
M. McCarthy 555 0 0
Strange & Sons 543 5 0
H. KENT (accepted) 540 0 0
E. Wall 527 14 8
J. J. Richards 518 0 0
E. Mills 445 0 0
A. Brown 395 17 0

NORMANTON-ON-BOAR.

For additions and alterations to the Board school. Messrs. BARROWCLIFF & ALLCOCK, architects, Loughborough.

J. G. Parker £431 0 0
T. Barker & Son 425 0 0
W. F. Harding 409 0 0
A. Faulks 405 0 0
C. A. Dobson 395 0 0
Watson & Cannon 390 3 0
J. & G. Wilders 388 10 0
J. T. Ball 385 10 0
W. Corall 385 5 0
W. MOSS & SONS, LTD, Loughborough (accepted) 365 10 0

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RADCLIFFE.

For construction of a new roof over shirt mangle house. Messrs. JAMES SELLERS & SON, architects, Union Chambers, Bury, Lancs.
W. RIGBY, Radcliffe (accepted).

ROCHDALE.

For extension of the free library and erection of a new art gallery. Mr. JESSE HORSFALL, architect, Todmorden.
ASHWORTH & WOOLFENDEN, Moss Street Works (accepted).

SCOTLAND.

For constructing tanks and bacteria beds and other works required in connection with the purification of the sewage of Beith. Messrs. WARREN & STUART, engineers, 94 Hope Street, Glasgow.
J. ANDERSON, Crummock, Beith (accepted).

SHOREHAM.

For laying of about 400 yards of cement paving and 600 yards of granite kerb and channel.
M. R. EVANS, Blakeney Avenue, Beckenham (accepted), paving, 1s. 9d. per yard superficial; kerbing and channeling, 1s. 11d. per yard run.
For supply of 700 yards of broken hand-picked flints, delivered on Urban District Council's roads.
T. SHIVENS, Little Buckingham, Shoreham, 7s. per yard (accepted).

STOCKPORT.

For painting at Vernon Park and Andrew's Square. Mr. JOHN ATKINSON, borough surveyor.
C. J. Glover £219 0 9
J. Greaves 202 10 0
T. A. J. Barnes 185 18 0
J. Longson 160 0 0
J. Wrigley 153 10 0
R. HUNT & Co., 5A Market Place, Stockport (accepted) 87 10 0

TEIGNMOUTH.

For alterations and additions to the isolation hospital. Mr. C. JONES, surveyor.
Mingo & Boone £1,435 0 0
E. Andrews 1,210 0 0
I. Cornelius 1,185 0 0
F. Francis 1,112 0 0

WALES.

For erection of three cabmen's shelters in Queen Street, North Road and Westgate Street, Cardiff. Mr. W. HARPUR, borough engineer.
Handford & Elsworthy £294 10 3
C. Totterdell 286 10 0
H. Gibbon 286 4 6
E. Bevan 286 0 0
Knox & Wells 272 7 0
E. Turner & Sons 257 0 9
F. SMALL, Edward Place, Cardiff (accepted) 234 13 9
For painting the ironwork of Cardiff and Wood Street Bridges. Mr. WILLIAM HARPUR, borough engineer.
H. W. North £230 0 0
Gough Bros. 199 0 0
J. Cassey 181 8 0
F. G. ROBBINS, 1 Cottrell Road (accepted) 148 5 0
For erection of about 189 yards of wrought-iron railing 6 feet high at Whitchurch, near Cardiff. Mr. WM. HARPUR, borough engineer.
E. J. Raybould, Limited, Workington * £0 13 6
* Recommended for acceptance.
For erection of a church at Oystermouth. Mr. E. M. BRUCE-VAUGHAN, architect, Cardiff.
A. J. HOWELL, Galston Place, Cardiff (accepted).

WALLINGFORD.

For alterations and additions to the grammar school (second portion of extension scheme). Mr. SIDNEY R. STEVENSON, architect, 12 Burns Street, Nottingham.
W. J. Bloxam £2,127 0 0
Bosher & Sons 1,902 0 0
H. Harris 1,858 0 0
J. J. Adams 1,800 0 0
McCarthy Fitt 1,777 0 0
A. J. Colbourne 1,641 11 0
BRASHER & SONS, Wallingford (accepted) 1,658 0 0

WALTON-ON-NAZE.

For sewerage the South Cliff estate. Mr. H. W. GLADWELL, surveyor.
D. Mackenzie & Son £700 0 0
W. Howard 690 0 0
J. MORAN & SON, Harwich (accepted) 675 0 0

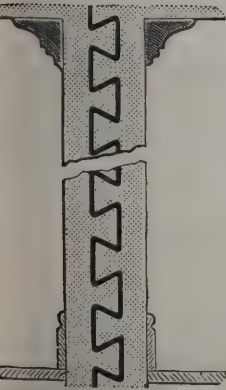
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For making-up and providing proper means for lighting a portion of Marlborough Road. Mr. F. HILL PARR, surveyor.

Meston & Hale.	£1,347	11	6
W. Neave & Son	1,281	17	9
W. Mann	1,281	16	4
T. Adams	1,201	0	0
R. Ballard	1,152	5	0
E. W. HOLLINGSWORTH (accepted)	1,151	8	7
G. Wilson	1,147	0	0

For surface-water drainage and construction of roads and paths at new cemetery. Mr. F. HILL PARR, surveyor.

R. Ballard, Ltd.	£1,935	11	0
Meston & Hale	1,921	17	6
W. Neave & Son	1,719	3	8
E. W. Hollingsworth	1,674	6	1
T. Adams	1,645	12	4
W. Mann	1,488	0	0
G. WILSON (accepted)	1,388	0	0

WIDNES.

For erection of St. Paul's Vicarage, Victoria Road.

J. DOWNHAM, Widnes (accepted)	£2,000	0	0
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WINDSOR.

For street works required in the formation of a new road near the Thames. Mr. E. A. STICKLAND, borough surveyor.

T. Free & Sons	£1,520	0	0
Butcher & Hendry	1,293	0	0
B. Nowell & Co.	1,154	0	0
A. Green	1,145	18	0
J. Mowlem & Co.	1,066	0	0
W. Manders	1,055	0	0
W. H. WHEELER, Blackfriars Road, London (accepted)	994	0	0

WOODHALL.

For taking-down and rebuilding the bridge over a stream at Poolham. Mr. HENRY WHITE, surveyor.

W. Jackson	£31	0	0
J. DARLEY, Kirkby-on-Bain, Lincoln (accepted)	29	0	0

ANCIENT PERUVIAN SEPULCHRAL POTTERY.

THERE will shortly be dispersed under the hammer of the auctioneer one of the most interesting collections of ancient pottery ever got together, these consisting of over 400 pieces of ancient Peruvian pottery, collected by Sir Spenser St. John, Her late Majesty's former Minister at Lima. Every piece is different, and have been unearthed in all parts of the Peruvian continent, one piece, a tigress with her cubs, having come from the Temple of the Sun at Trujillo. Another specimen is supposed to represent the Buddhist Trinity, though how the doctrines of Buddha got into South America requires some explaining. Other specimens represent animals, fish and fruit, and the human form, some being represented as in a diseased and deformed condition. The collection is absolutely unique, and it is the first occasion that such a representative lot of ancient sepulchral pottery from Peru has been offered to the public. Mr. Stevens, of Covent Garden, will offer them about the end of September.

TRADE NOTES.

THE heating of the new fire station, Blackpool, is being carried out by Mr. W. F. Spencer, Cross Bank Works, Oldham, and 145 Queen Victoria Street, E.C.

MESSRS. GEO. JACKSON & SONS, of 49 Rathbone Place, W., have been appointed decorators in relief to His Majesty the King. Messrs. Geo. Jackson & Sons have had Royal warrants granted to them by the three previous sovereigns—George IV., William IV. and Queen Victoria.

In the south-east corner of the Ambulatory of the Royal Exchange a panel is being prepared for the reception of the work of Mr. Edwin A. Abbey, R.A., on the commission from the Skinners' and Merchant Taylors' Companies, to commemorate the founding of their annual feast. In the reign of Richard III. there occurred a dispute between the companies as to which should take precedence of the other at civic functions. Lord Mayor Billesden (1483) decreed that they should enjoy precedence in alternate years, and should dine together, in token of amity, on the eve of St. John's Day, June 24.

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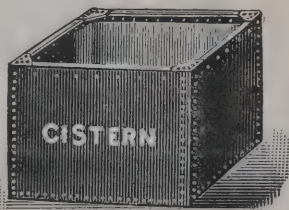
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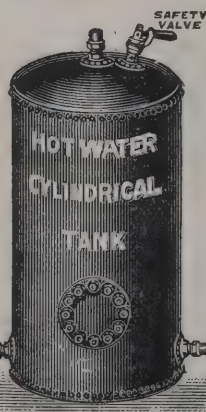
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BUILDING AND BUILDERS.

THE corner-stone of a new chancel to Westwood Edge Church, Golcar, was laid on the 3rd inst.

AN apprentice slater named John Clark, eighteen years of age, fell from a scaffolding in Shaw Street, Greenock, N.B. He fell nearly 40 feet, and was so badly injured that he died while being conveyed to the infirmary.

THE London and North-Western Railway Company, which is just completing extensive improvements and alterations at Lancaster station, costing nearly 60,000*l.*, is about to construct a new goods station in Ashton Road, Lancaster, at a further cost of 40,000*l.*, on the site of the old passenger station.

THE Lincoln City Council have passed plans for a new Congregational church in the High Street (St. Botolph's), for alterations and additions to the Church House, a temporary church mission room in Long Leys Lane, six houses on Newark Road, a house and shop in Scorer Street, a house off Saxilby Road, an office in the High Street, and for additions to the Horse and Groom public-house and to the Ripon Arms.

THE new post office at Kirkcaldy, N.B., is now well advanced, and a commencement has been made to the large new police buildings. In various parts of the town new houses, chiefly cottages and tenements, are being erected, while plans have just passed the Dean of Guild Court for a new hotel of large dimensions in the vicinity of the railway station. The building trade in this town, which is fairly busy at present, is expected to be very active in the immediate future.

THE great works in connection with the Dublin main drainage at Burgh Quay, at the corner of Townsend and Brunswick Streets, and at the junction of Tara and Townsend Streets, are making fair progress, considering the heaviness of the operations. At Burgh Quay excavations to the depth of 56 feet, which is a considerable distance below the bed of the river, have been made, and at the other points mentioned deep excavations are being proceeded with by the workmen engaged by the contractors, who will require a considerable further time to complete these portions of their contract.

THE sub-property (city buildings) committee of the Leeds Corporation are considering the question of providing new law courts for the town. Councillor Beaumont, the chairman of the committee, brought forward in October last a report upon the inadequacy of the existing accommodation at the courts provided in the Town Hall, and the arrangements made with

regard to accommodation in other towns visited by a deputation appointed for the purpose. The report was submitted at the Council meeting held on December 5, when Alderman Gordon proposed an amendment that was ultimately adopted, accepting the report.

THE corporate property committee of the Scarborough Corporation, at a meeting on the 6th inst., discussed the question of the conversion of St. Nicholas House into new municipal buildings. The new town hall estate sub-committee, having opened the tenders for the alterations and additions to St. Nicholas House, now recommended the property committee to accept them, and the tenders having been sealed it was resolved, after considerable and animated discussion, to recommend that the work be at once commenced. The total amount of the tenders sealed was 16,209*l.*

THE contractors for the Scarborough Marine Drive, whose time for the completion of the contracts, it is stated, has expired, have written to the Marine Drive sub-committee denying the accuracy of the resident engineer's figures, and contending that the extra time allowed for stress of weather, &c., has not expired. They also question the right of the Corporation to make deductions owing to the contract not being completed. In addition, they state that they are of opinion that the suspension of their certificates is contrary to the conditions of the contract.

THE foundation-stones were laid on the 11th inst. of a new Roman Catholic church at Latchford, Warrington. The cost of the new church, which will have accommodation for 600 people, will be about 6,000*l.* It will be of transitional Gothic design, built of Yorkshire stone with red stone dressings. The length of the interior will be 124 feet and the width 48 feet, and the total height, including tower and spire, will be 130 feet. There will be a nave and two aisles, with six granite columns on each side of the nave, resting on a Yorkshire stone base, a large sanctuary, with altar, two side chapels and vestries. The organ gallery and choir accommodation will be over the main entrance, which will be from St. Mary's Street.

THE Town Council of the City of York having applied to the Local Government Board for sanction to borrow 2,845*l.* for the purchase of land for the purposes of street improvement, and also for approval of the borrowing of 1,465*l.* for the purchase of land situate in the parish of Water Fulford, in the East Riding, for purposes of a lunatic asylum, a Local Government Board inquiry into the subject-matter of the applications

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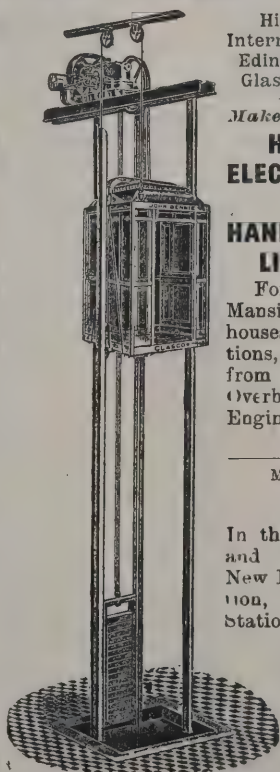
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was held on Tuesday in the Guildhall by Colonel A. J. Hepper, D.S.O., R.E., Local Government Board inspector. There was no opposition and the proceedings were very brief. At the conclusion of the inquiry the inspector viewed the property and land involved in the applications.

AFTER inspection of crematoria at Manchester, Liverpool, Hull and elsewhere, the sanitary committee of the City's Public Health Department recommend that the Corporation should erect at the cemetery at Ilford a crematorium at a cost of 10,500/. It is proposed that the tower of the structure be 80 feet high. The committee record that they are strongly of opinion that if this mode of sepulture is to be made popular, buildings should be erected of a character that will permit of cremation being carried out in good surroundings, and in a manner which will recommend itself to the most sensitive. The columbarium under the crypt will be fitted up for the reception of urns, and various monuments can be attached to the walls or niches.

IT is announced that Colonel Hay, who recently succeeded to the estate of Inverpeffray, a few miles to the east of Crieff, is about to have the ruins of the ancient castle of Inverpeffray restored. The castle is situated on the north bank of the river Earn, and within a very short distance of the ancient church and library of Inverpeffray. The castle was built in the sixteenth century by James Drummond, first Lord Madderty, whose family is now represented by Viscount Strathallan. One of the Lords Madderty was educated along with James I., and was esteemed by that monarch "a man of parts and learning," and became a special favourite of the Court. The castle, like many other buildings at that distant period, was designed for a place of defence as well as a dwelling. The ground floor was mostly arched, with small windows, as they might be used for shooting out arrows or balls. Like many other old buildings it had been mostly finished with oak, but a former Earl of Kinnoull, who was then the proprietor, is said to have ordered the best of the woodwork to be taken to erect offices at Dupplin Castle. The castle has been in ruins, it is said, for from 150 to 200 years, but the walls appear still to be in a fair state of preservation, although partly overgrown with vegetation. The remains of a once noble avenue of trees leading to the castle are still extant, and the whole had been enclosed by a wall and gateway fronting the north. The plans for the restoration are now, it is stated, in the hands of Mr. George T. Ewing, architect, Muthill.

MR. R. H. BICKNELL, Local Government inspector, held an inquiry at Oldbury respecting the application of the District Council for sanction to borrow the sum of 18,150/ for works of sewerage and sewage disposal. Mr. Shakespeare (clerk) explained that the sewers in the town were laid between 1879 and 1888, the bulk of them being laid between the former date and 1883, at a total cost of 37,313/. In April 1899 complaints were made by the county medical officer and other persons of the nuisance arising from the sewers, and in consequence the Council instructed Mr. Shipton, their surveyor, to prepare a report upon them. This he did, and he suggested the reconstruction of the sewers and certain alterations being made. The Council considered that report so serious that they decided to consult Mr. Eayrs, a sewerage engineer, who had considerable experience in that work, and he prepared a report which confirmed the decision arrived at by Mr. Shipton. Acting on the instructions of the Council, Mr. Eayrs prepared a scheme for the reconstruction of the defective sewers, which the Council decided to adopt. The scheme provided for their reconstruction, and it was hoped that this would render the system sufficient to last the district for the next thirty years. The cost of the work was 18,150/. Mr. J. T. Eayrs detailed the scheme, and said the reconstruction of the sewers was necessary mainly owing to damage caused by mining operations, and also that they were badly constructed at first. It was also proposed to enlarge a number of the existing sewers. Evidence was also given by Mr. Shipton, and at the close of the inquiry the Inspector said he would report to the Local Government Board.

ELECTRIC NOTES.

IT appears that in the municipal accounts of Bradford for the last financial year the most paying item is municipal lighting. The gas and electricity are responsible for a profit of 59,000/ on an expenditure of 210,000/. In Manchester the corresponding profit is nearly 52,000/.

COWDENBEATH, in Fifeshire, is to have the streets all lighted by electricity. A steam-engine and dynamo are to be placed at a colliery adjoining the town, and the current distributed from there to about 320 electric incandescent lamps erected on the gas-lamp pillars. The contract has been placed with Messrs. Hunter & Jack, Glasgow, who three years ago successfully lighted Hill of Beath in the same way. The new light is to be running by the end of September.

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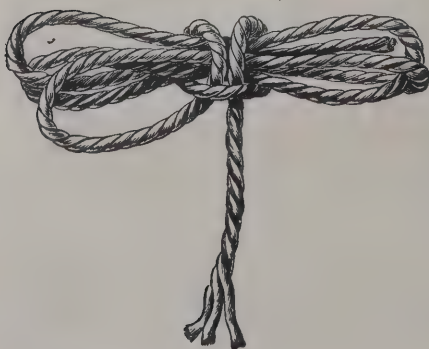
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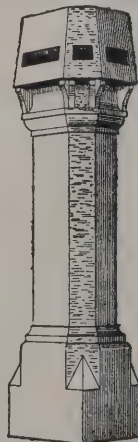
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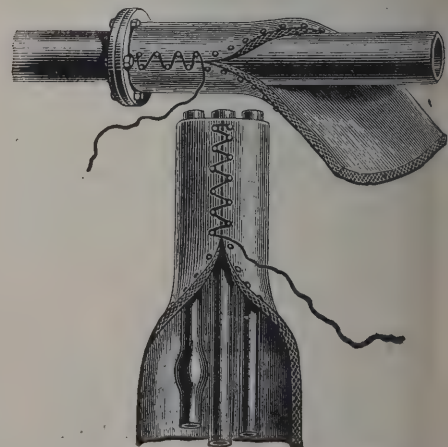
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THE recent opening of the electric line from Fayet St. Gervais to Chamounix inaugurates a new era for this famous Alpine resort, and it is probable it will in a very short time render Chamounix as popular a tourist centre as Interlaken or Zermatt. The new line passes through some very fine scenery, and crosses the gorge of the Arve by the imposing viaduct of Ste Marie, consisting of eight arches, 165 feet above the torrent. It also brings Chamounix within four hours of Geneva, fourteen hours of Paris, and twenty-one hours of London, and it is expected that the line will be continued to Martigny, there joining the great Simplon route to the Italian lakes and Milan, thus placing Chamounix on one of the great highways between France and Italy.

PELLON LANE Baptist chapel, Halifax, is closed for repairs and the installation of electric lighting on a very complete scale. The latter work has been entrusted to Mr. W. Parker, Highfield Place, who carried out similar work at Square and Stannary churches. Depending from the ceiling there will be six three-light electroliers, and three three-light brackets will be fixed from the woodwork of the gallery, one from each side and one from the back. There will be a couple of lights for the organist and four for the choir, which will be fixed on an electrolier at the top of each of the pitch-pine pillars. Underneath the gallery thirteen lights will be installed, making a total for the interior of the church of forty-six lights. In the vestibule there will be a two-light fitting and a single fitting in each staircase leading to the gallery. One light will also be fixed outside the door. The whole of the lights will be controlled by a double-pole distributing board, with fourteen switches, fixed in the vestibule.

THE British vice-consul at Kragero, Norway, reports that there are several large waterfalls about ten to twelve miles from that town, and a company, with a share capital of about 35,000*l.*, has been recently registered for the purpose of working them. The town is to be lighted by electricity, and it is to be hoped that factories, workshops and other establishments with power driven by electricity will be built in the town and neighbourhood. The company is also building a large dam in order to regulate the river, which brings all the timber from the country down to Kragero. As the waterfalls will develop very great power, which will be let out at a low price, and as wages and ground are cheap, it seems probable that money could be invested to good advantage in building factories, &c., in the vicinity of the power stations. It is also probable that this company will supply the power for the

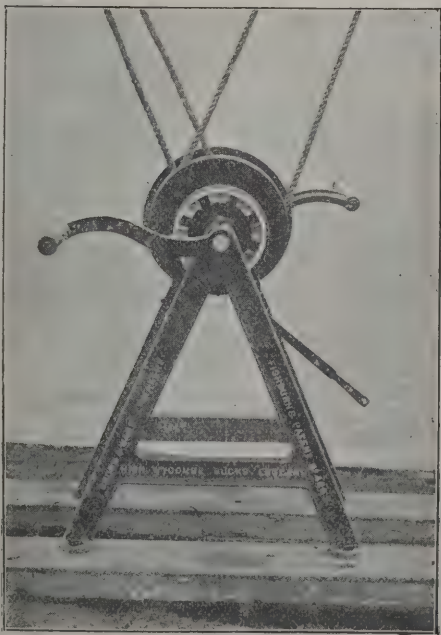
contemplated railway. The British vice-consul at Flekkefjord reports to the Foreign Office that electrical works are being built on account of that town. The power (about 1,000 horse-power) is taken from a waterfall situated about eleven kilometres (seven miles) from the town. The light is paid for at a rate of 10*s.* per 16 normal-light lamp. For manufacturing use it is paid for at a rate of 2*l.* 15*s.* to 3*l.* 18*s.* per horse-power per year, the rate being cheaper the more power required. The rate works out much cheaper than the use of steam.

AT a meeting of the Cardiff electrical committee—Councillor Hallett presiding—particulars were furnished by Mr. Ellis, the electrical engineer, of the business conducted by the department in July. The works cost for the month was 1710*d.* per Board of Trade unit, and the total cost, including management, but excluding interest and repayment charges, 2½*d.* per unit. The Chairman asked if they had actually turned the corner, or were they simply "turning the corner" still. Mr. Ellis: We are actually making money after paying working expenses. Councillor Good asked what dividend they were making on their capital of 106,000*l.* Councillor Iltyd Thomas replied that they were making nearly 6 per cent., but of course they had to pay interest and to provide for redemption of capital. Mr. Ellis said that if they were a private company they would be paying a dividend at the rate of 5½ per cent. per annum, as private companies were not compelled to provide for repayment within the number of years prescribed for public bodies. Councillor Good said he wanted to know the actual profit, after all payments had been made. Mr. Ellis replied that last year it amounted to 22*l.* Councillor Brain: In 18 years we shall have completed all our interest and sinking fund charges. A special circular was submitted by the electrical engineer showing the material reductions made in the cost of charges for electrical energy for lighting, heating and power purposes, which he recommended should be sent to all residents on the route of the mains, and also advertised in the Cardiff newspapers. The recommendation was adopted.

THE Corporation of Newcastle-under-Lyme two years ago obtained a provisional order authorising the institution of electric supply works for purposes of lighting and power, and the Corporation recently applied for an extension of time for another year. Messrs. Lacey, Clirehugh & Sillar, consulting engineers, have presented a report to the electric supply committee. The engineers claim that their estimates demonstrate that even with a small demand it is commercially possible to establish works on a remunerative basis at Newcastle. They

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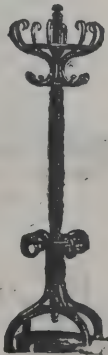
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recommend the low-tension system, and that the best method would be to generate the electricity at a pressure of from 440 to 480 volts, and distribute it by means of the three-wire system so that a consumer requiring a supply for lighting would receive 220 volts, and for power purposes 440 volts. This system would permit of a storage battery, and was perfectly safe to handle. For so small a demand the engineers consider that gas-engines would prove the most economical, but that when the demand increases considerably steam would be the most satisfactory. The estimates include mains along all the principal streets, designed so as to be extended in any direction. In the estimate of receipts the price of electricity is taken at 6d. per unit, which is said to be equivalent to 3s. 6d. per 1,000 feet gas. The estimate of capital expenditure using steam is 10,389l., and using gas 8,365l. The working is estimated to cost (including interest and sinking fund) with steam 1,487l., and with gas 1,381l. The revenue is estimated at 1,500l. The report is under the consideration of the committee.

VARIETIES.

THE new Primitive Methodist Sunday schools erected in Middlemore Road, Smethwick, were opened on Wednesday. The building, which will accommodate over 300 persons, has been erected at a cost of 950l.

SIR HORATIO LLOYD, one of the hon. secretaries of the committee which is carrying out the restoration of the south transept of Chester Cathedral as a memorial to the late Duke of Westminster, announces that the total cost will be 9,720l., and of this 8,718l. has been subscribed.

MR. ALEXANDER LAING, hotel proprietor, of Newcastle-on-Tyne, has commemorated his fiftieth year of commercial life in that city by the presentation to its inhabitants of an art gallery which will cost 20,000l., irrespective of the site, which was given by the Corporation.

A NEW voluntary school was on Tuesday opened at Whitehaven, Cumberland, by the Bishop of Carlisle. The school, which has cost 5,500l., is the gift of Miss Crosthwaite, of Whitehaven, and is in addition to other school accommodation, costing another 5,000l., raised by public subscription.

THE new St. Gerardine Church at Lossiemouth, N.B., erected in connection with the Established Church of Drainie,

was opened on the 10th inst. It has been erected on the Coulard Hill, overlooking the Moray Firth, from plans by Mr. Burnett, architect, Glasgow. Accommodation is provided for over 500 worshippers, and the total cost is about 4,000l.

THE damage caused by the recent fire at the Birkenhead Town Hall has been assessed at over 15,000l. The tower, with the clock and the cupola, the beautiful and valuable stained-glass roof over the Council chamber, the Council ante-room and the roof of the main building will, it is understood, be repaired and rebuilt to its former condition, and this cannot be done for less than the amount named.

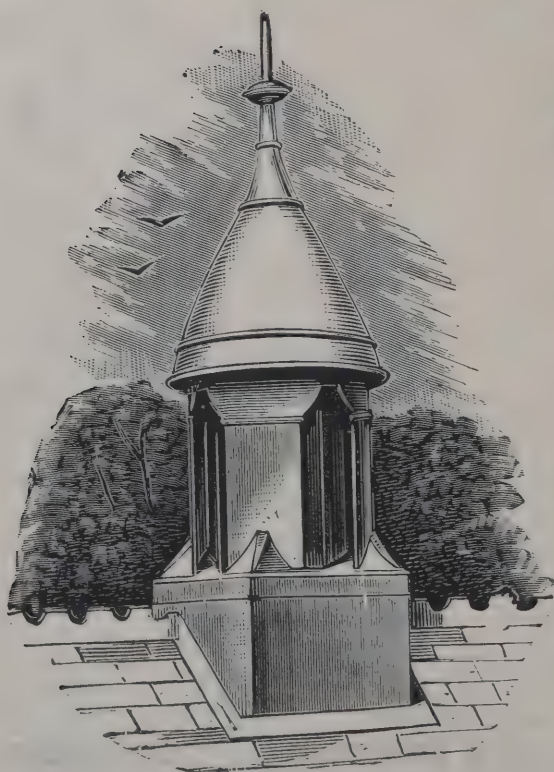
THE harbour extension works which have been in progress since 1897 at Burntisland, N.B., may now be said to be completed. After some experiments with the dock gates these were opened on the 10th inst to admit a small vessel belonging to the dock contractor, Sir John Jackson, who is removing his surplus plant to Sunderland, where he has another large contract. Fully 28 feet of water covers the dock area, and the loading hoists and engine power are in a condition for immediate traffic.

THE parish church at Stoke Bruerne has been reopened after renovation, and a new baptistery dedicated. The restoration consists principally of the removal of the comparatively modern plaster which had begun to peel off, repairs to the interior of the walls, the painting of the walls, repairs to the internal stonework of the church and various minor improvements. The work has been performed under the supervision of Mr. Matthew H. Holding.

THE Commissioners of Northern Lighthouses have given notice that on and after October 1 next a light will be exhibited from a new lighthouse erected on East Barnsness, near Dunbar, in the Firth of Forth. The light, which is of 78,000 candle-power, will be group flashing, white, showing three flashes in quick succession every 30 seconds, and will in clear weather be visible about seventeen nautical miles.

OWING to the sinking of woodwork at the entrance to one of the tunnels on the Albula railway line (Switzerland), which is in course of construction, part of the structure collapsed. Fourteen workmen were entombed. The work of rescuing the men, which was immediately begun, has so far resulted in the recovery of four bodies. One man, severely injured, has been extricated. An engineer engaged in the rescue work was carried away by the falling earth and killed.

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WISTOW parish church, near Selby, Yorks, which has been refloored and reseated, as well as having had other improvements made to it during the past few months, necessitating an expenditure of considerably over 600*l.*, was reopened on the 31st ult. The improvements effected include concreting floor of nave and aisles, reseating in plain oak and reflooring of the sacrum, and the addition of a new font and cover.

THE record for large water borings, which has hitherto been held by Gainsborough (Lincolnshire) is about to be challenged by Lincoln itself. The Corporation of that city recently invited tenders for a boring 2,176 feet deep, lined with 30-inch tubes, for a depth of 400 feet, and terminating not less than 12 inches in diameter. Seven tenders were received for the work, and the Corporation, on the advice of the engineer, Mr. Percy Griffith, of Westminster, have accepted that of Messrs. Charles Chapman & Sons, Ltd., of Salford, amounting to 14,605*l.* The time allowed for the completion of the work is four years, but it is anticipated that a shorter period will suffice.

At a meeting of the Coatbridge Town Council, Provost M'Cosh presiding, the question of the free public library, for which Mr. Carnegie has offered 15,000*l.* was discussed on a minute of committee recommending the adoption of the Act, and that a number of baths and swimming pond should be erected on the same site, at a cost for both sets of buildings of about 18,000*l.* The committee recommended that competitive plans should be got for the erection of the buildings, and that it should be remitted to them, with full powers to purchase the best available site. Several members, however, considered that the baths should be a separate venture, and that a site for the library should be secured first. Eventually it was agreed to defer adoption of the minute till the committee have further reported as to site and cost, and Councillor Orr formally gave notice that he would move the adoption of the Free Libraries Act at next meeting.

THE following curious incident is reported from America:—Two men owned properties, one on each side of the St. Lawrence. A flood arose and washed away the wooden house of the man who lived on the Canadian side. For some days he believed it lost till he learned that it had "fetched up" on the land of the gentleman whose property lay on the American bank. He went over and claimed it, but the American refused to give it up on the ground that anything washed up on to his shore became his own property if unclaimed within two days. But the disappointed Canadian had

his revenge. He reported the American to the Customs for smuggling a house, and the latter had to pay duty and a large fine.

A NEW hotel has been erected on a spur of the Longmynd, Church Stretton, 800 feet above the sea level. The building is situated in the midst of over 10 acres of beautifully wooded grounds, which slope down to the main road leading from Shrewsbury to Hereford, and is within easy distance of the railway station. It has a southern air-space, and commands a fine view of the valley and the Caradoc, Hazler and Ragleth hills, which can be viewed from a broad terrace which runs along three sides of the structure. The hotel is four storeys high, and contains on the ground floor entrance hall and lounge, staircase, hall and lift, dining-room 40 feet by 18 feet, drawing-room 28 feet by 18 feet (the two latter rooms opening on to the terrace, which forms a pleasant lounge and parade), billiard-room 25 feet by 18 feet, recreation-room 42 feet by 18 feet, and Turkish baths and dressing and cooling rooms. On the first floor there are seventeen bed and sitting-rooms, four bathrooms, &c., on the second floor eighteen bedrooms, bath, &c., and on the third floor ten bedrooms. The offices, which are large and well arranged, comprise all necessary conveniences, and the water supply is obtained from the springs in the hills. The building is heated throughout with hot water and will be fitted with the electric light.

THE Lichfield Cathedral library, which was closed for some months, has now been reopened. The library was originally closed because the Dean and Chapter, in their desire to place the fabric of the cathedral as nearly as possible into its original condition, decided to renew the roof of one of the rooms which lie above the entrance to the chapter-house. On that room the central spire fell at the time of the siege, breaking it almost to pieces, and at the very extensive reparation under Bishop Hacket, probably from want of funds, a plain plaster ceiling was substituted for the original groined roof. Enough, however, of the groining was left to show what the roof had been, and it has now been replaced in its original form—a thoroughly good and handsome piece of work. It was not, however, the reparation of the roof alone which kept the library so long closed. The western wall of the room was found to be nearly one foot out of the perpendicular, and had to be reconstructed from the foundation. The work, however, is now completed, and the shelves and books are all replaced.

GLENLEE school, which has been erected by the Hamilton (N.B.) School Board to meet the needs of Brombank and

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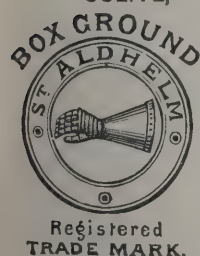
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Greenfield, was formally opened on Monday last. The site chosen for the new school is an excellent one, having frontages to three streets, and the building forms an imposing two-storeyed structure of red Dumfriesshire stone, and provides on two floors accommodation for 1,000 scholars. Separate entrances for boys, girls and infants lead into a large and well-lighted and ventilated central hall, which is to be used for drill purposes. On the upper floor a balcony runs round the central hall, protected by a high iron railing. The classrooms, sixteen in number, enter from the central hall on the ground floor and from the balcony on the upper floor. Every two classrooms are divided by sliding glass partitions, so as to be converted into one for a collective lesson. The buildings are heated and ventilated by mechanical means. The fresh or heated air is forced into the building by means of a powerful fan driven by a gas-engine. The school is finished throughout in a simple yet tasteful manner, and is a successful example of modern school planning. At the rear of the site there is placed a house for the caretaker. The total estimated cost is 12,000*l*. The architect is Mr. Alexander Cullen, Brandon Chambers, Hamilton.

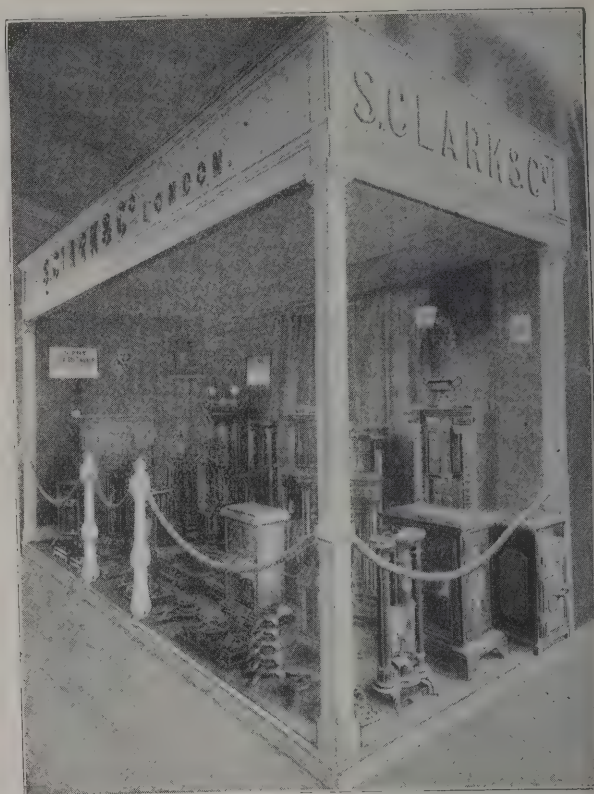
GAS STOVES AT THE GLASGOW EXHIBITION.

MESSRS. S. CLARK & CO., of Park Street, N., have an attractive stand at the exhibition at Glasgow, where they are showing a representative assortment of their patent syphon stoves, the principle and design of which are well known to our readers. Here, however, they may be seen in a variety of finish—japan, enamels of different colours, and plating, and a combination of enamel and plating, which produces a striking and eminently pleasing effect. The "Empress" stove finished in this way, with nickel-plated columns, Corinthian capitals and body in ceramic enamel of art blue, is distinctly handsome and attractive, and is suitable for the warming of large rooms, galleries, studios, halls, &c.

The "Syphonette" series is a handsome range of stoves, very bright and cheerful looking and artistically finished in ceramic enamel with a coloured-glass screen in front.

The "Cabinet" is a handsome cased stove with two burners. The panels are of open ironwork, permitting the light to shine through. The top may be used for keeping dishes warm. It is so constructed that one or both burners may be used as desired.

Another excellent stove which may be seen at this stand and one which we believe has not been exhibited before, is the



new cooking stove with patent grill, which Messrs. Clark & Co. recommend with confidence. In addition to those mentioned, there are several other stoves which burn gas, and a distinct series which are adapted for the consumption of oil. In this series the leading designs are reproduced. They are, therefore, just as effective as the gas stoves, are very economical, and, which enhances their value in many cases, they are portable.

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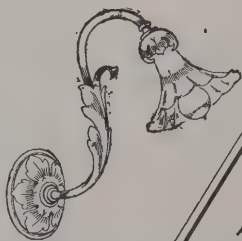
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A SAFE FOR ARCHITECTS.

WE lately referred to the need which exists for a proper provision in the fitting-up of architects' offices for the safeguarding against destruction by fire or otherwise of important and valuable plans and drawings. We are glad to receive a description of a new and patent safe which has just been brought out by Messrs. Chubb & Son's Lock and Safe Company, Ltd., of Queen Victoria Street.

This safe, the measurements of which are, outside, 4 feet 4 inches high by 4 feet 4 inches wide by 3 feet 4 inches deep; inside, 3 feet 6 inches high by 3 feet 6 inches wide by 2 feet 4½ in. deep, is fitted internally with fourteen light steel sliding trays, the fronts of which are shaped for readily pulling out and for lifting edges of sheets to sort and select. Each tray is numbered to correspond with the card-cases for clients' names or indices on the right-hand door. The safe is of the best fire-resisting quality, being extra thick all over, and is packed with mineral non-conductors and steam-generating salts. The latter only give off their water of crystallisation when subjected to the heat of a fire, thus serving to protect the contents from dry baking. In the design of this safe special precautions have been taken to give the doors a secure seating when shut. This is effected by forming them with projecting tongues all round their edges, and corresponding sunken grooves on the safe. In addition to these, the doors both carry Chubb's patent spring plates, which act like a separate pair of cupboard doors, and form an extra intermediate air space. The value of extra inner doors is well known as an additional precaution in a safe against fire and heat. Chubb's patent spring plates confer all their advantages without their inconvenience. Where expensive and valuable standard drawings have to be kept in absolute

security for reference, the price paid for a safe of this kind as compared with the cost of the usual combustible wooden nest will be more than recouped by the purchaser in the freedom from anxiety which it confers. The price of this safe ranges from 75*l.* upwards, according to quality.

QUEENSLAND FOREST TREES.

AS may be inferred, Queensland, lying within two zones (10 degrees to 29 degrees south), and with over 2,500 miles of coast, possesses a remarkably rich and varied flora. The dense scrubs frequently bordering the rivers contain trees which supply valuable timber, whose stems are often clothed with superb climbers, and the undergrowth is intermixed with ferns exceedingly beautiful and of almost endless variety. The more open or forest country and the downs are covered with rich and nutritious grasses and other fodder plants. Few plants are to be met with of a poisonous or deleterious character, while many are extremely beneficial to man. From some drugs that are in use both in Europe and Australia have been prepared; the barks of many are used advantageously in dyeing and tanning, and from the leaves of others oil of a highly fragrant nature has been obtained. Though there are many beautiful cabinet woods, and woods of great value for railway sleepers and all uses in which endurance is required, still only a very few of the timber trees are at present cut for use, and these are a mixed lot sold under the names of "hard" and "soft" woods. The hard woods are principally supplied by the Eucalypts, and denominated ironbark, gum, box, peppermint, stringybark and turpentine. The soft woods are almost entirely derived from the various pines. Hard woods are generally obtained in open or forest country, soft woods in the scrub lands on the borders of rivers and the rich moist lands often met with on the tops of the ranges; yet this rich scrub soil often produces some of the very best hard woods—as, for instance, the Johnstone River hard wood, which is considered second to no timber in Australia for strength and durability; also Thozet's Box, one of the most valuable Eucalypts found in the scrubs bordering the Fitzroy.

Amongst the hardwoods, where strength and durability are required, those known as ironbark take first rank. Of these there are several kinds, the best being obtained from Eucalyptus siderophloia, of which there are two kinds of wood, one red

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and the other a brownish-grey, both excellent timbers, though the red is the favourite; *E. crebra*, or the narrow-leaved iron-bark, which has a greyish wood, very strong and durable, and the Palmer River ironbark, better known by the lemon-like fragrance of its leaves, from which it received its local name, than as a timber. The wood of this last, though very hard and of a rich red colour, is usually small and pipy.

The trees known as stringybarks supply excellent timber for sawing and splitting; the kinds cut under this name are usually *Eucalyptus acmenioides* and *E. eugenioides*. Nearly resembling these in bark are the trees sometimes called turpentine (*E. microcorys*)—a very hard, strong, durable timber; *E. baileyana* and *E. resinifera*, two excellent timbers with a fibrous bark, from which circumstance they are at times known as stringybarks.

The timber generally known as gum is furnished by those *Eucalypts* which annually shed their barks, as the blue gum (*E. tereticornis*), the poplar gum (*E. platyphylla*), the grey gum (*E. saligna*), the spotted gum (*E. maculata*), the woollybutt (*E. botryoides*) and the Moreton Bay ash (*E. tessellaris*). The bark of the last two is persistent at the base. There are also several others called gum trees, but those noticed furnish the best timber. The so called box is a name under which several trees supplying good useful timber are known, as poplar box (*E. populifolia*), gum-topped box (*E. hemiphloia*), Thozet's box (*E. Raveretiana*) and also the Brisbane box (*Tristania conferta*).

Two trees are designated bloodwood. The common bloodwood (*E. corymbosa*) is only adapted for using whole, as it often contains cavities in the wood so full of gum as to render it useless for sawing; it is, however, the favourite timber, on account of its durable nature, for house-stumps, piles for bridges and other works where it can be used uncut. The white bloodwood (*E. trachyphloia*) is very similar, but the wood is of a lighter colour and not quite so durable.

The hardwood of the Johnstone River is furnished by a species of *Backhousia*, *B. Bancroftii*. This is a very tall erect tree, and so far as is yet known the wood is both durable and strong, does not crack or warp, and is easy to work. The broad-leaved or paper-barked tea-tree (*Melaleuca leucadendron*), the mahogany—Tom Russell's Mahogany, as it is sometimes called—(*Lycarpus ternifolius*), and the swamp mahoganies (*Eucalyptus robusta* and *Tristania suaveolens*) are timbers of a high quality, though the last-mentioned is useless except under water, when it is extremely durable.

The hardest wood, however, of Australia is that of *Erythrophloeum Laboucherii*, a tree met with in North Queensland, from the Endeavour River to Normanton. The wood of this tree is a rich red in colour, and takes a high polish.


The soft woods in use are the Bunya (*Araucaria Bidwillii*); Moreton Bay or Hoop pine (*Araucaria Cunninghamii*); Dundathu pine (*Agathis-Dammara-robusta*); the She-pine (*Podocarpus elata*), and several of the *Callitris* under the name of cypress pine.

For cabinet and ornamental purposes the following are in high request:—Red cedar (*Cedrela Toona*)—the Moulmein cedar of the English market; yellow wood (*Flindersia Oxleyana*), and others of this genus, especially *F. australis*; silky oak (*Grevillea robusta*); deep yellow wood (*Rhus rhodanthema*); tulip wood (*Harpullia pendula*), and beech (*Gmelina Leichhardtii*), a tree attaining a great size. The wood of this last is in great request for verandah flooring and deck planking.

Other woods suitable for cabinetwork are *Elæocarpus Bancroftii*, a tree with a firm light sapwood and a quantity of very hard, prettily marked heartwood, though perhaps its true value will be in its proving a substitute for the American *lignum-vitæ* in the manufacture of blocks, pulleys, &c., than as a cabinet wood; several of the *Evodias*, all having a white pliable wood; the satinwood (*Zanthoxylum brachyacanthum*), one of the most beautiful yellow woods known; *Geijera Muellieri*, a common tree in most Queensland scrubs, having a large quantity of beautifully marked dark heart; *Siphonodon australe*, another scrub tree whose wood is nearly white, very much resembling ivory when polished; the bean-tree (*Castanospermum australe*), growing a heartwood somewhat resembling walnut, but apt to warp in seasoning; the Queensland ebony (*Bauhinia Hookeri*), a rich-coloured hardwood, very suitable for veneering; the scrub sandalwood (*Exocarpus latifolius*); the Australian olive (*Olea paniculata*); and many species of acacias, commonly called myalls or wattles, and remarkable for their rose-like fragrance.

Handsome woods are produced by the "dead finish" (*Albizzia basaltica*), *Acanescens*, *Archidendron Vaillantii*, several of the genera *Terminalia*, *Maba*, *Grevillea*, *Hakea*, *Xylomelum*, *Stenocarpus* and *Banksia*, the timber of the last five being known as beefwood; the silky oak; the Gulf country gutta-percha (*Excæcaria parvifolia*) is very prettily marked and conspicuous for its beauty; and the thready-barked oak (*Casuarina inophloia*).

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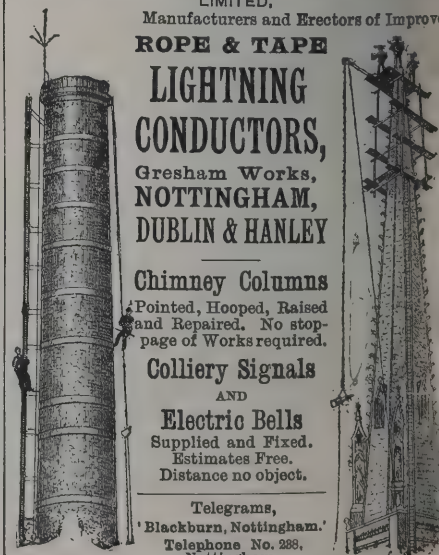
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Tanning Barks.—Many of the indigenous plants are known to be rich in tannin, but only a few of the barks are collected for use, and these are almost entirely confined to the various acacias, one kind (*Acacia decurrens*) being the most extensively used, though it is quite certain that several other species yield barks equally rich in this valuable property. Several of the Eucalypts are used, but not to any extent. The barks of the mangrove—which trees are so abundant along the coasts—have been used in India and elsewhere for tanning, though the trees in Queensland have never been barked for this purpose

CEMENT INDUSTRY IN SAN FRANCISCO.

In his report on the trade, &c., of the district of San Francisco for the year 1900 Mr. Acting Consul-General W. Moore says:—
The following table shows the quantity of cement imported during the last two years:—

From—	Quantity.	
	1900. Lbs.	1899. Lbs.
Belgium	122,182,290	59,234,000
Germany	75,412,551	27,005,200
United Kingdom . .	69,442,000	37,541,000
China	2,964,146	—
Japan	981,200	—
Total	270,982,187	123,780,200

Importations were unusually heavy in 1900, the amount received being more than double that of the year preceding. A large and fairly satisfactory business was done for the first six months, but afterwards prices declined owing to the heavy arrivals and the competition of domestic producers. The stock in hand at the close of the year was very large, and, added to that contracted for and on the way, is quite sufficient for a year's requirements. Prices closed irregular, concessions having to be made to induce buyers to transact business.

Not many years ago British cement had almost a complete monopoly of this market, but last year the importations fell from second to third place, as may be seen by reference to the table. This state of affairs is attributed to the manufacturers, who refused to regard the advice and warnings of importers who urged them to produce a finer article, which they neglected to do until the continental makers had firmly established them-

selves in the business. The British cement now sent here meets the requirements in quality and price, as compared with the continental article, but has lost the prestige that it formerly held, and no longer commands the sale it used to enjoy.

The competition that was threatened by the Chinese and Japanese manufacturers did not turn out of a serious nature, only a small amount having been received from those countries. These imports are sent here by steamer, while the cement from Europe comes by sailing vessels, and the difference in the cost of transportation is said to offset the advantages they possess in cheapness of production. Competition of a more serious character has arisen through the manufacturers of the State of Utah, who are forwarding consignments to this market on a large scale, and recently secured a contract of 10,000 bags in competition with the agents of European brands. They have since secured several contracts from the United States naval and military authorities at a price of 2 dols. 35 c. (9s 8d.) per bag (a bag contains 380 lbs., and is equivalent to the contents of a barrel), laid down where the work is proceeding, and although some prejudice exists against this mode of packing no serious complaints have arisen. All the cement that came in during the last six months of 1900 and that which has arrived since shows a serious loss, as with present prices and rates of freight the European article cannot be landed here for less than 2 dols. 60 c. (10s 8½d.) to 2 dols 75 c. (11s. 4d.) per barrel.

Several local companies for the manufacture of cement have been incorporated, and one of them, possessing extensive properties at the town of Tesla and backed by large capital, is expected to commence operations by the end of the current year. Those that can produce a good article and are situated within a radius of 50 miles from this city have excellent prospects of success, as the transportation charges will not preclude the consignment of their product to this market. Some of the conservative business men here express the opinion that the entire needs of the State will be supplied from local sources in the near future.

LIVERPOOL DOCKS.

THE annual report by Mr. Anthony G. Lyster, engineer to the Mersey Docks and Harbour Board, on the general state and progress of the dock works at Liverpool has been issued. It shows that large and important works have been carried out

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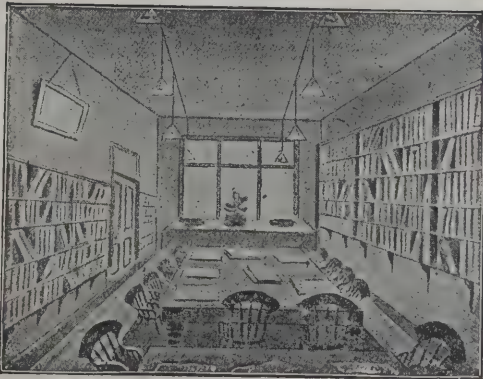


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during the year, and that several extensions are still in progress. Reference is made to the completion of the new tobacco warehouses at Stanley Dock, the largest of their kind in the world, having fourteen floors, with an aggregate area of 36 acres, and capable of storing 60,000 hogsheads. Some interesting figures are given in the report regarding the dredging work done at the bar and in the channels leading therefrom to Liverpool. The quantity of sand removed during the year amounted to nearly 9,000,000 tons, the result being that the condition of the bar and the channels have been fairly maintained. In conclusion, the report states that the amount of work carried out under the control of the engineer's department has been exceptionally large during the year. The wages bill has at times been within a few pounds of 11,500*l.* per week, and the number of men employed has been upwards of 7,800 at one time. These figures, it is pointed out, are exclusive of payments to contractors, and do not include the men employed by them. The total expenditure in the engineer's department for the year has been 1,230,949*l.*

THE CONDITION OF MARSEILLES.

FROM the report of the British Consul at Marseilles there is much of public interest to be said as to the improvements in public health of this town in recent years, which, judging by the strange comments on Marseilles from time to time in the Press, are apparently ignored. The Marseilles of 1901 is very far from being the Marseilles of ten or even five years ago. Yachts visiting the old port need no longer fear noisome emanations from polluted water and stagnant drains, for the drains of the town no longer empty themselves in the old port, as they still do at Toulon.

In 1898 the great drainage works of Marseilles on the "Tout à l'égout" system were completed, and the drains of the city are carried miles away to sea. Every house is fitted with the modern sanitary arrangements on the flush system. The town is, in fact, the best drained town and the most healthy of all the Mediterranean trading ports. The adoption of this drainage system was made possible by the completion of the Durance Canal, which brings the water of that river across a range of granite mountains to Marseilles and to its once arid suburbs. Marseilles is really little known to the traveller flying through from dock to station, who only sees the busy

docks, the miles of streets, the wonderful "Cannebière," the great street through which everything passes, where natives of every part of the world meet and wonder at each other, and of which the enthusiastic Marseillais is supposed to say, "If Paris had the 'Cannebière,' Paris would be a little Marseilles." The Corniche, the Prado (a boulevard with six rows of trees extending for miles into the country), the sea promenade, the parks, the racecourse, are all to the south of the city, and make the town pleasant to live in. It must be confessed that street cleaning requires much improvement, and that police protection is inadequate for so large a town. On the other hand, it should be acknowledged that the drainage improvements have cost millions of money, and that further improvements, recognised as necessary, are only postponed for want of funds. Reclaiming the poor quarters of the town is in progress—"Rome was not built in a day."

REGISTRATION OF PLUMBERS.

IN connection with the West Lancashire, Cheshire and North Wales District Council of the National Registration of Plumbers, a public distribution of certificates to sanitary plumbers took place at the Liverpool Free Library, William Brown Street. Dr. Vacher, medical officer of health for Cheshire, presided over a large attendance, and was supported, amongst others, by the mayor of Stockton-on-Tees (Alderman Hind), warden of the Worshipful Company of Plumbers. The objects of the National Registration are to raise the standard of efficiency in sanitary plumbing, and to establish a list of registered plumbers for public use. In fulfilment of these aims examinations for masters and operatives in sanitary plumbing are conducted by the West Lancashire, Cheshire and North Wales Council, under the auspices of the Worshipful Company of Plumbers, London, and on Saturday 190 certificates of registration were presented.

Dr. Vacher congratulated the Society upon its successful operations, and emphasised the great importance of sanitary plumbing in the interests of the public health. Alderman Hind, proposed a resolution cordially approving of the national registration of plumbers as a safeguard against ill-health, and advocating the necessity of Parliament being urged, by memorial or otherwise, to deal with the subject during the next session. He asserted that both at home and abroad the demand for good sanitary plumbing was greatly on the increase,

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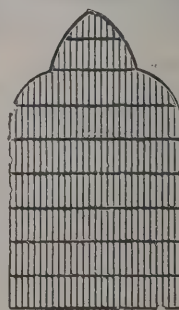
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and the importance of the registration of plumbers was being evidenced to a corresponding degree. They wanted plumbers to be registered, so that people would know who were *bona fide* sanitary plumbers and who were quacks, so to speak. It was their earnest desire to see the day ere long when architects would state in their plumbers' specifications that only registered plumbers need apply. They had great hopes that a Bill dealing with the subject of registration would be passed next year.

Mr. T. Fallows, of Bootle, seconded the resolution, and it was unanimously adopted.

THE HOUSING PROBLEM.

BOURNVILLE is to be the scene of an interesting conference on September 21 next. The Garden City Association, one of the objects of which is to induce manufacturers to remove from large and crowded centres to country districts, and whose general aim is to assist in counteracting the evils of overcrowding in towns and depopulation in rural districts, proposes to organise a meeting of representative citizens for the purpose of discussing the housing problem from various points of view, but with special relation to the industrial aspect of the question. Mr. Ralph Neville, K.C., will read a paper on "Co-operation in Garden City."

We believe, says the *Birmingham Daily Post*, that such a conference as is to be promoted by the Garden City Association will help in educating public opinion on this vital question, and the authorities who are to speak on the relation which exists between the various social problems and the projected city will probably have something of importance to say. A great concrete example such as is proposed by this Association to be carried out on land, first of all, we presume, in the vicinity of London, will be a remarkable opportunity for illustrating how the problems associated with land tenure, the liquor traffic, the housing, education, the relations between capital and labour and sanitation may be effectively solved.

But there can be no doubt that, however theoretically perfect the scheme may be, its ultimate success will depend as much on the practical management brought to bear upon details as upon the principle underlying it.

The Bournville experiment is an example of what one manufacturer may do to raise to a higher level the social and material welfare of the people which he has under his care.

But in such a case the experiment can scarcely grow from a village into a town, and there can be no doubt that the social attractions of a village, even when benefiting from such philanthropy, are not sufficient to stem the tide of rural depopulation.

The experiment to be effective in this way, and also to have any appreciable result in towns, must not be a single-handed one, but must be organised and developed on extensive lines. We are glad to observe that under the auspices of the Garden City movement there will be no interference with the rights of private property in carrying out their ideas. They propose to acquire land in a perfectly constitutional manner, at a price which they can secure it for in the open market, and having done so, they intend, quite fairly, to retain for the benefit of the community any future increment of value which that land may acquire. It is calculated that upon an estate of 6,000 acres one-sixth will suffice for the accommodation of a population of 33,000 people, and that the ground rents would provide for the interest at the rate of not less than 4% per annum on the capital and leave a large surplus.

They claim for their proposals:—

1. That they recognise the impossibility of diverting labour by artificial means from the industries to which it flows by the natural operation of economic law.

2. That they bring the producer and consumer of agricultural produce into contact.

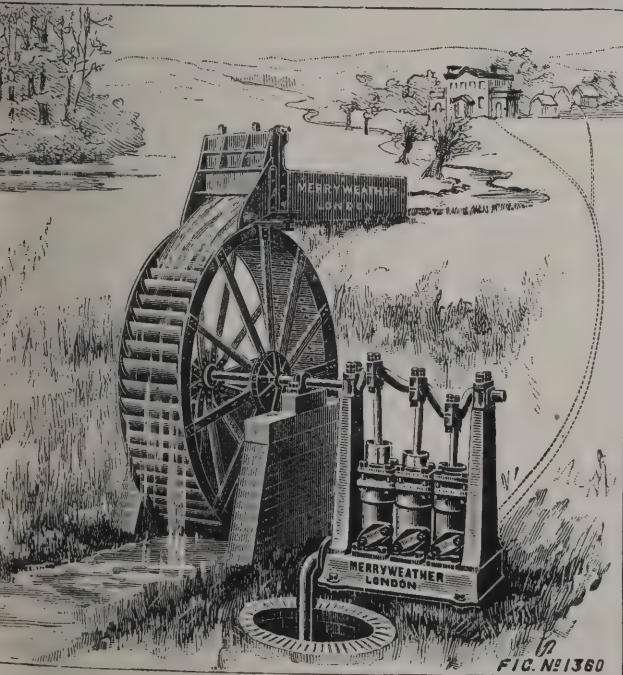
3. That the scheme has a sound financial basis resting upon the increase in the value of land caused by an influx of population.

4. That the economies in regard to construction, supply of power, transit, &c., resulting from the construction of a town, in conformity with a premeditated plan, are great.

5. That no economic law is infringed and no industry interfered with. If the scheme can be carried out the ultimate benefit to the population of the country would be great. If it fails, the loss will be measured by the difference between the purchase and sale price of the estate and the cost of partly laying-out a single section of the proposed town.

There can be no doubt that should lands be secured within a reasonable distance of London at the price anticipated, namely, 40% an acre, that the scheme might be made financially successful. We understand that the manufacturers can be got to migrate, and of course that being so the population will follow. As to increase in land value, this may be judged from the fact that Bournville leaseholders pay equal

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to 600*l.* per acre, and yet are able to have 600 square yards of garden ground. Rents to weekly tenants on Bournville estate, where land is of the above value, are as low as 5*s.* 3*d.* for a cottage and garden. There is obviously a sufficiently large margin between 40*l.* per acre and 600*l.* to admit of the construction of roads, the supply of public services and interest on the capital expenditure. And yet 600*l.* per acre is about a tenth part of what most manufacturers have to pay for sites in London. When the necessary generating force is available, and the courage of the promoters receives sufficient backing from the public-spirited men and women who desire to see a satisfactory solution of the housing problem and of the problem of the relations between employer and employé, we have no doubt the Garden City Association will realise its ideal.

DWELLINGS FOR THE WORKING CLASSES.

In the section for Municipal and Parliamentary Hygiene at the Eastbourne Congress Bailie Steele, of Glasgow, gave an account of what had been done in Glasgow in connection with the erection of improved and healthy dwellings for the working classes. He explained that the Corporation of Glasgow, seeing the importance of the subject of decently housing the poor of the city, appointed a committee to obtain a large area and erect suitable dwellings. At first the scheme met with much opposition, and nothing of consequence was done till 1888, when a large block was begun to the east side of the historic Salt Market. Since then the trustees had vigorously carried on the work of demolishing old and constructing new properties, until the whole of the unbuilt ground had been nearly covered with substantial properties. Owing to the position and high value of the sites many handsome blocks of houses and shops had been erected, the upper floors of which were occupied by the better working classes, but wherever it had been found practicable the providing of ordinary working-class houses had been undertaken. In all 46 blocks of buildings had been constructed. There were 200 shops, 1,445 dwelling-houses, and of the latter 402 were of one apartment, 890 of two apartments, 152 of three apartments, and only 11 were of larger size. The minimum rents were: One-apartment houses, 4*l.* 10*s.* per annum; two-apartment houses, 6*l.* 16*s.*; three-apartment houses, 12*l.* 9*s.*; and the maximum rents were 8*l.* 15*s.*, 14*l.* and 21*l.* respectively per annum. Since then the

Corporation had done other work in the same direction, and had built a Corporation family house to make provision for people of the poorer classes who, through the death of a husband or wife, were left to struggle with the upbringing of a young family. The house was in charge of a husband and wife, and had been very successful. While Glasgow had done much in the direction of providing suitable accommodation for the poorer class of artisans, much yet required to be done, more particularly in supplying suitable houses for the lower-paid working classes at a rent within their moderate means.

The subject of the housing of the poor was also dealt with by Mr. H. Mansfield Robinson, town clerk of Shoreditch, who drew an appalling picture of overcrowding, and the immorality resulting therefrom, in the East End of London. He instanced single tenements in which from six to ten persons resided, in some cases under disgusting conditions. The difficulty which confronted social reformers in this direction, he urged, was the question of the repayment of the debt for the erection of model dwellings, and he expressed the view that a hundred years should be the period.

The discussion which followed largely turned on the question as to whether the building of single rooms should be encouraged, and there was considerable difference of opinion on the point.

Mr. Robinson moved:—"That this Congress records its emphatic protest against the persistent ignoring by the President of the Local Government Board of the unanimous recommendations of London and provincial municipal authorities passed at the Bermondsey Housing Conference of 1898, the Aberdeen and London Congresses of 1900, the Islington and London County Council Conferences of 1901, and by the Municipal Corporations Association in favour of the extension of housing loans to 100 years, the urgent necessity of which is reiterated by this Congress, and that in view of the fact that interest and repayment of housing loans being charged in some municipalities on the rents of the dwellings and falling upon the tenant and not on the ratepayer, the present repayment charge (averaging about one-third of the rent) inflates the same beyond the means of the poorer workers, and thus the efforts of municipal authorities to house them decently are crippled and frustrated."

Sir T. Pile (ex-Lord Mayor of Dublin) seconded the proposition, which was carried.

On the proposition of Alderman Trenner (Holborn), seconded by Mr. Middleton (Aberdeen), the Government

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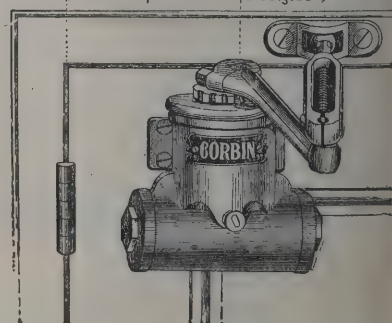
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were called upon to adopt and pass immediately the Bill introduced by the Hon. Claude Hay, M.P., Mr. Bull, M.P., and others for securing the extension of housing loans to a minimum period of 100 years, and so assist municipal authorities in palliating without further delay the dreadful evil of overcrowding admitted by the Premier to be a scandal to civilisation.

SEWER VENTILATION.

At the meeting of the Health Congress at Eastbourne a paper was read by Mr. I. Shone on "The House and Town Drainage Systems of the Twentieth Century." He remarked on the fact that twenty-one years ago the first installation of the system of drainage bearing his name was laid at Eastbourne, and he detailed at length the principles of what he described as a sound sanitary, scientific and economical method of drainage. He concluded by exhibiting examples of an improved intercepting trap, &c.

Dr. Willoughby gave some particulars as to the methods of sewer ventilation which had been tried at Eastbourne, and generally abandoned in favour of the ventilating shaft.

The Mayor remarked that the great principle to which Mr. Law had adhered in advising the Eastbourne Corporation relative to their recently constructed system of drainage was that if they had a proper sewer, affording facilities for the regular and constant flow of the sewage, they need trouble themselves very little about ventilation in the street.

Mr. R. M. Gloyne, borough engineer at Eastbourne, observed that it was proposed that afternoon to pay a visit of inspection to the outfall and ejector, the power of which had been lately and materially increased. They had, as the Congress had been informed, tried various systems, some of which had been unsatisfactory, while others had been found too expensive. They were now ventilating by the up-shaft method, and for the erection of these shafts they were glad to have the permission of house owners and householders.

Dr. Newsholme, medical officer of health at Brighton, said he thought that the Mayor of Eastbourne had hit the nail on the head when he remarked that with a properly-constructed sewer they need trouble little about ventilation, the importance of which, he submitted, was greatly exaggerated. There was very little necessity indeed for the elaborate methods which had been brought under their notice that morning. Sewer

ventilation was a question of comfort and of health. The emanation from a well-made sewer did not, he argued, affect health, but as a matter of comfort they desired to get rid of smells, and he thought they had with the ventilating shafts the correct system at Brighton and Eastbourne.

Dr. Weaver, medical officer of health at Stockport, said he had very substantial reasons for regarding sewer gas as very deleterious, cases of typhoid having to his knowledge occurred in the vicinity of a ventilator where the smell had been particularly bad. If sewer gas was not bad for health, why did they often put house owners to the expense of redraining their premises?

The value of the intercepting trap was also debated.

ST. PAUL'S CATHEDRAL.

At St. Paul's Cathedral Mr. E. J. Harding must now have an anxious time in answering the inquiries of newspaper correspondents. In a conversation with the representative of the *Daily News*, he said:—

"The Cathedral is weak, and we feel that there would be great danger in allowing the underground electric Piccadilly railway to come, as is proposed, so close as Carter Lane. It is no new discovery that the Cathedral is weak. Its custodians knew all about that over a century ago, as is proved by the works then undertaken to strengthen the south transept. Iron ties and straps were introduced. Then we have the evidence of weakness that is supplied by numerous cracks in the structure. Those cracks are not new, but there is this significant fact about them—after being filled up they have reopened within the last twenty years."

"Are they very serious fractures?" asked the representative.

"Well, they are not chasms. While the original crack was say, three-quarters of an inch, the new opening would be comparatively small. These cracks, I am sorry to say, are very widespread, and occur at different levels. I have been watching their development for years, and consequently have a tolerably full knowledge of the subject. As that knowledge has now to be embodied in a report, I am about to institute a very thorough scrutiny of the building. As a misapprehension has arisen on the point, I may mention that this scrutiny will not necessitate the erection of scaffolding all over the dome."

"How comes it that the Cathedral is weak?"

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"The foundations on the south side were insufficient. Wren did not go deep enough. Where we stand on the crypt level there is a depth of 5 feet of masonry between us and the yellow clay on which the Cathedral stands."

"What! St. Paul's Cathedral has only a 5-feet foundation?"

"That is to put the matter too severely. The crypt, with its many heavy piers, would also count as foundation, and the distance between the crypt floor and the Cathedral floor is 18 feet."

"Still, Sir Christopher should have gone deeper?"

"Yes, on the river side. On the other side the Cathedral is as firm as a rock. When you go 5 or 6 feet through the yellow clay—called by Wren 'potters' earth'—you come to a shifting gravel, containing water, and below that comes another stratum of clay. Now the draining off of the water from the gravel is the cause of the mischief on the south side. By-the-by, I ought to mention that Sir Christopher experienced great difficulty in getting a stable foundation at the north-east of the building, where he finally had to go down about 40 feet."

"What has led to the drainage of water from the sub-soil?"

"I certainly think we have to thank the underground railway in Queen Victoria Street. You see, given a fall in the lay of the strata, you only have to make an outlet at one point for the drainage to be operative over an extensive area of higher ground. Of course, the point is a disputed one. The theory on which big engineers rely is that all the openings they make are securely plugged, and they will tell you that they are careful to avoid the danger of subsidence by replacing in the strata a bulk equal to that which their excavations have displaced. But that seems to me to be theory, and nothing more. How can you be sure of restoring the displaced bulk, when you are dealing with water drained off from a considerable distance? In my opinion an underground water-course is very likely sooner or later to follow the line of all these tube railways that are being constructed in London."

"Have the Cathedral authorities previously had occasion to resist projects involving excavations in the neighbourhood?"

"Yes, thirty or forty years ago the City people wanted to run a double sewer under the road on the south side of the Cathedral. That scheme was successfully resisted, the sewer being taken elsewhere. A case of the kind also occurred with regard to the Central London Railway. The safety of this structure was threatened by the position proposed for the Post

Office station. There, again, our opposition was successful, the proposed site of the station being abandoned in favour of the present site."

"And you are taking all possible steps in the present case?"

"Yes, we shall be represented by influential engineers. It certainly seems a shame that the Cathedral authorities should be put to heavy expense in order to defend a national interest. But this railway project is causing them much anxiety, and they will do all in their power to avert the danger. The position is this—the Cathedral is weak, and there are no means of strengthening it; but it will be all right if only the surrounding ground is not tampered with."

BIRMINGHAM'S ELECTRIC LIGHT.

At a recent meeting of the Birmingham City Council Mr. Johnstone brought up the report of the electric supply committee, and moved:—"That the finance committee be instructed to borrow the sum of 128,890*l.* for the erection of a generating station on the site acquired for that purpose in Summer Lane, and the sum of 75,000*l.* for the laying of new mains with subsidiary stations in outlying districts; and that subject to such loans being sanctioned the electric supply committee be authorised to carry out the said works." The General Hospital site, Mr. Johnstone reminded the Council, was purchased in July 1900, with the sanction of the Council, as a station for tramway purposes and for general extension of the mains for lighting. The question of the extension of the mains had been on the agenda of the electric supply committee since February 1900, and provision would now have to be made for the energy to be supplied to these mains, while the tramway department would want electric power before the end of 1903. It was most important, therefore, that the station should be commenced as soon as possible, and experience had shown that it was necessary to order engines and dynamos at least eighteen months or two years before they were wanted. There was no doubt that within the next few years the committee would have to ask the sanction of the Council to the full total of 239,200*l.*, and the committee had fully reported what it proposed to do, but for the present purpose the sum asked for was 128,890*l.* in addition to 75,000*l.* for new mains and subsidiary stations. The spending of the money would be spread over the next three

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ears, but the building should be commenced as soon as possible. With reference to the question of the architect, it was necessary to have plans prepared under the instructions of the engineer, and as Mr. Harper had had a large experience of electric-lighting stations under the old committee, the engineer was requested to confer with him. The foundations and tunnelling, for instance, were very important, and required special knowledge and experience. It should be remembered that the electric-lighting department was a profit-earning department, and the output was increasing steadily every month. Provision must be made for still greater progress in the future, and there was every reason to hope that in course of time much help would be given to the rates from the profits of this department.

The report having been seconded, Mr. Lancaster moved, as an amendment, that the report be referred back to the committee, with instructions to consider the advisability of providing an installation station only, and to report to the Council their recommendation. He said the report was exceedingly laudable, because it did not say how many subsidiary stations were to be built, nor did it give any definite information as to what would be done with the 75,000*l.* While not opposing the work of the committee, he strongly objected to the generation of tramway currents in Summer Lane, because of the distance they would have to travel and the consequent loss of high voltage. In every one of the large electric tramway systems in this country and on the Continent the generating station was in the middle of the tram system, and the same should be the case in Birmingham. He objected to the site in Summer Lane because there was no large railway near it. There was a canal, but in times of frost there might be difficulty in getting coal, and it would be a serious obstacle to the generation of electric light and tram currents if they had to rely only on the canal service for the supply of coal. As there were to be fifty-two miles of tramways, there should be more than one generating station. It would be unwise to put all their apparatus in one station, because if a fire broke out the place might be burnt down, and the whole of the tram service would be thrown out of gear.

Mr. Balden seconded the amendment.

Alderman Clayton pointed out that the generating station would be pretty well in the centre when the city owned all the tramways.

Mr. Lancaster said he advocated a station in the centre of the tram system.

Alderman Clayton was pleased to hear a declaration from the chairman that sooner or later the committee would be able to hand over money in aid of the rates. That would be a great satisfaction to the ratepayers. He suggested, too, that it would be a saving of time in the long run if the committee applied for power to borrow the money by a Bill in Parliament.

Mr. Walthall urged that the subject should be postponed until October, when a complete detailed report might be presented. It would be necessary to supply the Local Government Board with full details, and those details might be given to the Council. At present he had not much confidence in the committee, because he remembered that in May last the Council were told the committee were going to spend in relaying new mains 6,200*l.*, whereas they spent 9,349*l.* If that was a sample of the way in which the committee's estimates were going to be exceeded the Council could not place much reliance on the figures before them.

Mr. Nettlefold moved, as an amendment, that the finance committee be instructed to borrow 108,890*l.* instead of the 128,890*l.* He said he had had fifteen years' experience in the building of large works, and it seemed to him the item allowed for building was very excessive. He had been told the figures were only rough estimates, and that the committee would not spend more money than they could help, but it was rather unfair to ask the Council to give them so much more money than they ought to require.

Mr. Nettlefold's amendment was not seconded.

Alderman Beale, in reply to Alderman Clayton, said that the original intention of the committee was to proceed by Bill, but it was, as Alderman Clayton suggested, a question of time. Two years and five months would be barely sufficient time for the work, but if they had gone for a Bill the time would have been a year less. As to a possible objection by the Local Government Board to granting the loan for power for tramway purposes before the tramway powers had been obtained, it should be remembered that even if the Corporation Bill failed someone would have to work the tramways, and, as the Council was not likely to sanction any other power than electricity, the Council would have to be in a position to supply electricity. The town clerk advised them that that was a good contention with which to go before the Local Government Board. The purchase of the old General Hospital was unanimously approved by the Council. If Mr. Lancaster objected to the situation he should have done so then; but perhaps Mr.

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Lancaster had been abroad since then and had seen something else. They always looked upon Mr. Lancaster as the Solomon Gills of the Council, for, as Captain Cuttle was always saying, he was "chock-full of science." He did not think Mr. Lancaster would suggest that they should have one station at the Plough and Harrow, another in the middle of the Harborne line, and so on. The committee looked forward to the time when the whole tram system would be in their hands, and believed that it would be an advantage and an economy to have a large central power station under the control of the best engineers. There might be a better or more central site for this than that of the General Hospital, but the committee had not been able to find it. He was very sorry that the matter had had to be rushed on the Council, but it had been rushed on the committee. They wanted to be in a position to equip the Aston line at the end of 1903, and they hoped that the Harborne line would be ready also by that time. If they had any delay in obtaining the loans this preparation could not be made in the time, as there would be a danger of their having to arrange with the tramway companies for a continuance of steam. With regard to the new mains, they did not propose to proceed with them all at once, but they were obliged to have a scheme of mains to be supplied in order that the Local Government Board might be in a position to sanction the provision of the generating plant. In reply to Mr. Nettlefold, Alderman Beale suggested that it would be better to have an excessive estimate on which a saving might be effected than to have an insufficient one and have to come to the Council to sanction amounts spent in excess. Generally they were asking for sanction to a much bigger thing than could be carried out immediately. It was for the Council to decide whether it would run the risk of delaying the introduction of electrical traction, and of seizing such opportunities which might occur of getting rid of steam.

Mr. Waters hoped that if the committee were given general powers, it would be with the understanding that the general parts of the scheme would be submitted to the Council afterwards.

Alderman Dr. Barratt was satisfied with the statement of Alderman Beale.

Mr. Reynolds thought there was something in the point of safety raised by Mr. Lancaster.

Mr. Murray would have liked to see added to the resolution the words "subject to them reporting from time to time to the Council."

Mr. Johnstone, in his reply, endorsed the general explanation of Alderman Beale. With regard to safety, the voltage 550 was exactly the same as was adopted in Bristol, Brussels, Glasgow and Birkenhead, and was known to the Board of Trade as "low tension." There was no danger. Probably accidents at Glasgow were due to bad work. Mr. Johnstone pointed out that the matters for which the money was required were fully set forth by the committee, but assured the Council that each part of the work would be reported upon as it came up to be done.

Councillor Lancaster's amendment having been defeated, the Council voted on the resolution, which was carried by thirty-six votes to eleven, Mr. Adie being neutral.

The Council also sanctioned, after a short explanation from Mr. Johnstone and Alderman Beale, an instruction to the finance committee to borrow 65,084*l.*, the amount expended on the electric supply undertaking in excess of the authorized capital. This included 23,000*l.* for the purchase of the General Hospital, 20,000*l.* for plant and machinery in West Street, and 15,000*l.* for engines, boilers and dynamos, which had been ordered to meet present demands.

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The *Engineer* of February 23, 1901, contains a paragraph on this subject, of which the following is a summary, viz.: "In 1685 the first service of cast-iron pipes was laid at Versailles, France, and it was not until 1746, sixty-one years afterwards, that London had its first service of cast-iron pipe; later Glasgow received its service of water through an iron pipe."

* A paper read by Mr. A. G. Cloake at the meeting of the Association of Waterworks Engineers.

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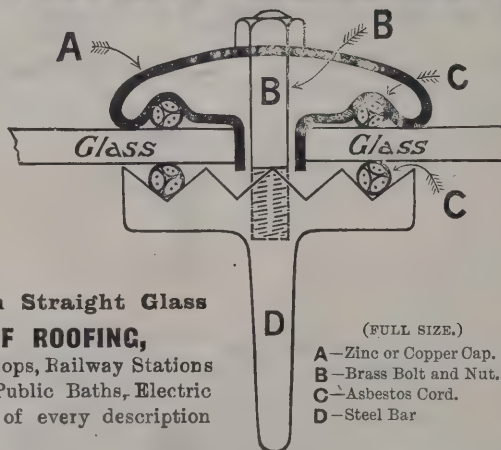
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tain. The French engineers confined themselves to pipes with flanged joints, the same as are used at the present time, and it was not until 1800 that the practice of socket and spigot joints, with a groove for lead, was recognised as efficient."

Unlike the American pipefounders, the French founder is an ironmaster, and is fully alive to the advantage of obtaining complete analytical knowledge of the iron used. Naturally his study has its reward, and by close application to experiments and the mixing of the different grades of pig-iron, a result is obtained which secures castings of the first quality, being dense, tough and of a close-grained nature. In order to secure uniformity in mixing the various grades of iron, French manufacturers are particularly careful in seeing that the right quantities of each grade of pig-iron are placed in the trolley before entering the cupola; an examination is then made by a chemist, who signs for the accuracy of the mixture and allows the trolley to pass to the cupola.

Casting pipes vertically is the only method accepted by the French engineers, even in the case of such small diameters as 10 mm., 50 mm. and 76 mm. (respectively 1½ inch, 2 inches and 3 inches), a practice which is not, the author believes, followed in any other country. It is, of course, needless to point out to the members of this Association the superiority of vertically cast pipes over those cast on the slope, not only as regards strength, but also in respect of deterioration.

The pits for these pipes are built both circular and rectangular, and measure respectively from 30 feet to 40 feet in diameter and 35 feet by 20 feet, with a depth of 16 feet. This is necessary because of the standard lengths of pipes, from 9 inches diameter and upwards, which are usually made in lengths of 4 metres (13 feet 2 inches), socket to socket.

The cores are made in one piece of hay or straw bands wound on a steel tube, afterwards worked up with sand, by machinery, which considerably expedites the manufacture and ensures accuracy. The core ovens are adjacent to the pits.

The system of straining the molten metal adopted by the Société Métallurgique d'Aubry et Villers is that devised by the managing director, M. Jacquemart. This permits the socket being cast upwards, with a feeding head from 12 inches to 12 inches above the socket, according to the size. The pipe is connected to the pipe mould by an annular aperture 1 mm. wide (for an 8-inch pipe), through which it is impossible for any dross or sillage to pass, such impurities being at the top of the feeding head, 8 inches or 10 inches above the socket, and when the pipe is cold they can be struck

off with a hammer. Under this system the spigot ends are rendered very dense, owing to their solidifying under pressure, and truly cylindrical and concentric castings are also obtained.

The usual English practice in filling the moulds is to pour the metal direct from the ladle through gates or holes made in the mould, which are liable to get extended, and thus allow dross to pass, and the socket, if at the bottom, gets the first rush of the impurities. It is true that the metal is usually skimmed at the top, but this by no means prevents sillage and dross getting down into the casting, and a straining process is therefore indispensable to secure a clean and true casting.

The pattern of socket mostly adopted by engineers on the Continent and abroad is similar to that used by the Post Office authorities in London for cable pipes, and admits of a straight pipe being set at an angle of 1 in 24 without allowing the pressure of water to come in contact with the caulking material, as the spigot, even at this angle, sits tightly on the seating of socket. As it is seldom that a line of pipes is laid perfectly straight, and difficulties invariably arise in making the joints at all angles and curves, the advantage of employing the socket and spigot above referred to will be readily appreciated. The greater lengths of pipes used on the Continent also effects a saving in the jointing, owing to the reduction in the number of joints. The risk of leakage is also reduced for the same reason.

Providence seems to have specially favoured France in providing her with the finest sand for foundry purposes, large quantities of which are imported into Great Britain. The fine skin seen on French pipes is attributable not only to the careful mixing of the pig-iron, but also to the quality of sand in which they are cast.

The standard lengths of cast-iron pipes in use on the Continent are, as has already been stated, longer than those adopted in this country. The following table gives a comparison between the French and English standards:—

French Pipes.		British Pipes.	
1½ in. and 2 in. to lay	2 metres 50 (8 ft. 2 in.)	2 in.	to lay 6 ft. 0 in.
2½ in. to 8 in.	3 " (9 ft. 10½ in.)	2½ in. to 15 in.	" 9 ft. 0 in.
9 in. and upwards	4 " (13 ft. 2 in.)	12 in. and upwards	" 12 ft. 0 in.

The saving in the cost of laying secured by the longer lengths totals up very considerably, when the reductions in jointing material, weight of sockets, weight of lead and yarn, and in men's time are taken into consideration.

The weights of French pipes are about the same as English

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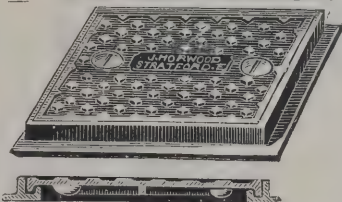
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vertically cast, but owing to the quality of metal used the French founders claim to be able to work a lighter specification under similar conditions as regards pressure.

The specification adopted by the General Post Office, London, for cable pipes is largely used by French pipe-founders in supplying other European towns, South America, Japan and the East. It is also to be observed that the smaller diameters of pipes are not usually made in this country, and therefore such orders must be given to continental firms.

The coating for pipes generally used in France is Dr. Angus Smith's process, the pipe being reheated and lowered into a hot bath of the solution, as in this country. The ordinary test is generally 20 atmospheres, although this is sometimes increased to 800 feet head of water in special cases.

Ever since discoveries in metallurgy permitted of the manufacture of cast-iron pipes this metal has been used for the distribution of water under pressure to the exclusion of nearly every other, and owing to the convenience and cheapness of casting pipes to any required shape and length and the natural resistance of cast-iron to oxidation, its supremacy for the purpose is practically undisputed. At the same time, the development of public water service and the increases of volumes and pressures have created new conditions which have revealed certain deficiencies in cast-iron as a material for the manufacture of water mains. For small-diameter pipes cast-iron answers perfectly well, and is adaptable to all contingencies; but as the diameter and pressure are increased difficulties arise in connection with the transporting of such heavy pipes, and there is a natural disposition to reduce the thickness as much as possible, with a consequent sacrifice of security. This is the more serious in view of the fact that with pipes of large diameters a shock, which may be quite immaterial in the case of small-diameter pipes, attains with a larger volume of water a tremendous intensity, and cast-iron, although well adapted to resist regular and progressive pressure, is totally incapable of resisting even comparatively slight pressures if they occur in the form of sudden and instantaneous shocks.

It is to remedy these difficulties, and to give to cast-iron pipes a greater resistance against such shocks, that M. Jacquemart has introduced the system of winding steel wire, under pressure, round the extremities of the pipes, and in grooves cast in the body of the pipes.

The idea of shrinking steel bands on to cast-iron cylinders is very ancient, and at the present day English pipefounders

shrink wrought-iron bands on the sockets of large diameter pipes intended for export, to prevent breakage in transhipment; but there is no doubt that steel or wrought-iron bands shrunk on in this manner cannot bear with perfect uniformity every particle of the surface, as owing to inequality in shrinking some parts must be more strongly compressed than others.

The problem was, therefore, to find some method which would cause the bands to follow exactly the shape of the pipe to be enveloped, and exert an even pressure throughout. This is satisfactorily accomplished by the method of winding about referred to. It is clear that in the manufacture of pipes the idea of using complicated machinery must be rejected, and was therefore essential to provide a method of winding which while being perfectly simple in its application, would secure perfect uniformity of tension in each wire wound round. To solve this problem M. Jacquemart started from the fact that steel wire of uniform diameter must have a constant resistance throughout its length. He therefore devised a method by which the wire is passed through a draw-plate, which reduces it to a certain fixed diameter. A means of winding at an even and constant pressure is also a very important feature of the process. The winding is effected by revolving the pipes, the wire first passing through the drawplate above described and the desired amount of tension. Another important point in the application of steel wire is the bedding of the ends. This is effected by shaping the edges of the grooves, so that the extremities of the wire can be bedded into them, and thus be securely fixed, and for greater security liquid tin is poured over every wire, which perfects the arrangement. It is also essential that the steel bindings should be of the same durability as that of the cast-iron; and to secure this asphalt is put on at high temperatures, which penetrates the spaces between the coils and completely covers them. This is kept in place by the edges of the grooves, so that the whole forms a block of great strength, perfectly impermeable, and absolutely proof against oxidation.

The results of experiments with these steel-bound pipes show that it is possible to avoid a burst with a large main, and the behaviour of the pipe under such conditions as sudden and instantaneous shocks, shows that pipes of this type are absolutely proof against fracture, and even when strained to the point of fracture, the damaged parts remain in their original position.

A cast-iron main of this type, 2 metres (78 inches) diameter, has been laid by the water company of Paris.

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The Architect.

THE WEEK.

It is commonly assumed that by-laws relating to buildings are applicable only to those which are erected after the orders are issued. The new by-laws as to drainage and sanitary fittings of the London County Council will be no less operative whenever alterations or repairs are required in connection with the drainage system of existing houses. By-law 21 is as follows:—"These by-laws shall, so far as applicable, apply to any person who shall construct or reconstruct any pipe or drain, or other means of communicating with sewers, or any trap or apparatus connected therewith, so far as he shall effect any such works in any building erected before the confirmation of these by-laws, as if the same were being constructed in a building newly erected." Sanitary authorities have occasionally acted in the spirit of the by-law in endeavouring to insure more safety in the drainage of old houses, although the legality of their proceedings might sometimes be questionable. Henceforth it will not be possible to introduce a new sink in the kitchen of any house now existing in the metropolitan area without complying with the stringent rules and regulations of the Council. Owners and occupiers, as well as plumbers, will have to remember the changes in the sanitary requirements of buildings in London.

THE members of the Rhondda Naturalists' Society have undertaken excavations in the enclosures on Mynydd y Maendy, under the direction of Mr. H. W. WILLIAMS, F.G.S. The place was evidently a prehistoric fort, but the walls were long ago destroyed. They were about 9 feet in thickness, and in the selection of the site natural advantages were turned to account. Self-preservation sharpened the wits of the early VAUBANS and COHORNS. The fort or camp must have been found exceedingly difficult to approach. Flint implements and a metal spear-head have been met with, as well as several cooking stones. Some other stones and objects remain as subjects for investigation. There is no evidence to show that circular huts existed at Rhondda, as in other places, and therefore it is impossible to say with certainty what kind of habitations were used; but floors which have been discovered, as well as the pieces of charcoal and fragments of pottery, are enough indications without the flint objects to show that the place was a safe abode.

THE production of paints is one of the few English industries about which we rarely hear complaints of decline through foreign competition. This is the more remarkable, since for the majority of the materials out of which paints are made we have to depend on imports. The part played by machinery in the manufacture is so important, it might be easy for foreigners to obtain English grinders, pulverisers, rollers, &c., and in that way attempt to become our rivals. But the efforts which have hitherto upheld the industry in this country are not likely to be slackened, and we can believe that our manufacturers will be able to meet any new demands that are made upon them. In no business is honesty more essential, for paints which are made up of pure materials are always sure to wear well and give satisfaction to all who pay for them. The subject of the manufacture is represented by few English books, and indeed it would seem to be assumed that foreigners are the best guides to the operations, which is, of course, a great fallacy. The new book on "The Manufacture of Paint," by Mr. J. CRUICKSHANK SMITH, B.Sc., which Messrs. SCOTT, GREENWOOD & Co. have added to their industrial series, therefore fills a void in technical literature. Descriptions of the machinery employed occupy many of the pages, for when the character of those auxiliaries are understood the processes in which they take part can be easily explained. Much ingenuity has been shown in superseding the work of the old colour grinders, which was laborious as well as unhealthy, and a paint manufactory is now a remarkable example of mechanics and organisation. Much more could be accomplished if the aid of the architect in designing the building was more often utilised. Mr. SMITH's book is practical throughout, and it will be found helpful to those engaged in the industry and those who make use of paints.

ONE of the buildings visited during the excursion of the Suffolk Archæological Society was the old church of All Saints, Icklingham. It is no longer used for services as another church exists in the parish. The exterior presents a contrast to the interior, which has more than the usual coldness of a building that has been long unused and neglected. The present structure was evidently erected on the site of a Norman church, and with the exception of the Perpendicular porch, belongs to the Decorated period. In the fourteenth century Icklingham appears to have been in a prosperous state, for the work is rich and therefore costly, the south aisle especially so, as shown by the two beautiful niches at the east end on either side of where the altar stood, and also by the beautiful stone carved cornices which run the whole length under the eaves of the south wall and below the wall-plates of both the north and south walls on the inside. The windows are very fine, but unfortunately the east one has the whole of its head filled in solid. The stained glass which remains is also very good. It is worth noting that the fine western tower never had a staircase. All the original roofs have gone. The method of plaiting the reeds on the underside of the thatching, so as to avoid the use of wood battens, is interesting. The tile paving, a large quantity of which remains in the chancel, and fragments in other parts of the church, is of an unusual description. There are six or eight different patterns formed by the shapes of these tiles, and many have ornamental patterns on them. The chancel screen, which is Perpendicular in style, has had its upper portion cut away. It is somewhat unusual in having a very large oak sill, which measures about 11 inches square, and this taken right across the passage-way and provided with a step to it, the pavement of the chancel being level with that of the nave. There are a large number of fourteenth-century oak benches remaining. The ends have fine carved poppy-heads, and some of them are remarkable on account of their being very little over an inch thick. It is remarkable that so interesting a building should be allowed to remain in a condition which is a satire on the esteem for antiquity which is reputed to prevail in this country. As a church All Saints may have ceased to be useful, but Parliament should make provision for bringing it and similar buildings under a protecting power like that which exists in Ireland for the protection of Christian as well as Pagan structures.

THE Ecole des Beaux-Arts possesses an immense number of paintings which gained for their authors the Prix de Rome. Some are the worse for the effects of time, but even among those works several can be selected which have interest on account of the success afterwards attained by the students who painted them. It is now proposed to exhibit as many of the pictures as can be accommodated in one of the galleries of the school. The examples will not be confined to those of deceased artists, for the prize works of several painters who are still living will be brought to light, and will no doubt form the most attractive part of the exhibition. It does not always follow that a young painter who gains the Prix de Rome afterwards has the success that warrants his election to the Institut. But many of the prizemen have justified the anticipations of their friends and confirmed the judgment of those by whom the prizes were awarded.

LONDON is generally considered to be the healthiest of the great cities, and it is remarkable that the eminence was attained without the aid of any efficient or uniform sanitary code. The new drainage by-laws of the County Council which came into operation two months ago are likely to insure a still better condition, and we may expect to find the death rate in the Metropolis is the minimum in Great Britain. The edition of the by-laws, with annotations by Mr. G. J. G. JANSEN, C.E., published by the Sanitary Publishing Company, Ltd., will be found a convenient guide to all who are concerned with new or old buildings within the metropolitan area. The by-laws are clearly expressed, but their meaning is emphasised by the notes appended to almost every one of them. A comparison is also made with the practice in other places, and the diagrams are sufficiently numerous.

THE FLOWING LINE.

(BY A CORRESPONDENT.)

THE phrase "flowing line" does not necessarily express a varying curve, for water can flow more easily in a canal or conduit with straight sides than in a river in which there are changes in the course. But it serves as well as "flamboyant," for only a limited combination of curves can resemble a flame. The word "flowing" is, however, sufficiently clear to most Englishmen when applied to lines, and especially to those formed by designers. The two words have now their use, for what has been condemned as the "New Style," or the "New Art," in furniture, and to some extent in architecture and architectural decoration, is to some extent the employment of the flowing line. The subject is, however, no new one, for it is almost as old as architecture and decoration.

Speaking generally all straight lines may be considered as in opposition to nature. When we say a river follows its own sweet will, we mean to say it has formed a special channel, which is very rarely a straight one. The contour of a watershed which supplies a river is also a curve or a series of curves; while hills and mountains, which are desirable aids, although not always obtainable, cannot be described as planes even when they are made of the hardest materials. Landscapes usually consist of a vast number of curves, and artists in their representations of a country scene have been often compelled to introduce buildings merely for the sake of contrast. The stiff vertical lines bring out the difference between man's work and nature's operations more plainly than is possible by any other arrangement. The straight trunks of pine trees in some cases are more expressive, but they cannot be employed as commonly as buildings, and are less emphatic.

Now it must be admitted that although man is surrounded by curves ranging from a leaf to the horizon, yet he has preferred straight lines in his buildings rather than curved. Undoubtedly we can still see in the huts of savages, who are ignorant of framing, a tendency to use the curve, and authorities like the late WILLIAM SIMPSON found so many examples of domes in remote parts of Asia, they were justified in concluding that domical coverings may have been older than triangular roofs. In the early days, however, of what may be regarded as civilisation, there is enough evidence that planes and straight lines were most sought after in building.

The curve was, however, an element in primitive decoration. Geometry, in the mathematician's sense of the word, probably is not very ancient. It has been said in doggerel verse:—

To teach weak mortals properly to scan,
Down came geometry and formed a plan.

But long before plans of land were made by the Egyptians, or plans of houses by the Eastern monarchs whose portrait-statues, bearing slabs with plans, are to be seen in the Louvre, there was a geometry known which was of service in ornament. It was simple enough. Circles, semicircles, crescents, frets, zigzags and the like, all of regular construction, are familiar to students of prehistoric archaeology. They were employed by men who could hardly have been versed in mathematics. The "practical geometry" of the present time is only a continuation and an extension of the old empiric system, for probably not one in ten of the men who can work out several problems by the aid of a ruler and compass would be able to demonstrate the absolute accuracy of their operations by Euclidian principles.

Once geometry, or, rather, the art of drawing exact figures which were parts of circles, became known it obtained a firm footing in the arts. In all styles of ornament it is possible to trace the influence of rigid rules, empiric or otherwise, in rigid geometrical forms. Nor is that influence at an end. Not many years have elapsed since the Government of this country disseminated through its drawing-masters the absurd principle that no forms could be ornamental unless they were based on that practical geometry which was taught in the schools, or, in other words, the use of curved figures was restricted to those which could be struck out by an ordinary compass. With the meekness that is characteristic of Englishmen when they have to obey the edicts of established authority, geometric

ornament was applied to everything. Unfortunately, in foreign markets the forms decreed by the English governmental system were not admired, and in consequence English manufactures suffered a grievous loss. It is needless to say, however, that an official department can always find people to believe in its infallibility, and the condemnation of what is called the "New Style" has partly arisen out of the dissatisfaction of those who have some reason in upholding the moribund system over which so much of the public money is still wasted.

It is not difficult to demonstrate that from an early time the world has been wearied of mechanical repetitions of the circle, whether alone or in combination with right lines. Anyone who will look at PENNETHORNE'S book, in which Greek mouldings are analysed with marvellous industry, will discover that such geometrical forms as could be produced by the aid of a compass had become obsolete not only for the curved lines in temples, but for the contours of vases. More subtle forms were demanded. Hence, as we know, vertical and horizontal lines became curves in the hands of artists who, no doubt, were condemned by the old school for their dangerous and illogical defiance of established truths. Several varieties of ornament, made up of a combination of curves, were taken by Greeks from Egypt and Assyria. The employment of caryatides was also the expression of a desire to obtain more variety in lines than even the new geometry could supply. Greek Doric was admirable, especially as we see it modified in the Parthenon. But its upward lines were insufficient to satisfy the craving for animation in all things which may be reckoned as an instinct in man.

The caryatides were no more than a new application of figures corresponding with those seen in Egyptian buildings and in others of Assyria. The colossal forms at Ipsamboul are buttresses rather than columns, still they have their constructive use. In other buildings statues of gods and kings are made to strengthen piers. The painted decoration is perhaps more worthy of note, as a desire to have varied lines of ornament running from the ground to the summit of the temple. The ponderous columns, instead of appearing as a burden on the earth, gained a degree of lightness in appearance by the soaring lines of the human figure and other ornament. The Egyptians were not satisfied with representing the lotus bud or flower in bands. In some spaces and panels they were not afraid to introduce the long stalk of the plant, generally in vertical lines, and what we see in the "New Style" has therefore relationship with the works of the ancient Egyptian artists. Hieroglyphics were not arranged like modern printers' type in order to be read from left to right or from right to left, as in old writings, but in vertical lines. The different symbols therefore form inscriptions of remarkable variety in appearance, and they are sometimes contrasted with straight lines which were used to divide the various sentences or divisions. The painting in the British Museum showing a man working in the fields suggests the love of verticality which prevailed in Egypt. The stems of the wheat become emphatic in the lower part of the painting where they form a contrast with the lines of the figure, while above we see various divisions of hieroglyphics. If the eye follows a line, partly imaginary, in an upward direction along the figures and hieroglyphs of an Egyptian decoration, a series of curves will be obtained which are as manifold as any in the new decoration.

Egyptian temples were so massive, it was not remarkable there was an effort to suggest height by the soaring lines of men, birds, &c., but Greek temples were kept low, although they might be placed on the summit of many high steps. The Parthenon, for instance, was not so high as the helmet of the great statue of ATHENÉ. Horizontality might be considered the characteristic of Doric. From the temples the quality passed to the vases, or *vice versa*, and hence it is not unusual to see the work of Greek potters decorated by a series of horizontal bands. Ascending lines had therefore to be used in moderation, but most of the ornamental forms suggest by the combination of curves the principle which inspires the latest style of decoration.

We cannot be expected to trace the history of the flowing line through all the divisions of early art. The ornamental structure known as the tree-symbol, which is so often seen in Assyrian decoration, reveals a desire for

elevation and variety which is remarkable. It may have had a mystic meaning, but it must have been inspired by an effort to show vitality in curves by means of changes in their direction. Yet it is a striking fact that in the latest Eastern ornament, that known as Moorish, we have a more elaborate combination of curves, and which, moreover, is enough to indicate the tendency to a climax which is commonly found in the form of a dome. There is so much apparent complexity in the curved lines that even artists were surprised when it was ascertained that repetitions were a characteristic of Moorish art. Deprived of the power to use the beautiful lines of living forms, the Moors were compelled to fall back on a geometry which is very different from what was known as "practical" in this country. In this case also, if outlines are followed from below upwards, it will be realised that some great curved lines must have been used as a basis as well as the more simple lines which OWEN JONES discovered. In spite of the countless recurrences, there is a general effect which could not have been attained by piecemeal designing alone.

The treatment of curved lines in Mediæval architecture would need a volume for its consideration, and that a large one. Geometric curves, which could be struck out by a mason, were undoubtedly employed for many centuries, and the ornamenting of arches and capitals displays innumerable repetitions of simple forms. We have only to look at a small church like Iffley or Climping and compare it with the latest developments of the style in order to conclude that in the early Mediæval period the forming of curves was only a sad mechanic exercise, while in some of the Spanish churches curvature was carried to excess, as if in rivalry with the Moors. In England men were sober, and apparently never cared to exercise the skill which is to be found in so many examples of the French Flamboyant and the no less remarkable German Gothic. But we can see now that the effort to produce curves which could not be authorised by precedent was in keeping with the speculations in many fields of thought. The experiments of the architects produced material results, whilst thinkers were unable to do more than record their conclusions in books and leave the realisation of them to future generations. If it is better to have fifty years of Europe than a cycle of Cathay it is surely more encouraging to see such hazardous examples of stone-cutting as meet the eye in later French Gothic churches than in the spiritless Norman churches of this country or in some of the later Gothic buildings where variety seems to have been excluded under a penalty.

The outcry against the "New Style," of which a few examples in furniture are to be seen in South Kensington, arises partly from a weakness for straight lines. It is supposed that the use of the curve in moderation may be advantageous, but the extent of its employment is assumed to have been long ago determined. Every departure from established usage is now taken as a heresy. The curve was to be in every example of ornamental art only subservient to the straight line. When, therefore, we see that in furniture curves predominate, it is assumed by those who are wedded to old notions that sans-culottism in art has broken out. There is no reason why curves should not be used instead of straight lines where the change causes no inconvenience. If the parts of a piece of furniture which have to support objects are curved they may not answer their purpose as well as a plane surface, but when curves are used to frame spaces there is no impropriety in the innovation. We have grown so accustomed to the straight line, it is easily understood why eyes should be surprised when they see a change and should not at first be able to recognise its advantage. Heretofore curves were used mainly in mouldings; they were therefore not obtrusive. Now, when they appear to force themselves on the sight they are treated like presumptuous people who do not know their own place in the economy of society. The curve has not been allowed to display itself as it merits, and we need not be astonished if some designers signalise the beginning of an epoch of liberty by occasional extravagances, for that is the usual course in revolutions. But, as we have seen, there has been an aim in all ages to employ curves liberally, although rarely successful, and what is now attempted is only a repetition of the effort under more favourable conditions. The manipulation of materials can

be carried out to an extent that was impossible in a former time. A gate like that designed by Mr. E. WOOD and wrought by Mr. G. WRAGGE, which was seen in an advertisement last week, could not have been produced a very few years ago. When so much success is obtainable in metal it is to be expected that men who work in other materials will endeavour also to exhibit equal facility.

What is done, however, in those cases must be offensive to all who appear to think that natural exemplars were not fitting models for the designers to keep in mind. The use of leaves and flowers when geometrised was partially allowed, and the compromise was thought to be a very happy expedient. But in the new style suitability is found not only in flowers and plants, but in stems. The Japanese designers had demonstrated the effectiveness of projecting a long line of stem across a vase, and then devoting care to one beautiful flower which formed its coronal. In the "New Style" the idea has been realised in wood and iron. Instead, therefore, of the all-overishness which was at one time considered indispensable in decoration, we now see concentration of labour and thought only in particular parts of the design. The execution may be accomplished by the aid of machines, but at least the arrangement becomes suggestive of the spirit in which the designer worked. An excess of ornament defeats its purpose. That was the principle on which the late H. R. RICHARDSON acted when introducing carving in his buildings, and the lesson he taught is applicable to other arts than architecture, and should not be confined to Americans.

The "New Style" would not have been taken up so quickly in France and Germany if it had not qualities which were rational and attractive. In the first place, it allows every object to be treated as a whole without the number of repetitions which are usually exhibited in furniture. In the use of materials it presents the old Gothic honesty. We have seen pieces of furniture which in some respects recalled Scandinavian work, while in others they were reminiscent of Japan. As yet the "New Style" may be incomplete, but none of the revivals of the nineteenth century afforded so many promising prospects of occasions to employ the designing power and the manipulative skill of the present time.

PIONEERS IN ENGLISH ARCHÆOLOGY.

THE majority of the buildings which are visited during the excursions of the various archæological societies can be considered as examples of Gothic, and especially of Gothic churches. New interest is given to a building when a paper on its history or characteristics is read, and generally the incidents narrated are also novel to those present. In not a few cases the existence of some, at least, of the edifices is a surprise to many of the members. It would be easy for an enthusiastic archæologist to preach a sermon on the circumstance, and to point out the ingloriousness of those who are indifferent about works of architecture which have been long and closely connected with the national life. Censors ought, however, to bear in mind, as an excuse for the absence of knowledge about Mediæval buildings, that the study of them was for years interdicted by prejudice. Here and there a local antiquary might be found who was devoted to the past, and who had gathered a number of traditions about buildings in the neighbourhood which were not always trustworthy. But with ordinary people antiquity was considered to be profitless, and any curiosity that might occasionally arise about ecclesiastical buildings was, as a rule, satisfied by a visit to one or two cathedrals.

Although economy ordained that Gothic churches had to be used, it is well to remember that from the time of the Reformation to the middle of the eighteenth century there was no English writer who was sufficiently courageous to describe them as interesting examples of architecture. Much has been made out of the one or two references to Gothic cloisters and Gothic windows found in MILTON. But it could not be assumed from them that his spirit was in harmony with anything Mediæval. It must, therefore, have been astonishing to the few people into whose hands the work fell, when in 1742 BATTY LANGLEY brought out a collection of plates in support of an appeal for more

interest in Gothic buildings. LANGLEY was, however, a person of no authority with the public; and though we should be grateful to him as a pioneer it is not to be supposed he aroused much admiration for old churches. Twenty years afterwards HORACE WALPOLE endeavoured to prepare readers for "The Castle of Otranto" by writing about Gothic buildings. It was, no doubt, taken to be a degradation when a fine gentleman was found to take up so curious a subject. But it afforded him an opportunity for the exercise of his peculiar wit. He was able to declare that anyone who refrained from investigating the history of architecture in England would know as much on the subject as those who attempted inquiries. TOM HEARNE, BROWNE WILLIS and others of the latter class, "did now and then stumble upon an arch, a tower, nay, a whole church so dark, so ugly, so uncouth, that they were sure it could not have been built since any idea of grace had been transported into the island." Gothic, if it had a voice, might well cry out, "Save me from such friends as HORACE WALPOLE." The utmost praise he could say for the style was that it infused sentiments of romantic devotion, meaning superstition. He advised architects who had exhausted all their patterns "when they have built a pediment and portico, the Sibyl's circular temple, and tacked the wings to a house by a colonnade," to make some deviations into Gothic as a remedy against servile imitation. WALPOLE at the time was a friend of GRAY, the poet, who in his quiet way loved English Gothic as much as any of the styles he had seen in Italy. Owing, apparently, to GRAY's influence he was forced to admit there was some beauty to be found occasionally in Gothic, which, he said, "seems to have been at its perfection about the reign of HENRY IV., as may be seen particularly by the tombs of the archbishops at Canterbury. That cathedral I should recommend preferably to Westminster to those who would borrow ornaments in that style. The fretwork in the small oratories at Winchester and the part behind the choir at Gloucester would furnish beautiful models. The windows in several cathedrals offer graceful patterns; for airy towers of almost filigraïne we have none to be compared with those of Rheims. Some instances of particular beauty, whose constructions date at different eras from what I have mentioned, have been pointed out to me by a gentleman to whose taste I readily yield, such as the nave of the minster at York (in the great and simple style) and the choir of the same church (in the rich and the filigraïne workmanship), both of the reign of EDWARD III. The lady chapel (new Trinity Church) at Ely and the lantern tower in the same cathedral, noble works of the same time; and the chapel of Bishop WEST (also at Ely), who died in 1533, for exquisite art in the lesser style."

In most of this we see a sneer against contemporary architects, who were not noble lords, with "every quality of a genius and artist except envy." "The Castle of Otranto," when it appeared in 1765, excited romantic emotions. Gothic buildings were assumed to be the work of mysterious beings who were enslaved by crime and erected gloomy structures for their unhallowed transactions. That interest, although it was only false, was better than the indifference which heretofore had prevailed. It encouraged writers. A few years afterwards the Rev. J. BENTHAM was bold enough to publish a history of Ely Cathedral, in which he demonstrated that the building was the work of able architects and masons, and that the style deserved the consideration of men who were versed in art and science.

With the nineteenth century came a diminution of the contempt for Gothic, which was the characteristic of ANNE's Augustan Age in the preceding century. KING's "Munimenta Antiqua" was in part devoted to ecclesiastical architecture. Unfortunately the author had accepted erroneous notions about the Gothic style, and was unable to realise how much was done by the Normans as builders, and their superiority in that respect to the conquered Saxons. But in the same year another work appeared which, although less pretentious, served as a corrective to KING's fanciful conclusions. That work was DALLAWAY's "Observations on English Architecture, Military, Ecclesiastical and Civil, compared with similar Buildings on the Continent," &c. The author was unable to embellish his pages with illustrations, but he appears to have seen most of the buildings he described, and he was indefatigable in

seeking information in manuscripts and old pamphlets in order to produce a true history of the art. The names of a great many artists were brought to light by him, and indeed there is an amount of information in the work which is remarkable when we recollect the state of opinion at the time. The booksellers must have met with many people who were desirous to acquire knowledge about Mediæval buildings, and it was therefore possible to find a publisher for a treatise on Gothic. The Rev. JOHN MILNER being a Catholic priest might be regarded as too prejudiced to write a treatise on the ecclesiastical architecture of England during the Middle Ages, but his volume was issued in 1811. He was positive in his conclusions, and, like KING, he was not disposed to admit any indebtedness to foreigners. He believed the Pointed arch was an English invention, but his speculations can still be read with interest, and he deserves credit for endeavouring to fix the limits of the different variations in periods. But the work which was most serviceable to architects was published in 1812, with the title, "An Attempt to discriminate the Styles of English Architecture from the Conquest to the Reformation," by T. RICKMAN. In 1813 JOHN SIDNEY HAWKINS brought out "An History of the Origin and Establishment of Gothic Architecture," which also gave an account of CÆSAR CÆSARIANUS, the first professed commentator on VITRUVIUS.

Some of the books we have mentioned were without illustrations, which in those days were costly to produce, and when plates were given they were not numerous. With the arrival of JOHN BRITTON began a new era. He merits a place in any future history of the pursuit of knowledge under difficulties. He was the first to realise the persuasiveness of illustrations of buildings, and by his "Architectural Antiquities," "Cathedrals," and other works he made Gothic churches familiar to the eyes of English people who would not venture on explorations to see the originals. How onerous was the task attempted by him cannot now be realised. In those days it was believed that the use of cathedrals was to provide appointments for a large number of officials. BRITTON has recorded why he was unable to describe and illustrate several of the buildings. It was solely through the rapacity of the Deans and those who served under them. The fees demanded for the privilege of making drawings were more than he could afford. One of the consequences of the sordid opposition is that what might have been a great work on the cathedrals of England, and a record of their appearance before subsequent alterations had been undertaken, is deprived of parts which would be among the most interesting of all. But in spite of all obstacles, JOHN BRITTON contrived to enrich students with numerous steel engravings of Gothic buildings. Most of his plates were, however, only general views. The second PUGIN entered more into detail, and was able to trace the unity of style which was general in Mediæval times, and which was shown in the work of the goldsmith, the metal-worker, the embroiderer and other artists, as well as by the builder.

The more English Gothic was investigated the more it became apparent there must be a connection between it and continental examples. Accordingly, several antiquaries and artists travelled over Europe for the purpose of comparing foreign with English structures. COTMAN and DAWSON TURNER devoted much time to Normandy; WHEWELL studied the churches in the Rhine district; WILLIS investigated the construction of the Italian Gothic buildings; while GALLY KNIGHT followed the course of the Normans in the South of Italy as well as in Normandy. The effect of their labours was that although English Gothic was found to be no isolated product as regards design, it was proved to be related in many ways to buildings which were far apart. Having so much evidence to enable comparisons to be made, it became more easy to realise the special peculiarities of English work. Nor must we forget to mention the services which were rendered by the Society of Antiquaries. The range of its operations has been always world-wide, and during its existence there has been no special favour shown to English architecture; but in the beginning of the last century, when inquirers were feeling their way towards proving that the Gothic style did not correspond with bad Latin, and was not the production of barbarian builders, an occasional essay printed in the "Archæologia" about the skilful construction undoubtedly

helped the cause by extending knowledge among a class of men who were especially subjected to prejudices.

The task of directing investigations which the Society of Antiquaries declined was afterwards taken up by new societies which were founded for the study of English work. Co-operators were immediately forthcoming. Professor WILLIS gave the example of a man who was a master of science finding in archaeological inquiries subjects which demanded all the strength of his intellect. What was said of CUVIER and OWEN could be applied to him. As they from a single bone were able to reveal the kind of animal to which it belonged, WILLIS from a few fragments of a foundation *in situ* was able to lay down the original plan, and his idea or theory was subsequently sustained by documentary evidence. The value of his services to archaeology cannot be questioned, and it is to be regretted that steps have not been taken to make his writings known to students of a later time. WHEWELL also occasionally aided archaeology with his varied knowledge. PARKER was in the opinion of many a host in himself, for he not only was able to find a point of view of his own, and work out subjects with great perseverance and good sense, but he made it plain to all that a man of business, and, what was more extraordinary, a publisher, could take an interest in the past and hold his own against men who were entitled to be considered as specialists. He was combative, too, and enlivened many meetings in attacking and repelling attacks. In that way he also added interest to discussions. Architects like SCOTT and STREET sometimes brought their practical knowledge to the aid of amateurs, but they were too busy in their own professions to be calculated on for every meeting.

We are in England becoming more and more devoted to specialism, and this is exemplified of late in archaeological meetings. Gentlemen who have devoted themselves to a particular district have the best chance of success as guides or lecturers. Such a competitor as Mr. W. H. ST. JOHN HOPE, who has taken all England for his province, is, of course, an attraction that is always prized. But he would perhaps better serve the cause of archaeology if he allowed himself to rise to broader views, and to leave to residents of a county the task of dealing with particular cases. What is desirable is that local archaeology should be popularised, and with study and enthusiasm it is possible for a man to become an oracle in a county or a district without involving himself in any extraordinary sacrifice of time or duties. The late J. L. ANDRÉ was an example. He was an engineer, but having a residence in Horsham he began to take an interest in those remains which were easily visited. He read papers which were dictated by the good sense which is imparted by professional training. His sphere of operations gradually extended, and in all parts of Sussex there was no more welcome presence at archaeological meetings. It is not to be expected that a WILLIS, PARKER or SHARPE can always be secured, but archaeology is so vast a subject it can be treated under many aspects. The onerous work which the pioneers accomplished need not be again repeated, but enough remains to be done by an intelligent follower who can be inspired by their courage and industry.

EXAMINATIONS IN ARCHITECTURE.

THE following are the questions submitted to candidates at the recent examinations of the Royal Victorian Institute of Architects:—

History and Characteristics of the Styles of Architecture.

Examiners: Percy Oakden, A.R.I.B.A., F.R.V.I.A.; Anketell Henderson, M.C.E., F.R.V.I.A.

NOTE.—The first question, and any seven others, answered perfectly, will entitle to full marks. Candidates are not required, therefore, to attempt to answer more than eight questions, of which the first must be one.

1. Describe the three Grecian orders, and contrast with the five Roman orders. Illustrate their proportions by sketching the column and entablature of each in outline, assuming the same lower diameter to the column in each case. 2. State what you know of not more than four of the following men, giving the approximate dates of and naming some of their works:—Callimachus of Corinth, Vitruvius, Michel Angelo Buonarroti, Inigo Jones, Sir John Vanbrugh, Andrea Palladio.

3. Give the meaning of the following words and illustrate by sketches:—Eustyle, diastyle, hexastyle, hypæthral, peripteral, chevet, clerestory, pendent, hexapartite, quadripartite. 4. Describe and give sketch plans and sections of not more than three of the following, giving styles and dates:—Parthenon, Karnac, Choragic Monument of Lysicrates, Elephanta, Pantheon at Rome. 5. Describe and give an outline plan of an ancient Roman private house, naming the several portions. 6. Briefly describe the historical limits and geographical distribution in Europe of the Byzantine and of the Romanesque styles of architecture, and give some typical examples of each. 7. Briefly describe and illustrate by sketches the different styles of stone vaulting in France and England from the twelfth to the fifteenth centuries inclusive. 8. Sketch and describe the principal forms of timber roofs used in England during the Middle Ages and give some examples. 9. Briefly describe the different styles of architecture that succeeded one another in England from the death of Henry VIII. down to the end of the eighteenth century, and name a typical example of each style. 10. Describe and contrast the two following buildings:—King's College Chapel, Cambridge; the Sistine Chapel, Rome. 11. State what you know of the revival of Gothic architecture in modern times and name some of the leaders of the movement and their works.

Mouldings, Features and Ornament.

Examiners: Messrs. Butler and Hyndman.

1. Draw in section to $1\frac{1}{2}$ -inch scale a Grecian Doric entablature 7 feet high over all. 2. Draw in elevation to the same scale the column and other architectural features supporting the entablature mentioned in question No. 1. 3. Draw full size the mouldings that would be suitable for the work indicated on given sketch. Ceiling and panelling all to be in wood, finished in dull polish. Draw the joists, cornice, cap, panel mould and skirting. 4. Give sketch of the following, viz. Doric annulets, cupola, Gothic buttress slopes and weathering, also a tracery head of three-light Gothic windows, and name the period or periods to which the two Gothic features drawn belong. 5. Draw acanthus leaf carving for the face of a stone corbel or bracket such as indicated in given sketch. The drawing to be about 8 inches long and of proportionate width. Sketch a crocket, and state the period to which it belongs. 6. Give sketch of Renaissance ornament for a panel about 4 feet high by 14 inches wide to a scale of 1 inch to the foot.

Geometrical and Perspective Drawings.

Examiners: Messrs. Koch and Fitts.

1. Define the terms sector, quadrant, arc, chord, segment, tangent, area. 2. Draw the following figures:—Equilateral triangle, isosceles triangle, rectangle, rhombus, rhomboid, trapezoid, trapezium. 3. On a given line describe the following polygons:—Pentagon, heptagon, octagon. 4. Draw a circle $3\frac{1}{2}$ inches in diameter. Show method of finding centre. 5. Draw a circle touching the points of a triangle, the sides being 4, 3, 2, respectively. 6. Draw an ellipse, the major axis being 3 inches and the minor axis being 2 inches. 7. Draw a tangent to a circle at a given point. 8. Show a direct method of dividing any line into a given number of equal parts. 9. Develop a cone having a base of 1 inch diameter and a perpendicular axis of $1\frac{1}{2}$ inch. 10. A cylinder 5 inches long, and having a diameter of $1\frac{1}{2}$ inches, is to be pierced at right angles by a cone 5 inches long and $1\frac{1}{2}$ inch diameter at the base, the centres of each to intersect. 11. Draw in perspective a series of four semicircular arches each 4 feet wide, supported on 18-inch by 18-inch piers each 7 feet high. 12. Draw in perspective a four-armed cross on a base as per sketch. 13. Draw the same in isometric projection. 14. Explain the terms vanishing point, point of sight, point of distance, horizon, picture line.

Shoring.

Examiners: Messrs. Koch and D'Ebro.

1. It is proposed to build a warehouse having a frontage of 40 feet by a depth of 60 feet between two buildings, each 32 feet high and extending 60 feet back. The foundations of each are 2 feet 6 inches below the surface; the warehouse is to have a basement extending 10 feet below the surface and the full extent of building. Show by $\frac{1}{4}$ -inch scale drawing the form, number and position of shores necessary to insure the safety of the adjoining buildings; also figure the scantling of timber of shores. 2. The front of an existing three-storey building has a frontage of 22 feet, with a 5-foot doorway in the centre and a 3-foot 6-inch window on each side of same, and similar openings on the first and second floors, the thickness of wall being 18 inches. It is contemplated to form the ground floor into a shop, brickwork being carried on a girder or rolled steel joist without intermediate support. Show and describe the requisite shoring and the operation of placing girder in position so as to insure perfect safety to the upper portion of building.

*Sanitary Science.—Water and Gas Supply.**Examiners: Messrs. D'Ebro and Koch.*

1. A three-storey building has on each floor two closets, one urinal and two lavatories; they are all over each other. Show on elevation of back wall all wastes and vents, and give a short description of the work of connecting fittings with wastes and wastes with 4-inch stoneware pipes; specify sizes and material of wastes, vents, traps and flushing cisterns and all requirements of the M.B. of Works. 2. Sketch and describe ($\frac{1}{4}$ -inch scale) the most approved manner of supplying hot water to bath and lavatory on first floor from a high-pressure boiler at back of kitchen range on ground floor. Show all pipes, cisterns, &c. 3. An overflow pipe from a 400-gallon tank has to be connected with an underground drain pipe: describe and sketch how you would prevent sewer gas entering the tank (a) where the place is sewered by the M.B. of Works; (b) where it is not sewered. 4. What are the requirements of the Public Health Board relating to a public meeting-room having accommodation for 600 people on the ground floor (a) as to ventilation; (b) as to exits; (c) as to fire appliances? 5. How many lights are required to efficiently light the above-described meeting-room by gas (a) in ceiling; (b) by brackets on walls? Specify size of rising main and branch pipes to each fitting. 6. A dwelling-house is to be erected on a perfectly level site, the soil being soft; what means would you adopt to insure the house being sanitary and free from damp?

*Nature, Property and Application of Materials.**Examiners: Messrs. C. A. D'Ebro and John Little.*

1. Describe the properties a good building brick should possess. 2. Name the classes of lime you would use for (a) concrete in foundations, (b) mortar for brickwork, (c) interior plastering. 3. Describe briefly the processes employed in the manufacture of Portland cement, naming principal component parts and characteristics of good cement. 4. Describe the principal classes of building stones used in Melbourne, stating in general terms their composition, and how it is likely to affect their durability and power of resisting fire. Name typical stones in each class. 5. State the descriptions of the timbers you would use in the construction and finishing of a large public building, and give the characteristics of such timbers. 6. Describe (giving sketches where necessary) the principal systems of "fireproofing" flooring. Point out any defects you know of in such systems. 7. Write out a specification to govern the supply of cast-iron columns for a city warehouse. 8. What is the process and what are the objects of "killing" knots in painters' work, and is the process necessary with all woods? At what stages of painting are the operations of priming, stopping and flattening performed? State the object of each and the materials employed.

*Principles and Practice of Construction.**Examiners: Messrs. C. A. D'Ebro and John Little.*

1. A brick pier 3 feet square on plan carries a load of 150 tons. Show $\frac{1}{2}$ -inch section of the foundations you would use (a) in a stiff yellow clay; (b) on rock. Show your calculations and state the nature of material you would use in each case. 2. Show the timber centring (scale $\frac{1}{4}$ inch to the foot) you would employ for the elliptical arches of a stone bridge, the arches being 45 feet span, and rising 15 feet in the centre. Describe the arrangements you would make for striking the centres on completion. 3. Draw a plan and section to $\frac{1}{2}$ -inch scale, showing the construction of circular geometrical stone stairs 3 feet 9 inches wide, in a circular space 10 feet in diameter. The stairs to rise to a landing 9 feet from floor to floor. 4. A wooden bressummer is required to carry a wall 18 inches thick, weighing with floors and roof resting on it 12 tons, over an opening 15 feet wide. The depth of the beam is limited to 95 inches. Show how you would construct the bressummer and how you would satisfy yourself that your construction is sufficiently strong. 5. Sketch sections of the methods you would use to exclude the weather in making (a) a French casement window opening inwards; (b) a casement opening outwards; (c) a lifting skylight in a flat roof. 6. Draw to $\frac{1}{2}$ -inch scale (half section, half elevation and plan) (a) the cast-iron column; (b) the wrought-iron stanchion you would use to carry a warehouse floor 12 feet high, the weight on such floor being 50 tons, resting on a blue-stone base. Show the form of cap you would adopt in each case to receive cross-rolled iron joists and a superimposed column or stanchion. Figure your dimensions on plan.

*Drawing, Designing, Planning and Arrangement.**Examiners: Messrs. Anketell Henderson and Walter R. Butler.*

Subject: A two-storey brick parsonage for a suburb, with the following accommodation:—Ground floor: Dining-room about 22 by 15; drawing-room about 22 by 15; study, with outside communication, about 16 by 15; breakfast-room and nursery combined, 16 by 15. First floor: Four bedrooms and

perhaps one dressing-room, servants' bedroom, bathroom, &c. Site: Practically level, with 100 feet frontage facing east. Depth, say 265 feet. The candidate is requested to give reasons, briefly, for the arrangement adopted as to aspect of principal rooms and general arrangement. Also the candidate is desired to specially consider that economy of work and maintenance of the building is specially desirable in a parsonage.

*Specifications.**Examiners: Messrs. Koch and Fitts.*

Write specification of the following, relating to the building designed on previous day, viz. foundations, brickwork, roof covering and roof plumbing.

*Quantities and Estimates.**Examiners: Messrs. Percy Oakden and G. C. Inskip.*

1. Take off the dimensions for, abstract, and bring into bill the masons', bricklayers' and painters' work in the portion shown on accompanying tracing, showing all the processes. 2. If Oregon is to be supplied to you at an all-round price of 18s. per 100 feet sup., calculate the amount of the following order:—1 piece, 40 feet long, 13 inches by 10 inches; 4 pieces, each 25 feet long, 11 inches by 4 inches; 20 do., 20 feet long, 9 inches by 2 inches; 20 do., 18 feet long, 7 inches by $1\frac{1}{2}$ inch; 12 do., 15 feet long, 5 inches by 2 inches; 12 do., 15 feet long, 5 inches by $1\frac{1}{2}$ inch; 12 do., 10 feet, 4 inches by 2 inches.

*Professional Practice.**Examiners: Messrs. Percy Oakden and G. C. Inskip.*

1. In the R.V.I.A. conditions of contract give the spirit of the clauses dealing with (a) access of proprietor to the works; (b) alterations and extra works; (c) liquidated damages and extension of time. 2. What matters in the R.V.I.A. conditions are referable to arbitration, and under what circumstances? 3. Under the regulations of the Board of Public Health of Victoria state what exits would be required from public halls having a total floor area respectively of (a) 350 square feet; (b) 2,000 square feet; (c) 5,000 square feet; (d) 10,000 square feet. 4. Assuming in the case of (c) that 2,000 square feet are on an upper tier, what aggregate width of stair will be required? What are the regulations as to landings, handrails, triads and risers? 5. Suppose you have a clothing factory to erect in Melbourne which will employ forty females and twenty males. What are the requirements as to the workrooms in respect of (a) contents; (b) height; (c) ventilation; (d) sanitary appointments? 6. From the by-law of the City of Melbourne Building Act define the modes of ascertaining the following:—(a) The height of a building; (b) the area of a building of the first class; (c) the capacity of a building of the second class; (d) the number of storeys. 7. Define the following terms:—(a) Insulated building; (b) party arch; (c) street; (d) lane; (e) alley. 8. Suppose you have to erect a building in the city of Melbourne, consisting of offices, covering an area of 50 feet by 32 feet, and containing basement, ground floor and first to fifth floors. State the thickness of the external and party walls on each storey.

TESSERÆ.*Imitation of Greek Art.*

THE intense worship of the beautiful was the pervading spirit of Greek art, and though the magnificent picture found at Pompeii are the only remains of its painting by which we can form any judgment, and which possibly have as much resemblance to the pictures produced in the time of Phidias as the works of Mengs bear to those of Raphael, we may fairly conclude that the age which produced such exquisite example of poetry, sculpture and architecture as the ravages of time have spared for our delight was not deficient in equally great professors of the sister art. The very religion of the Greek originated in a deep love of nature, and their gods and goddesses were but the types of human attributes, whilst the same spirit permeated their mythology and the ideal beings which inhabited its shadowy domains. The powers of earth, air, water were embodied in human forms; the woods resounded to the voice of the unseen Pan and his joyous crew; each spring, each grotto and each fountain had its presiding nymph, and all these were but the embodiment of those feelings awakened in the mind by the particular character of the place. And however ridiculous in these days may appear their ideas of the spiritual world, they produced that earnest belief without which art fails to excite sympathy. For though as regards sculpture, and more especially architecture, the outward form of Greek art may to an unlimited extent be transmitted by imitation, its beauty can never be revived by such means. Sculpture proposes to itself the representation of the human form, and the development of beauty is one of its highest aims, but surely beauty, especially of the face, is of infinite variety, and may be said to be even local, and the representation of

national type in any country cannot be unworthy of that noble art. But whatever inferiority critics may discover in the sculptured forms of the Greek goddesses and nymphs of modern days, it is in painting that the efforts of art have been most unsatisfactory; and whether we regard the unimaginative productions of the Bolognese school, the coldly correct pictures of Nicholas Poussin, or the frigid and pedantic works of Mengs and David, we fail to discover the slightest trace of the poetry of the age they sought to illustrate; and notwithstanding the marvellous colour and richness of composition we see in the works of the greatest Venetian masters, we turn away from their illustrations of classical subjects with a regret that such high powers should have been squandered on such unpropitious themes.

Recesses in Rooms.

Several circumstances belong to recesses, which tend to modify their character. Besides those of plan, elevation and section, there are others, one of which is that of relative size as compared with the rest of the plan. Ordinary shallow recesses—which kind might be distinguished by the name of blank recesses, since they are little more than breaks in the wall, and do not at all affect the general plan of a room—hardly belong to the subject, since they admit of scarcely any variety. By recesses we here mean those which come under the denomination of exhedræ, tribunes, alcoves, and afford considerable additional space. In plan these may be either curved or rectilinear, that is, semicircular (like the tribune of a Roman basilica) or segmental, or else polygonal or rectangular, in which latter case the plan may be either a parallelogram or so deep as to be a perfect square. Neither are these the only varieties of plan, for in each instance the recess may be either simple or expanded, that is, wider within than the breadth of the opening towards the room. If the plan be curved it is usual to make the elevation in the form of an arch, either plain or decorated, in which latter case it is sometimes the practice either to continue the archivolt without any impost or to make it rest upon the entablature or capitals of pilasters. Elevations of this class, however, are only astylar; it is when columns come to be introduced into them that alcoves admit of so many combinations and so much variety of design. The usual mode is merely to separate the recessed part of the plan from the rest by a single line of columns, or rather by only two columns, forming a distyle in antis—that number being seldom exceeded, but it is by introducing columns behind and within—by extending the recess either laterally or in its background—by admitting light into it from above—that novel and scenic effects may here be produced almost without number. As regards utility and convenience, it is unnecessary to point out the advantage attending a deep alcove for the sideboard in a dining-room, communicating immediately with a staircase for the attendants, but alcoves and recesses add also to the commodiousness of other apartments—libraries, drawing-rooms, &c.—affording nooks for study or conversation apart, similarly to the spacious bays and recesses of that kind in Gothic mansions.

The Somerset House School.

In 1836 the Board of Trade recommended to the Treasury an application to Parliament for a grant of 1,500*l.* for the establishment of a school of design at Somerset House. It was proposed to entrust the management of the scheme to a council of competent persons, guided by such regulations as the Government should make for the proper expenditure of the public money. It was further proposed that the officers of the school should consist of a director, two masters, and one or more assistants; that the duty of the director or curator should be to select proper objects for the museum, to submit estimates of the expense to the Board of Trade, and to manage the system of instruction in the school; that the school should be open to all applicants upon payment of a small fee; that the museum should by degrees be furnished with books, casts, specimens, drawings and prints; and that exhibitions, premiums and nominal rewards should be introduced, as incentives to improvement. In partial conformity with this plan two schools, morning and evening, were opened in 1837. The fee payable was a monthly one, amounting (from the opening of the school to the end of the year 1838) to 16*s.* per month for the morning school, and 4*s.* per month to the evening school, and the number of pupils who paid these monthly rates varied from eight to twenty-five in the morning school and from eighteen to fifty-eight in the evening school. At the commencement of the year 1839 a reduction was made in the morning school fee from 16*s.* to 4*s.*, and in the evening school fee from 4*s.* to 2*s.* Mr Papworth was director of the school till August 1838, after which he was succeeded by Mr. Dyce.

Embossed Wood.

A process for embossing wood was communicated by a Mr. Straker to the Society of Arts in 1824. He observed that raised figures on wood, such as were employed in picture frames and other articles of ornamental work, were usually produced either

by means of carving, which was an expensive operation, or by applying to the plain surface of the wood ornaments cast or moulded in plaster of Paris or some similar composition, a plan which was not always available. His invention, which he proposed to employ either alone or in conjunction with ordinary carving, depended upon the fact that if a depression be made upon the surface of wood by a blunt instrument which will compress its substance without actually taking away any portion of it, such depressed part will again rise to its original level if the wood be subsequently immersed in water. He therefore proposed to draw the required pattern upon the surface of a piece of wood previously cut to the required shape, and then to apply a blunt steel tool, burnisher or die to all those parts of the pattern which were intended to be in relief, so as to form depressions in the surface of a depth equal to their required prominence. In doing this, care was taken by the very cautious driving of the instruments to avoid breaking the grain of the wood. The whole was then planed or filed down to a uniform surface, after which the wood was steeped in hot or cold water, by the action of which the parts previously depressed rose to their former height, and consequently formed an embossed pattern which could be finished by the ordinary operations of the carver.

Giacomo Quarenghi.

The Italian architect who was invited by the Empress Catharine II. to practise in Russia was at first a painter, like his father and grandfather. He studied under Raphael Mengs. But when he set up as an architect he is said to have been successful. But the Italian buildings he erected during the latter part of the eighteenth century have not yet been identified. Although Quarenghi obtained a very high reputation in Russia, his published designs afford very little evidence of superior taste or ability, or even of novelty in invention. Judged from them, he appears to have been a great mannerist, and to have bestowed very little study on his details, which, besides being nearly the same on all occasions, are meagre and poor, even to insipidity. In comparison with many of his countrymen, he may be said to have been pure in his style of composition, but his merits are little more than negative, for if there is nothing glaringly offensive in his productions, neither are they stamped by any particular beauties and merits. Like that of James Wyatt, his purity is for the most part only poverty, his simplicity only the mere antithetical fault to excessive redundancy of ornament. The grandeur of his buildings consists chiefly in their size, and in their being kept in bold masses; but if not broken up, neither are they finished. They have insulated columns and ample prostyles, porticoes Ionic or Corinthian, but frequently attached to buildings which are in other respects quite in a state of nudity—bare walls with holes in them for windows. Among his principal works are the Theatre of the Hermitage, the manège or riding-house of the imperial guards in the Isaac's Place at St Petersburg, the convent of Demoiselles Nobles, Prince Gagarin's palace, and the triumphal arch in honour of the Emperor Alexander, designed by Quarenghi, but not executed in stone till after his death.

Church-Scot in England.

In the early period of the Church there appears to have been a division of the tithes—either tripartite, one portion to the clergy, one to repairs of the church and one to the poor, or quadripartite, one to the bishop, the other three to the clergy, the church and the poor. That period was before the existence of parishes, when the only ecclesiastical division was the episcopal district or diocese, then called *parochia*. At that time the bishop resided at the cathedral church, together with his clergy, and on him devolved the duty of repairing the church, caring for the poor and supplying ecclesiastical ministry. It was then the duty of every Christian man to pay to the bishop not only the decimæ, or tithes, but also the *ecclesiæ census*, church-scot and the *nummus eleemosynarius* (alms money). The object to which church-scot was devoted is not known. It was also the duty of the bishop to admonish even the king that the churches be properly furnished, so that some other contribution seems to have been expected from the laity. There is no symptom that any alteration of usage occurred when the local endowment of churches was introduced. Church rates, or something equivalent, certainly appear to have been in existence as a payment by the laity, independent of tithes, in the time of Canute, whose sixty-third law, "*De fano reficiendo*," states that all persons ought of right to contribute to the repair of churches. Parishioners and occupiers of the land within a parish paid for the repairing, maintaining and restoring the body of the church and the belfry, the churchyard fence, the bells, seats and ornaments, and of defraying the expenses attending the services. The spire or tower was considered part of the church. The duty of repairing and rebuilding the chancel devolved on the rector or vicar, or both together, in proportion to their benefice, where they were both in the same church.

NOTES AND COMMENTS.

THE history of Geneva testifies that the city or town was at one time of a different character to what it is at present. CHARLEMAGNE respected it, and therefore he placed it under a bishop as an ecclesiastical prince rather than under a secular ruler. Subsequently there were contests between the town and neighbouring counts who claimed jurisdiction. Then the House of Savoy obtained the rights of the counts, and in theory, at least, Geneva owes allegiance to the family of the present ruler of Italy. A new era began for Geneva at the time of the Reformation. JOHN CALVIN found a refuge there in 1536. The bishop had already departed from the town. CALVIN in a year or two, on account of differences with the council, left Geneva, but he returned, and in 1541 he was the governing spirit there. An interesting question now arises, whether certain wall-paintings which have been disclosed in the Hôtel de Ville belong to CALVIN'S time, or were executed during the dominion of the prince-bishops. The paintings represent individuals who were mentioned in the Old Testament. One is MOSES, who bears a cartouche, on which is inscribed the text, "Thou shalt take no gift; for the gift blindeth the wise, and perverteth the words of the righteous." It is believed the councillors who exercised judicial functions once occupied the room in which the paintings were found, and, if so, a more appropriate inscription could not be quoted. In an historical sense the frescoes are interesting, and no doubt the Council of State will instruct M. GUILAUMET, the architect, to make arrangements for their preservation.

CONTRACTORS who claim a large amount of extras should always be cautious before they enter on law proceedings in obtaining evidence which will stand scrutiny. Otherwise they may find they have lost money rather than gained it. An instance has just occurred in connection with the Woking main drainage. Mr. WELDON, the contractor, claimed about 10,000*l.* for works and materials which were not included in the contract. The case was referred to arbitration, and after occupying seven days it was not completed. It was expected that several more days would be required before the award was given. Counsel for the contractor, however, recommended a compromise, by which the claim became reduced to 2,279*l.* 18*s.* 9*d.*, the sum being made up of 1,029*l.* 18*s.* 9*d.*, the amount entered in the certificates given by the engineer, and 1,250*l.* for extras. It was agreed that the amount was to be taken in full satisfaction of all claims and demands by either party against the other party, each party to bear his and their own costs respectively, and each party to pay one-half of the arbitrator's fee. As the contractor's expenses are likely to amount to about 1,000*l.*, it will be evident that not much has been gained by the law suit.

THE syllabuses of the Board of Education are worth careful perusal, for they show what is knowable in industrial art and in industrial science. They are like tables of contents, but they have a use for others besides students who take part in examinations. It is difficult sometimes to prevent science and art from overlapping in the work of the schools. Thus it is said, apropos of architecture:—"Students should never be allowed to evade construction difficulties by the use of concealed ironwork. If iron construction is used it should be confessed. But it will be much better that the students should fairly work out problems of construction in stone, brick or wood without iron. The same rule applies to half-timber work, which, if used at all, should constitute the real construction instead of being deceptively veneered upon or let into the true walls of brick or stone. But, considering the practical objections to half timber, even when real, it is better not to employ it at all." There is much to be stated in support of the official view, but we expect it originated in the circumstance that questions of strength have to be determined by a different class of officials who have no concern with building as an art. It is well to have it acknowledged "that it is idle to suppose that architecture can be learned from books and drawings, and that it must be studied from

real works." It is also laid down that in choosing subjects for architectural classes preference should be given to those which relate to the place where the school is and its industries rather than to buildings of a different class. The syllabuses for art help to show that a wiser notion of what is obtainable in the schools is now accepted.

It is inevitable that two of the spending departments of a Government cannot be induced to agree on any matter relating to finance, but the difficulty sometimes becomes absurd when exhibited on a small scale, as in a case which has arisen in Dorking. That picturesquely-situated town wants new municipal offices and a new post-office. It was accordingly proposed by the Urban Council that the two should be combined. Application was made in the usual way to the Local Government Board for permission to raise money to erect the dual building. This was refused because the Board possessed no authority to sanction loans for the construction of post-offices. The Surveyor to the Post Office, who had approved of the arrangements, seemed to think he would be able to get over the difficulty, but up to the present he has not been successful. The Local Government Board would, no doubt, be prepared to authorise the raising of a much larger sum than is now desired if it would be expended on a municipal building, but any scheme by which the burden of the outlay on the ratepayers would be lightened must be treated as unconstitutional and unwarranted.

ILLUSTRATIONS.

EMPORIUM ARCADE, NORTHAMPTON.

THE illustration shows the main front to the Market Square of the Northampton Emporium Arcade, which is now nearing completion, from the designs and under the superintendence of Messrs. MOSLEY & SCRIVENER, architects, Northampton.

The building extends over 300 feet from front to back, and has three outlets into Newland Street, in addition to the central entrance on the Market Square. There are upwards of fifty shops, the majority of which have basement and first-floor stores, and each shop has special access from the rear for the delivery of goods, &c.

On the first and second floors several suites of offices are arranged over the shops on the Market and Newland fronts, and also a gymnasium hall 62 by 34 feet, and some half-dozen rooms about 25 by 20 feet suitable for private clubs or societies' meeting-rooms. On the Market Square front is a capacious basement café restaurant, approached directly from the Market Square, with cooking kitchen and larder, &c. There is also a hairdresser's saloon, and complete public conveniences with lavatories, &c.

The materials used in the front are red local bricks with Weldon stone dressings, and an openwork parapet of York stone acting as a permanent sign showing the words "Emporium Arcade." The central entrance is of DOULTON'S Carrara faience in white, green and purple, to special design, and gives a note of colour to the lower part of the front. The woodwork is painted ivory white, with exception of the main shop-fronts, which are of teak French polished.

Mr. A. J. CHOWN, of Northampton, is the general contractor for the whole of the work; Mr. G. DEACON, of Northampton, for the patent glazing; Mr. RADFORD for wrought ironwork; Mr. A. MARRIOTT, of Higham Ferrers, for the heating installation; Messrs. WARD & Co. for the Granolithic floors, and the Bostwick Company for the collapsible gates. The building is to be lighted throughout by electricity.

CHIMNEYPIECE, MORNING-ROOM, HARTPURY, GLOUCESTERSHIRE.

CHIMNEYPIECE, DINING-ROOM, HARTPURY, GLOUCESTERSHIRE.

CATHEDRAL SERIES.—CHICHESTER: INSIDE THE TRIFORIUM. LOOKING WEST.

GREAT QUEEN STREET (PENIENY'S) THEATRE.

STAINED GLASS IN ENGLAND SINCE THE
GOTHIC REVIVAL.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays
among French Cathedrals," &c.A BRIEF REVIEW OF ECCLESIOLOGICAL
PROGRESS, 1855 TO 1875.

(Continued from page 43.)

WE have lingered so long over the most sacred part of the church and its adornment with sculpture and needle-work, as to render our survey of the most important and interesting examples of mural, roof and other polychromatic decoration carried out in England between 1855 and 1875 a somewhat hurried one. If not equalling in extent works of the same kind executed contemporaneously in France and Germany,* it must be admitted that ours have been of a far higher order of art.

In France the revival of Mediæval art, beginning sixty

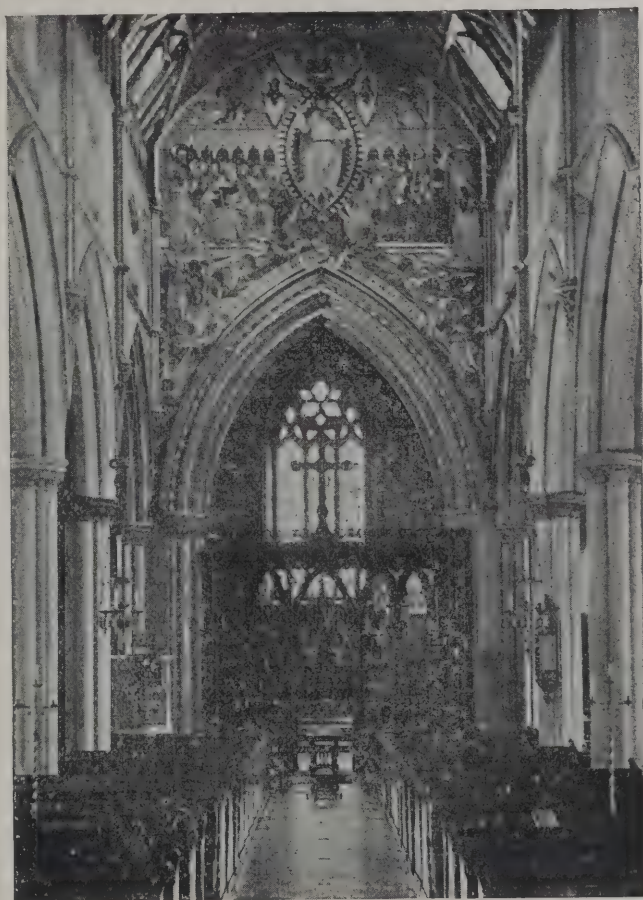
religious edifices is enhanced by being ourselves constantly invited to assist in their embellishment and repair.

In the department of artificial polychromy, the buildings which exhibit its application on the most extensive scale, because spread over the whole of them, are St. Stephen's Crypt, Westminster, restored under Mr. E. M. Barry's skilled direction in 1863-64 to something of its primal splendour,* and Worcester College Chapel, Oxford, while portions of buildings similarly treated and most deserving of mention are the chapter-house of Salisbury Cathedral,† restored by Mr. Clutton in 1856-57; the lady chapel of Chester Cathedral, the north transept of Hereford Cathedral, the decorative colouring being in each instance entrusted to Mr. Octavius Hudson; the lantern of Ely Cathedral, and the chapel of St. Andrew in Gloucester Cathedral, both by Mr. Gambier Parry.

In the decoration of large wall spaces the east ends of All Saints, Margaret Street, by William Dyce, and that of St. Alban's, Holborn, by Preedy, carrying out the views of Styleman Le Strange, but in modes diametrically opposed, undoubtedly occupy the foremost places.



CHURCH OF ST. MARY, ABERDEEN.
With Triptych by Mr. N. H. J. Westlake, 1864.



HOLY INNOCENTS, HIGHNAM, GLOUCESTER.
With Frescoes above Chancel Arch, by the late Mr. T. Gambier Parry.

years ago under Louis Philippe and continued with renewed vigour under the Second Empire, was prosecuted very materially under Government auspices, the vast works of cathedral restoration and embellishment in progress over nearly the whole of the country simultaneously being chiefly dictated by the political necessity of creating great public works to keep the strong and intelligent class of ouvriers quiet by employment. With us, on the contrary, everything in the way of cathedral and church restoration has depended upon private enthusiasm and munificence, with the result that interest in

Edward Armitage's figures of Christ enthroned amid the Apostles in the apse of the Roman Catholic church in Duncan Terrace, Islington,‡ executed early in the sixties, are invested with a dignity consonant with their position.

A little later is the artist's more widely-known fresco in one of the lateral chapels of the same church, and which was thus eulogised by the *Athenæum* shortly after its completion:—

* Some account of this interesting work was given in *The Architect*, October 5, 1900.

† In a former paper of this series the introduction of a very vivid green into the colouring of the choir roof, undertaken during the restorations of 1870-76, was remarked upon. In a very able paper on the "Iconography of the Chapter-house, Salisbury," contributed to the *Ecclesiologist* of April 1859, William Burges remarks upon the peculiar colour of this green, which was used through the chapter-house, as "most approaching the modern green verditer, but more brilliant."

‡ Already alluded to in these papers as the work of J. J. Scoles (1843).

* As, for instance, in the Sainte-Chapelle and the churches of St. Vincent de Paul and St. Germain des Près, at Paris; in the chapels encircling the choirs of Amiens, Rheims, and Coutances Cathedrals; in St. Denis; in the church of Bon Secours, near Rouen; in the great Cologne basilicas of Sta Maria in Capitolio, St. Martin and St. Cunibert; and in the cathedrals of Münster and Speyer.

"The figures are life-size; the subject, St. Francis of Assisi, in 1210, receiving the approval of Pope Innocent the Third to the Rule of the Order of the Frates Minores or Franciscans, as they are now called. Their founder stands, his head humbly bent, his hands held together before the enthroned Pope, who reads article by article the Rule of the Order. A monk on each side of the saint kneels, as do others behind him. The Pope is supported by a cardinal on each side, seated, all splendidly dressed. Attendants stand behind the throne. The scene is an open-sided hall in the Capitol, where the Pope is presumed to have lived at the period in question.

"Through the arcade we look over Rome and its ruins as in the thirteenth century. Following that sound rule of art which demands character everywhere, Mr. Armitage has given a portrait-like character to his heads, which, in the broad style he follows, individualises each figure and face and gives a striking look of truth to the whole. The expressions are effective, without anything of the theatre; the design, large and simple in composition, suits the subject and the material perfectly."

Of paintings which adorn walls above chancel arches Mr. Gambier Parry's in Highnam Church, near Gloucester; Mr.

But this, in the estimation of the critic just quoted, "is rivalled, if not surpassed, in excellence by that which is executed on the chancel wall," *i.e.* on the space above the chancel arch. Representing the Tree of Life as symbolised by the Crucifixion, the artist has approached the subject "in a manner befitting its dignity and pathos, neither aiming at unnecessary archaism nor adopting a mere pictorial and naturalistic treatment." Equally applicable are these remarks to Henry Holiday's graceful frescoes upon the eastern wall of All Saints, Notting Hill, that stately and abnormal church with which the late William White, F.S.A., made his *début* in London.

Two frescoes illustrating events in the Life of St. Stephen within the south chancel arch of the church dedicated to that saint on Sydenham Hill, by Sir E. J. Poynter; a series to be noticed with greater particularity hereafter, executed by Messrs. Clayton & Bell, in the apse of St. Peter's, Vauxhall; a frieze of saints upon gold grounds above the chancel arches of the Church of the Annunciation, Chislehurst, by Mr. N. H. J. Westlake; the effigies of various non-scriptural saints, by Mr. Daniel Bell, in the arcades which enrich the chancel walls of St. Mary Magdalene, Munster Square; and the late Mr. Alfred Bell's delicate figures of saints upon the gallery fronts at St. Andrew's, Wells Street, pretty well exhaust the list of



THE ANNUNCIATION.

(Portion of wall-painting in All Saints, Notting Hill, by Henry Holiday.)

Street's in All Saints, Boyne Hill, and SS. Peter and Paul, Wantage; Mr. G. F. Watts's in St. James the Less, Upper Garden Street, Westminster; Mr. Stacey Marks's in All Souls, Haley Hill, and Mr. Daniel Bell's (due chiefly to his clever pupil, Mr. George Parlby) in St. Paul's, Brighton, are among the more interesting and important, the subject in most cases being the Doom, or the somewhat analogous one, the Session in Majesty.

In 1870 Mr. C. E. Kempe painted on the west wall of St. John's Church, Tue Brook (a suburb of Liverpool), then just completed from the designs of Mr. Bodley,* a Tree of Jesse, which, says Mr. Eastlake in his "History of the Gothic Revival," "in composition, in delineative power, in judicious choice and association of colour, as well as in attention to the proprieties of costume and other details, is worthy of all praise."

* This church by its fourteenth-century English style, treated, however, in a manner quite *sui generis* by its architect, exhibited at the period of its completion a decided reaction from the French and Italian types of Pointed then so extensively in favour. Erected at the sole cost of Rev. J. C. Reade and Mrs. Reade, it is but one among the many and splendid instances of individual generosity that have characterised the great Church movement of the half-century just past.

works in the department of mural decoration carried out during this busy and eventful epoch in the history of revived taste as regards matters ecclesiastical.

Of roof decoration, of course, the most important example is that in the nave of the cathedral at Ely. Commenced in 1858 by Styleman Le Strange, who, three years earlier, had completed a grand figure of Our Saviour within an aureole, in the act of exercising creative power, upon the ceiling of the same cathedral's western tower, the present nave ceiling covers a high-pitched roof internally braced with a series of interlacing timbers in such a manner as to assume the form of an irregular polygon.

The painting upon it, executed *in situ* on deal boards nailed upon the old rafters, was completed as far as the sixth bay from the west at the close of 1861, when the artist laid aside the work *pro tem*, in order to devote himself to that series of subjects from the Litany which form so grand a feature of Butterfield's masterly church, St. Alban's, Holborn. The cartoons for this great work were as elaborate as those for Ely, but conceived in the style of a century earlier.

Before Le Strange could take up the broken thread in the grand Norman nave of the minster in the fens he was called away from earth, the work—a long symbolical tree of Christian

story, in rivalry of, but on a more gigantic scale than that at St. Michael's, Hildesheim, suggested to the artist by Dean Peacock as the model*—being carried on to completion at Christmas 1864 by his friend and admirer, the late T. Gambier Parry. Another example of roof painting which must not be overlooked is Sir E. J. Foynter's in the nave of that solemn Romanesque fragment, Waltham Abbey Church, executed in conjunction with William Burges, who early in the sixties was entrusted with its reparation. From the designs of Sir G. G. Scott, Mr. J. R. Clayton painted somewhat earlier on the flat roof of the apse at Peterborough Cathedral a grand calm figure of Our Lord in Majesty, surrounding Whom, in medallions placed among the branches of the vine on the pale blue ground of the ceiling, are half figures of the Apostles.



EASTERN PART OF THE NAVE ROOF AT ELY.

The same artist's roofs in St. James the Less, Upper Garden Street, Westminster, and St. Mary Magdalene, Paddington, both for Street, require to be seen under very strong conditions of light, especially the vaulted one of the chancel in the latter church. The chancel roof of St. Michael's, Brighton, interesting as one of the earliest efforts of Messrs. Morris, Marshall, Faulkner & Co., was executed for Mr. Bodley, by whom so wide a field was to be opened to a band of artists destined to completely revolutionise English art, whether of a religious or a secular character.

* This, however, has been disputed. The late Bishop of Carlisle, Dr. Harvey Goodwin, who was Dean of Ely 1858-69, and therefore saw this carefully studied epitome of the sacred history of man, as recorded in Holy Scripture, through every stage of its development, tells us on page 39 of his "Ely Gossip" that the scheme was not taken in any way from a foreign example, and that Le Strange had not seen the Hildesheim ceiling when his design was conceived. It is interesting to note that some of the faces in this gigantic work are portraits, that of Dean Peacock, for instance, being given to Isaiah. In that section of the roof which has been selected for illustration the three easternmost subjects—the Annunciation, the Nativity and the Adoration of the Shepherds and the Magi—are larger than those in the earlier or western portion, Le Strange himself having, as the work proceeded, realised that a grander effect would be produced by such an arrangement. Mr. Gambier Parry, therefore, in obedience to this intention of the original designer, wisely acted upon it.

KENT ARCHÆOLOGICAL SOCIETY.

THE annual meeting of the Kent Archæological Society was held this year at Maidstone, under the presidency of Earl Stanhope, lord-lieutenant of the county. The year's report, which was read by Mr. George Payne, F.S.A., stated that the Society was still in a most flourishing condition, and many of its more prominent members were steadily engaged in the great work for which the Society was founded. Since the last meeting the twenty-fourth volume of the "Archæologia Cantiana" had been issued. The cost of this volume had been defrayed, leaving a balance at the bankers, inclusive of the deposit account, of 635*l.* 7*s.* 8*d.* The Council had noted with much satisfaction the praiseworthy efforts of Mr. E. D. Till, of Eynsford, in preserving the remaining walls of Eynsford Castle. He had not only purchased the lease of the castle, but had expended a large sum in buttressing the tottering walls. The Marquis Camden had undertaken a sorely needed reparation of the magnificent ruins of Bayham Abbey, and Mr. Falcke had caused judicious repairs to be done at Allington Castle. Mr. F. S. W. Cornwallis, late M.P. for Maidstone, recently purchased the ancient college at Maidstone at a cost of 3,800*l.* for the sole purpose of preventing it being acquired for commercial uses or threatened with destruction. The Council were taking steps towards completing the inventory of Kentish church plate, commenced some years since by the late Canon Scott Robertson. It was hoped that the Rev. C. E. Woodruff, rector of Otterden, who had kindly undertaken to collect the returns, would receive the prompt assistance of those clergy with whom he had already communicated.

The Old Palace, Maidstone.

At the conclusion of the business meeting the members proceeded to inspect the building in which they were assembled, under the guidance of Mr. Hubert Bensted, architect, who read a brief paper on the history and architecture of the place. The manor, he said, had apparently in very early times belonged to the see of Canterbury, and appeared in Domesday Book among those held under the Archbishop. It must, however, have been alienated, for according to Phillpott it belonged in 1207 to William de Cornhill, or Cornhill, who presented it, together with the castle which lay on the south of the church, to Stephen Langton for himself and his successors. John Ufford began to build the palace in 1348, but died next year; Bradwardyne, his successor, scarcely survived consecration. Simon Islip, who followed him, carried out and completed Ufford's design, using, it is said, largely the material from a house which he pulled down at Wrotham. Courtenay, who made certain additions, died there in 1396. Morton had always been credited with having made substantial additions to the buildings, but recent discoveries would seem rather to point to his successor, Warham, as the builder, for on no less than three fireplaces, and those belonging to rooms of considerable dimensions, had the arms of that primate been discovered. Both manor and palace continued the property of the archbishops until Cranmer, by command of Henry VIII., granted them, together with the advowson and patronage of church and college, in exchange for other revenues. Henry very soon after gave them to his friend, Sir Thomas Wyatt, the elder, of Allington, whose son, Sir Thomas Wyatt, owing to the part he took in the rebellion, assigned them to the Crown. The palace, together with other premises in the town, was granted by Elizabeth to Sir John Astley, one of whose descendants sold it to Robert Marham, first Earl of Romney. Baron Astley was a famous general of Charles I. It is now the property of the town, having in 1887 been purchased by subscription as a memorial of the Jubilee of Her late Majesty, Queen Victoria. The Astleys built the east front, having first taken down that part of the older building, remains of the east wall of which still exist. Mr. Bensted, in conducting the members over the palace and buildings connected with it, drew particular attention to the remains of Early Norman masonry in the southern garden.

All Saints Church.

At the adjoining parish church of All Saints the members were received by the Rev. P. C. Joy, curate, who read a paper on the building written some ten or fifteen years ago by the late Canon Scott Robertson. This church, said the writer, was founded by Archbishop Courtenay, who obtained from Richard II. authority to pull down the parish church of St. Mary and to substitute for it the Collegiate Church of All Saints. Certain coats-of-arms carved upon the stall seats in the church indicated that the Archbishop was assisted with money for the work by his nephew and godson, Richard Courtenay, by another member of the Courtenay family, and by the wealthy and powerful foreigner named Guy de Mone, whom the Archbishop collated to the rectory of Maidstone in 1390. This rectory was then a rich benefice, sought for as a sinecure by powerful foreigners; but Guy de Mone was warmly attached to the Archbishop and to Maidstone, as well as to

John Wootton, the first master of the college. These two friends evinced a lively interest in the erection and completion of the church. Certain points in the edifice indicated that the builders began with the south-eastern portion. The internal decoration was not finished until several years after the death of Primate Courtenay. This was ascertained from an examination of the elaborately canopied sedilia on the south side of the chancel; the stones of which the carved work was composed ran completely through and were common to the sedilia and to the tomb of Wootton, who died in 1417. This tomb was built between 1407 and 1414, during his lifetime. The church was in full use years before the sedilia were inserted. The dimensions of the church were remarkable. It probably seated upon the floor-level more persons than any other parish church in the county. Yet it was not nearly as large as it was represented to be by the histories of Maidstone, which called it 227 feet long. The actual length of the church inside was 166 feet, the nave was 100 feet long, the chancel nearly 63 feet, and the space between the two was rather over 3 feet. Cranbrook Church was longer; so also was Lydd Church, while at Faversham and Minster-in-Thanel the churches were not 6 feet shorter. But the great width of the church was its peculiar characteristic. The nave of Rochester Cathedral could almost be put inside this church. Its great width enabled the nave with its aisles to contain sittings for 1,400 people; the chancel could seat 200 more; and it was said that 2,080 persons were once accommodated. In the way of accommodation Faversham probably approached Maidstone most nearly. Faversham Church contained on the floor-level sittings for 1,400 people, and its area was 11,060 square feet. Internally, greater uniformity of design and better light were found in All Saints, Maidstone, than were usual in Mediaeval churches. It was an admirable example of the early period of the Perpendicular style of architecture. The noble arcades were continuous from east to west, having six bays in the nave and three in the chancel. The windows were twenty-four in number and contained 101 lights. Breaks in the uniformity of the church were caused by the width of the aisles being less on the south than on the north, and in the nave this contraction of width was found to run continuously across the church, so that the north aisle was wider than the nave itself, and the nave was wider than the south aisle. The singular position of the tower further broke the uniformity of the church. It stood on the south side, outside the south aisle, against the second bay from the west end. There was no lofty arch opening from the nave into the tower, but simply a large low doorway. Upon the whole it must be acknowledged that very few churches existed of such size as this, or in which the shafts, piers and abutments were so little obtrusive, and where the masonry so little obstructed either sight or sound. The continuous character and elegance of the moulding around all the arches should be especially noticed. This distinguishing feature of the Perpendicular style was very prominent here. The absence of capitals was remarkable; it increased the light and elegant appearance of the arcades, but he (Canon Scott Robertson) doubted whether the design was not too uniform and too elegantly light. Justice to the original designer, however, required that they should remember that several important accessories of his work had been destroyed. The roof and ceilings which he designed were quite gone. The rood-screen with its panels brightly coloured was also gone. The door of the entrance to the rood-loft still remained in the north wall. The upper door, which gave access from the turret to the rood-loft, was now blocked up and plastered over. The rood-screen enclosed spaces for two small chapels. Within each enclosure an altar stood. Another lost feature in the original plan was the illuminated screenwork, which undoubtedly divided the high chancel from the side chancels. The altar in the south chancel was called that of St. Thomas the Martyr, and that in the north aisle might have been dedicated to St. Mary. It was believed that the north chancel contained an altar dedicated in the sacred name of Jesus our Lord. The high altar was dedicated to All Saints. The tomb of John Wootton had lost much of its beautiful colouring, but some of it still remained. East of this tomb was a squint, or hagioscope, upon a high level. The sedilia were originally more handsome than any others in Kent. They comprised four canopied stalls, the work being elaborate and elegant beyond anything to be expected in the collegiate church of an ordinary town. The frequent presence of the Archbishop at service here no doubt accounted for the beauty of these sedilia; the Primates often used the church for ordinations and other ceremonies of importance. This likewise accounted for the large number of stalls in the chancel. The carvings beneath the seats of twenty of the stalls remained in their original state, and were all well executed. As in the old church of St. Mary so in the collegiate church of All Saints, there was some chapel or vestibule devoted to the purposes of what would now be called a Probate Court. All the wills of persons residing in Maidstone and the neighbourhood were proved here for several centuries. The

font was remarkable as being of antique octagonal form, and yet dating only from the time of James I. Upon its sides were carved the arms of the Astley family and of France, Scotland and Ireland quarterly, without the arms of England. It was singular that so remarkable an insult to the English nation should have been allowed to be set up in any English church. The Astley family, who gave the font, were commemorated by several monuments. The changes wrought in the church through its being used as a citadel of refuge by the Royalist troops in 1648 could not now be identified, and very little harm could have been done. Lightning or fire destroyed the lofty spire in November 1731; it was built of oak, covered with lead. The tower was 78 feet high and contained five bells and the morrow Mass bell in 1552; there were also six bells in 1667; a seventh bell was inserted before 1719, and probably an eighth was added in 1721. All were recast in 1784, and since then the number had been increased to ten. Galleries were erected in the church, one in 1667 on the south, another in 1714 on the north, and a third stood at the west end. Repewing took place in 1700, and the galleries were removed at different times. The ancient roof was taken off in 1793, and the existing roofs and ceilings were put on in 1793-94, at a cost of nearly 3,000*l*. A pulpit stood at the west end of the nave from 1692 till 1823, when it was removed. The new pulpit placed here in 1849 was now in Detling Church. The present stone pulpit was given by Mrs. Sweetlove, whose relative, the late Miss Sweetlove, gave the reredos. Gas was introduced in 1855, and regular evening service on Sundays was then commenced. The paper concluded with an enumeration of the stained glass and memorial windows in the church.

Leeds Castle.

By carriage to Leeds Castle was the first order after luncheon. On arrival the members were received by Mr. C. P. Wykeham-Martin and Mrs. Wykeham-Martin. The famous pile was described by Mr. F. V. James, F.S.A., curator of Maidstone Museum, who dealt with the castle more particularly as an illustrative example of the military architecture of the Middle Ages and of its strong position as a fortress. The castle was a very peculiar structure. It stood, he said, upon three rocky knolls, of which two were islands in a lake of about 15 acres in extent, and the third occupied the central part of the artificial bank by which the waters were retained. The island on which the keep or glorie was situated was thought to have been the site of an earlier stronghold, tradition stating that such a place existed as early as A.D. 857. This was, perhaps, a Saxon house of timber, but the oldest work now seen dated from Edward I., the chapel, judging by its style, belonging to A.D. 1280. The Normans probably took the Saxon forts as they found them, and the Norman shell-keep was constructed by changing the Saxon buildings of wood into fabrics of stone. In the reigns of King John or Henry III. a doorway in the gatehouse, the barbican and its wings, and the inner wall of the enceinte were, it is thought, designed, being portions of a definite plan which, once adopted, was deliberately carried out until finished. The lower portion of the old castle and the chapel were assigned to the period of Edward I., and the bretasce over the gateway was built during Richard II.'s reign, replacing an earlier one inserted by Edward I. and repaired later by Edward II. Extensive alterations apparently did not take place until the period of Henry VIII., when the upper storey of the old castle was formed. At this time, too, the Maidens' Tower was built. The actual date was not very clear, and although another building might have been standing in its place, there was no evidence to show that it was included as part of the fortress in times anterior to those of Henry VIII. Tradition supposed it to have been built for the maids of honour, and a later conception was that the appellation was a corruption of the word "main" or principal tower. Whilst in the possession of the Smith family of the Strangford ancestry an Elizabethan mansion was erected in the seventeenth century at the north end of the large island. In 1822 the present mansion was erected, during which many remains of the earlier structures were recovered. Near the Maidens' Tower, Mr. James remarked in the course of his paper, was a water tower with a very remarkable bath constructed for the use of Edward I. in 1291-92. It communicated with the lake by means of a passage in which were still to be seen the grooves of the portcullis. The water appeared to have been excluded or retained by means of an ingenious arrangement of flush-boards or sluices, which allowed of the cleaning of the bath without letting off the water of the moat. The area of the chamber equalled that of the hundred Reigate stones 2 feet square, specified in the accounts of Queen Eleanor's executors (A.D. 1291-93) as being obtained for use in its construction.

Leeds Church.

The parish church of Leeds, situated some little distance away, was next visited. The Rev. A. P. Morris (vicar) received the party, and an interesting account of the church was read by

Mr. George Payne. Mention was made, he said, of a church at Leeds in Domesday. Evidences of an earlier building existed in a row of clerestory windows, splayed outside and in with a groove in them for a shutter. The inner splays on the nave side were closed up, but those on the other side in the north aisle were still visible. This early church appeared to have been slightly shorter than the present nave, as the foundation of its east wall was discovered across the nave some distance to the west of the chancel steps. It had been presumed that in late Norman times the solid walls of the original church were pierced and an arcade introduced on either side, leaving the traces of the early clerestory above. The fine western arch, built entirely of tufa, belonged to this period. In the thirteenth century the massive tower was raised, as indicated by the narrow lancet windows in its north and west walls. The tower probably possessed originally a more lofty steeple than the present diminutive capping tower. In the thirteenth century the north aisle was also added, the nave roof being brought down to cover it. The south chapel was probably added at this period. Early in the fourteenth century the presumed Norman arcades of the nave gave place to those now existing. Judging by the windows and plinth the north chapel was added towards the close of the Decorated period. In each of the chantry chapels was a piscina; that of the south was a good example of Early Decorated work, and that in the chancel was more elegant. In the chancel there were three sedilia on the same level. Perhaps the grandest feature of the church was the magnificent rood-screen, which was of the Perpendicular period. It spanned the whole width of the church and consisted of eleven bays, each bay representing a four-light window. The screen supported a beautiful canopy, richly carved, the whole forming a glorious example of the wood-carver's art of the Middle Ages. The steps which led to the rood-loft existed in the south wall of the nave. The lower doorway was blocked up, and the upper one was doubtless still in existence, but had been concealed from view by modern plaster. In 1878, when the church was being restored, a remarkable discovery was made. Underlying the wall plates of the nave twenty-five jars of pottery were found on either side, embedded in the masonry 2 feet apart. He was of opinion that they were acoustic jars; they were from 10 to 12 inches in height, 8 to 10 inches in diameter, contracting to 4 inches at the mouth. In the bottom of each vessel was a cross-shaped or star-like slit of four points. The clay of which they were made was flecked all over with minute atoms of flint, a well-known characteristic of pre-Roman pottery. As the jars belonged to a much later period, it showed how careful one ought to be in assigning scraps of pottery sprinkled with flint to the Celtic period. Of the monuments in the church little need be said, as none were earlier than the beginning of the sixteenth century, and all the inscriptions were legible. The bells were of exceptional interest; the oldest was cast in 1617 at Joseph Hatch's foundry at Ulcombe, in which 155 bells were cast for Kentish churches. The large quantity of tufa used in the building would be noticed. It defied the elements, and was deposited by water highly charged with lime in solution. Until the time of Henry VIII. the canons regular of Leeds Priory were the officiating clergy at the parish church, but after the suppression provision was made for the ministration of the church by a small charge on the lessees of the confiscated priory lands. Queen Elizabeth improved matters by granting the advowson and revenues of the priory estate to the see of Canterbury. The clergy of Leeds were called "Archbishop's Curates" until 1843, when the ordinary title of vicar was adopted. The remains of the priory had, alas! totally disappeared. It seemed to have formed part of the appanage of the castle, and stood on the outskirts of the park. It was founded in 1119 by Robert de Crevequer and his son Adam, and in it were placed three Augustinian monks, who had already been attached to the chapel in Leeds Castle. The number was subsequently increased to eight canons under a prior, and had been further raised to thirteen at the time of the suppression. Excavations which the late Mr. C. Wykeham-Martin caused to be made in 1846 revealed part of the crypt and foundations of the apse of the priory church. Unfortunately, said Mr. Payne in conclusion, these explorations were not continued, but let them hope that some day the whole area which was once covered by the priory buildings might be systematically laid bare.

Battle Hall, Leeds.

Following the visit to Leeds Church a small party was conducted over Battle Hall by Mr. George Payne, who also described the house. The residence, according to Hasted, was in the time of Henry VII. in the possession of Robert Chambre, who, in the sixteenth year of that reign, released his claim and right to Robert Wotton, of Boughton Malherbe. It subsequently became the property of the Coverts of Leeds Abbey. Sir William Covert sold it to Mr. Harsnet; it passed through several hands until acquired by the Hon. Robert Fairfax, who resided here until he removed to Leeds Castle.

It afterwards became the property of the Rev. Dr. Denny Martin Fairfax. In the ancient dining hall was a beautiful decorated cistern and lavatory of carved stone. The bowl, which was the full width of the recess, was of Bethersden marble. Within the recess were two tower-like receptacles for holding water, which flowed through taps into the trough in front. Here those who were about to dine could wash their hands. The hall once possessed groining ribs of stone, which had disappeared, but the corbels and springers of the arched ribs remained. The late Rev. J. Cave-Browne seemed to have regarded this lavatory as a piscina, which might have come from one of the ruined chapels of the priory church, and he also considered the circular towers for holding water were later insertions into the niche. In an upper room in this house was a remarkable painting on panel in oil-colour. In the centre stood the Virgin holding the child Jesus in her right arm; on her right was St. Katherine with her wheel; beyond her was St. Agatha with the sword passing through her breasts. At the extreme right was a bishop with a crozier in his left hand and his right raised in the act of blessing. On the left hand of the Virgin stood St. George or St. Michael thrusting his spear down the throat of the dragon; next to him was St. Mary Magdalene holding the box of ointment, while the last figure on that side seemed to represent an ecclesiastic in full vestments. It had been conjectured that this curious painting might have come from the priory of Leeds.

Old Maidstone.

At the evening meeting a paper on "Houses of Old Maidstone" was read by Mr. Hubert Bensted. He remarked that quite a number of old houses had disappeared within his own recollection, notably Great and Small Buckland, of which a model was exhibited. This house derived its name from the tenure under which the land was at one time held. Among the Saxons "bocland," in contradistinction to the "focland," occupied by the common people, was devisable by will, and might be shared in equal portions among the children of the holder. The estate was in the time of King John granted by the Archbishop of Canterbury to Allan de Bocland to hold in frank fee. It was then described as one yoke and ten acres of land, with appurtenances in Maidstone. In the year 1270 it was in the occupation of Walter de Bocland, and a dispute as to its possession arose between him and his brother Allan, who brought the question before the Justices itinerant, and sought to obtain a moiety of the estate, the tenure of which had been changed by the archbishop without the consent of the Chapter of Canterbury. The plea, however, was overruled, and judgment was entered for the defendant. Buckland, of which 400 acres were in the parish of Maidstone, was in Henry IV.'s reign merged into the demesne lands of the college of All Saints, and on the dissolution of that house it passed to the Crown. It was granted by Edward VI. to George Brooke, Lord Cobham, whose grandson, in 1603, forfeited it for treason. His wife was, however, permitted to enjoy it for her life; and after her death it became the property of Robert, Earl of Salisbury. William, Earl of Salisbury, about the year 1618, broke up Buckland into three portions and sold them. That portion since called Great Buckland was purchased by William Horsepoole, who married a daughter of Lawrence Washington, of Jordans Hall, and in the reign of Charles II. it was sold to Sir John Banks, from whom it descended to the Earl of Aylesford, from whom it was purchased by Mr. R. J. Balston, of Springfield. Other fine examples existing within the memory of most were Bliss House in High Street (now the Post Office); Earl's Place in Earl Street, and to which it gave its name; a fine old mansion in Week Street, opposite Union Street and several old houses in the High Street. Fine old houses of which one read as standing in the first quarter of the late century included Sheales Court, south end of Stone Street, and at the opposite corner a "mansion-house with extensive surroundings." Adjoining on the north stood some ancient houses belonging to the Corporation (taken down in 1836). Lower down on the same side of Stone Street, *i.e.* the west, was "a very large old house of timber and plaster, temp. Henry VII." On the opposite side were Kingsley House and Jordans Hall, opposite to which stood "a large house." It was supposed by Mr. Clement Taylor Smythe that Henry VIII. might have stayed in this house, for the reason that his arms were found in plaster over one of the chimney-pieces and also in stained glass in one of the windows. A few yards further down was Stone House, retaining several good features, a fine fireplace, panelling and staircase. This house now belonged to the county, and was occupied by the judge of assize when travelling circuit. The two corner houses at the top of Gabriel's Hill had crypts vaulted with stone. The superstructure of the east corner house was gone; that of the west remained, but cruelly disguised. Some distance along Week Street from the south end at the beginning of last century stood "an ancient house, the entrance to which was through a large carriage gateway, which opened into a large and lofty hall." A house similarly described by Mr. Clement

Taylor Smythe stood a little further north, and yet further in the same direction was what the same authority described as "a very ancient house," with projecting casement windows extending from the top to the bottom storeys of the house. Adjoining this was (at the corner of Union Street) a house called Merchant Taylors. On the north side of Union Street (Tyler's Lane) stood the ancient manor house of Wyke, which gave its name to Week Street. On the west side of Week Street, opposite Union Street, was (to again quote Mr. Smythe) "a curious old mansion house;" a part of this remained, though much defaced, the bulk having been demolished a year or two ago, when handsome moulded oak-work was revealed. There was another large house (temp. James I.), where the Kent Club now stood. What Mr. Smythe described as "a very large mansion" stood by the water side north of Faith Street, "having many remains of Gothic arches, oriel windows, with trefoil heads and stone mullions." Earl's Place (already incidentally mentioned) again must have been fine, being "entered by a curious old gateway into a courtyard, and on the west side of which was a large lofty old hall, with immense windows, containing a considerable quantity of stained glass and shields of arms and devices." Opposite the house still stood, in a cruelly modern guise, the house of Andrew Broughton. Examples of an elaborate style of plasterwork were still to be seen in Bank Street and Week Street. The most important of the few houses that remained to them were in hands that would carefully preserve them. The Palace of the Archbishops and Chillington House (the building in which they were assembled) belonged to the town. The college buildings were lately purchased by Mr. F. S. W. Cornwallis, with the intention of preserving them intact. The remains of the southern gateway were, he believed, in the market, but their watchful secretary was taking steps for their preservation. The ancient building called Digons had become the vicarage house of All Saints, while the remains of Corpus Christi buildings were in good hands.

Boxley Abbey.

On the second day the first visit was to Boxley Abbey. Mr. George Payne gave a full account of the interesting discoveries recently made at the abbey. He remarked that the late Rev. J. Cave-Browne, in his work on Boxley parish, stated definitely that they might imagine the grand church of the abbey rose up on the south side of the garth enclosure, but there seemed to him (Mr. Payne) to be direct evidence that the church had existed on another spot. By the kindness of Major Best and the late Mrs. William Mercer, who then resided at the abbey, he was allowed to investigate the portions of the property he had in mind, and it was on a piece of ground at that time used as a potato garden that he found, 6 feet below the surface, the walls of the chancel of the church. At his suggestion Mrs. Mercer laid out the ground as a rose garden, the transept and chapels being marked by paths. Continuing his investigations, he came to the conclusion that the wall of the adjoining garden terrace was the original wall of the nave of the church, the plastering and whitewash still remaining. Towards the western end he found a large archway. This he was permitted to open up, with a remarkable result. The archway was entirely blocked up with the débris of Boxley Abbey right up to the crown, and when this was removed it was seen that the terrace, always supposed to have been built during the time of the abbey, was in reality the southern aisle of the Norman church. The débris consisted of pilasters, bases and capitals of columns, decorated fragments, and so on, many of these fragments being in a remarkable state of preservation. Epitomising the results of his investigations, Mr. Payne said the water garden occupied the site of the church, while the chancel, transept and chapels extended into the kitchen garden, the chancel being now covered with the rose garden. The lawn was the site of the cloister garth, around which were the cloisters. Under the raised bank about 10 feet from the surface of the garth, the mosaic floor of the cloisters had been found. The east side of the cloister now used as a kitchen garden was covered by a sacristy, cell, chapter-house and parlour. In what is now the Dutch garden with its fountain once stood the refectory and day-room. The kitchen of the present house was once the abbey kitchen. On the western side of the cloisters was the room for the lay brethren, over the kitchen offices were the abbot's quarters, and the dormitory was over the sacristy, the chapter-house and buildings being on that side. Over the east end of the chapter-house was the munitment-room; the great sewer still exists beneath the south wall of the abbey. The speaker next traced the ownership of the abbey from the Dissolution to the purchase of the estate by Major Best, of Park House. Several men of importance lie buried in the sanctified and beautiful enclosure of the abbey, including Robert Vineter, or Vyntier, the owner of the manor of Vinters. In the recently discovered archway were the fragments of a beautiful fourteenth-century tomb, but of the identity of this there is absolutely no evidence. Mr. Payne

described the seals of Boxley, and concluded, by reading Lambard's quaint account of the famous rood of grace of the abbey church. Mr. Seymour and Major Best were, on the proposition of Mr. Collyer Ferguson, heartily thanked for allowing the Society to visit and inspect the abbey.

Sutton Castle.

From Boxley Abbey the party drove to Sutton Valence, halting at Maidstone to pick up members who had journeyed to the town by train to take part in the second day's proceedings. In Sutton Valence recreation-ground, by permission of the Parish Council, luncheon was provided for the party, and after the repast Mr. Harold Sands read a brief paper on Sutton Castle, of which very little now remains in existence. No mention is made of any castle at Sutton Valence in the Domesday Survey, nor do the monastic historians speak of such a building. The castle, however, is supposed to have existed, and to have been destroyed in the time of Stephen. Kentish historians say little about it, and it does not appear to have played any prominent part in history. The ruins of the tower are 8 feet thick and about 30 feet high. From its resemblance to Peak Castle in Derbyshire Mr. Sands is inclined to attribute the fortress to the time of Henry II.

East Sutton Place.

By permission of Mr. R. H. B. Marsham, East Sutton Place, the seat of Sir Robert Filmer, Bart., was visited after luncheon. The members were conducted over the mansion by Mr. W. R. Ward, and Mr. Payne subsequently read some notes upon it. The manor of East Sutton, he said, belonged originally to Odo, Bishop of Bayeux, but it was confiscated to the Crown about 1084. Subsequent owners were John de Salario, who held it of Simon de Montfort, Earl of Leicester, in the reign of Henry III.; Geoffry de Martel, in the latter end of the reign of Henry III. and the beginning of Edward I.; Adam de Martel, whose right to it against the king was allowed by the Justices itinerant, 21st Edward I.; and Aymer de Valence, Earl of Pembroke, in the reign of Edward II. The last-named died in the seventeenth year of Edward II.'s reign, and his sisters became co-heirs. Isabel, who married John de Hastings, of Bergavenny, had this manor allotted to her, and with his descendants, Earls of Pembroke, it continued till, on failure of issue, it became the property of Reginald, Lord Grey of Ruthyn, as next of kin and heir of Aymer de Valence, in the reign of Henry IV. On Lord Grey being taken prisoner by Owen Glendower in Wales, Henry IV. in his fourth year granted license to Robert Braybrooke, Bishop of London, and others, to sell this manor towards raising a sum of money for his ransom. It was sold to Richard Brigg, Lancaster King-at-Arms. It alienated to Thomas Buttler and Thomas Bank (Henry V.); passed to the Darrells (Edward IV.); John York, of Ramsbury, Wilts (Henry VIII.); Richard Chilham, prior of Leeds Priory, for the use of his convent (Henry VIII.); Sir Henry de Guldeford, K.G., comptroller of the king's household (Henry VIII.); sold to Richard Hill (Henry VIII.); alienated to Thomas Lord Cromwell (Henry VIII.); it was exchanged with the Crown, where the fee of it remained till the king granted it in his thirty-seventh year, to John Tufton and Stephen Reavers to hold *in capite*. It was alienated to Thomas Argall in the same year. He procured his lands in Kent to be disgavelled by the Act of 2nd and 3rd Edward VI. and died possessed of it in the sixth year of that reign. His son and heir Richard married the daughter of Sir Reginald Scott, of Scott's Hall, in Kent; one of his daughters, Elizabeth, married Sir Edward Filmer, of Little Charleton, in East Sutton, to whom the manor was sold in the eighth year of James I., who removed from his seat of Little Charleton to the manor house of East Sutton, called East Sutton Place, where he kept his shrievalty in the thirteenth year of James I. The Filmer family was originally seated at Otterden, where Robert Filmer lived in the time of Edward II. His descendants continued there until Robert Filmer removed to the manor of Little Charleton. He was the father of Sir Edward Filmer, who purchased the manor of East Sutton. This Sir Edward had by his wife, Elizabeth Argall, nine sons and nine daughters, and died in 1629, being succeeded by his eldest son, Robert, who was knighted by Charles I. and resided at East Sutton. He was a prolific writer in defence of the rights of the Crown and was a great sufferer during the civil wars. His house was sacked ten times by the rebels and himself imprisoned in Leeds Castle for his loyalty. He married Anne, daughter and co-heir of Martin Hecton, Bishop of Ely. The following extract from Anne Hecton's diary still preserved at East Sutton gives some idea of the destruction of the screen and the fine window in the south-east chantry:—"July 27, 1643. Cornet May came to search East Sutton belfry for arms there; he tore the surplice with his own hands, took the Bible service book out of the church and broke down the screen and the painted-glass windows. Then went into Sir Robert Filmer's house, where he would not suffer the servants to be in the rooms where he searched, so that the

soldiers took divers things, what they pleased, and had the linen off every servant in the house except one." Robert died in 1653, being succeeded by his eldest son, Sir Edward Filmer, gentleman of the Privy Chamber of Charles I. and II. He died unmarried in Paris, 1668, and was succeeded by his next brother, Robert Filmer, barrister-at-law, of Gray's Inn. In consideration of his father's sufferings and loyalty he was created a baronet in 1674. East Sutton House is interesting principally for its fine tapestry in what is called the Queen's room, and for the old family portraits in the dining-room. There is a fine painting of King Charles by Sir Peter Lely in the dining-room. The entrance hall, music-room, library and dining-room on the ground floor and the tapestry-rooms on the second floor are situated in the ancient part of the house. On the motion of Mr. Payne thanks were accorded to Mr. Marsham and the agents of Sir Robert Filmer for permitting the Society's visit. Mr. Ward was also thanked for conducting the members over the house.

East Sutton Church.

The parish church of East Sutton was inspected under the guidance of Mr. Wells, who read a paper prepared by Mr. T. H. Oyler, whose absence through indisposition was regretfully alluded to. There was a church at East Sutton at the time of the Domesday Survey, but no portion of the original fabric can now be traced. The chancel and chapel on the north side Mr. Oyler considered to be beautiful specimens of the work of the latter half of the fourteenth century. The walls of the church are of Kentish rag. At the east end of the north chapel is one of the most beautiful Decorated windows to be found in the country. Very little of the stained glass remains, and the window generally is sadly in need of restoration. The general fabric was restored, mainly through the energy of Mr. W. R. Ward, a year or two ago, about 1,500*l.* being spent on the building to excellent purpose. Memorials of many of the families connected with East Sutton manor in past times remain in the windows of the church, the registers of which date from 1640.

Ulcombe Church.

A visit to Ulcombe brought the day's itinerary to an end. The Society was welcomed at the parish church by the Rev. Lord Theobald Butler, rector, while Mr. Walker read a paper prepared by the Rev. G. M. Livett, vicar of Watlington. Ulcombe Church is situated about 350 feet above sea-level, and on a clear day Fairlight Down can be seen from the porch. In the churchyard is a particularly fine yew-tree, the trunk of which measures 34 feet 6 inches in circumference. Mr. Livett describes the plan of the original church as an example of the style most commonly adopted by builders during the second half of the eleventh and the first half of the twelfth century, consisting of a nave without aisles and having a small arch in the east wall communicating with a narrow chancel. Certain portions of the Norman church still remain, notably a pillar on the south side of the chancel. Much of the present building belongs to the fourteenth century, including the chancel arch and the sanctuary. On the arcades of the nave there are more or less distinct traces of several fresco-paintings. Some memorials of the St. Leger family exist in the church. One is a stained-glass window in which the arms of Richard, Duke of York, father of Edward IV., are represented. There is also a monument to the Marquis and Marchioness of Ormond.

We are indebted for this report of the proceedings to the *South-Eastern Gazette*.

YORK ARCHITECTURAL SOCIETY.

THE members of the York Architectural Society went on the 10th inst. to Gilling, where, on arrival, the party wended their way along the woody eminence to the castle. On the eastern terrace, in front of the oldest portion, Mr. John Bilson, F.S.A., gave an instructive and interesting address on the building and its owners. In the basement is a blocked doorway, in the arch of which are shields bearing the arms of Etton, the then owners of Gilling. This doorway communicated by a central passage to rooms on either side, all having pointed barrel vaults. At the other end of the passage is a flight of stone steps which led to the upper apartments. A monument in the south aisle of the church may commemorate Thomas de Etton, the builder of this fourteenth-century tower house. From the Ettons the property passed into the hands of the Fairfaxes of Walton, one of whom, Sir William (son of Sir Nicholas, whose tomb is in the church, made considerable additions to the castle. To him is due the beautiful dining-room. In the eighteenth century the west front with wings was added from the designs of William Wakefield, architect, of York.

The party proceeded to the west front and ascended the steps to the entrance. In the hall an oak screen designed by the president of the society (Mr. C. H. Channon, F.R.I.B.A.)

attracted attention. The dining-room was entered, and its painted glass and heraldry described by Mr. Bilson. The room is perhaps the finest Elizabethan room in the country, and is 39 feet 5 inches in length, 22 feet 2 inches wide and 17 feet 3 inches in clear height. It is panelled in oak to a height of 12 feet, and there are seventy-five panels inlaid with varied ornament and enclosed by mouldings carved with egg and tongue ornament. Surmounting the panelling is a painted frieze on which is a series of trees representing the wapentakes of Yorkshire; on the trees hang shields of Yorkshire gentlemen living at the close of the sixteenth century who were entitled to bear arms. There are 449 shields in all, whilst beneath the trees are various animals. The frieze also contains three ladies playing lutes and three gentlemen viols. The room is lighted by three large windows enriched with painted glass depicting the Fairfax heraldry, and partly the work of Bernard Dinckhoff, 1585. The bay window emblazons the arms and descents of the Fairfaxes, that in the south window those of the Stapletons. Sir William Fairfax married Jane, daughter and heiress of Brian Stapleton, of Barton Joyce, Notts. The glass in the other window is of rather later date, and contains the arms and descents of the Constables. Sir William's son, Sir Thomas, first Viscount Fairfax of Emley, married in 1594 Katherine, daughter of Sir Henry Constable, of Burton Constable. The imposing fireplace is enriched with heraldry; at the top are the arms of Queen Elizabeth, in the centre the arms of Fairfax (with Malbis, Etton, Calthorp, Ayrum and Follifoot), also with crest and supporters. In the mantel panels are the arms of Sir William Fairfax's four sisters and their husbands. The ceiling is of plaster, ribbed, with pendants.

The basement was inspected, and afterwards the rooms of the later additions designed by Wakefield, including the beautiful long gallery. On the motion of the president (Mr. Channon) a hearty vote of thanks was accorded to Mr. and Mrs. Wilson for their kind permission in allowing the castle to be inspected, and also to Mr. Bilson for his valuable description of it.

The church was subsequently inspected under the direction of Mr. Bilson, and soon afterwards the party returned to York, after having a profitable and enjoyable outing.

HIGHER ELEMENTARY SCHOOLS.

THE Board of Education have issued the following rules as to buildings for higher elementary schools:—(1) Article 110 (6) of the Code limits the numbers of a higher elementary school to about 300. For such a school ten classrooms will generally be required, since every class should have its own classroom. Of the ten classrooms at least four should be suitable for a class of forty scholars. (2) (a) A classroom for forty scholars should have an area of about 620 square feet; a classroom for thirty scholars should have an area of about 480 square feet. (b) All classrooms must be furnished with single desks; the desks should be 2 feet long, arranged in pairs with intervals of 2 inches and gangways of 2 feet. (3) Every higher elementary school should be provided with suitable laboratories. (a) The laboratory accommodation must be sufficient to provide at one time for the largest class in the school. (b) There should generally be one laboratory for chemistry and one for physics. (c) A laboratory should afford 30 square feet of floor space for each scholar; the minimum size will therefore be 600 square feet, but it is as a rule desirable that the laboratory should be somewhat larger. If, however, the laboratory accommodates more than twenty-five scholars a second teacher would be required. (d) Laboratories must be fitted with suitable tables, which must be well lighted; they should be properly supplied with gas and water. For chemical laboratories, sinks, cupboards, and the necessary fume closets must be provided. (e) A small balance-room may be provided if desired. (4) (a) In addition to the classrooms and laboratories it is desirable that a higher elementary school should include at least one lecture-room, which should be fitted with (1) demonstration table furnished with a gas and water supply and a sink, and (2) a fume closet. A lecture-room should have an area of about 750 square feet. (b) A small preparation-room fitted with bench, sink, cupboard and shelves, and proper supply of gas, should be provided in a convenient position for the lecture-room. (5) A drawing classroom for the more advanced drawing is desirable. It should provide 30 square feet of floor space for each scholar; the best size will be a room with an area of 750 square feet. If suitably lighted the hall would answer for this purpose. (6) Other special rooms for cookery, laundrywork and manual instruction should be provided in accordance with the rules in Schedule VII. of the Code. (7) A higher elementary school may be planned with a central hall, but no class (other than drawing) can be recognised in such a hall. Good dimensions for such a hall would be 50 feet by 25 feet. As an alternative the hall might be adapted

for use as a gymnasium when occasion requires. Such a gymnasium for a school of 300 children should have a floor space of 1,800 square feet. The gymnasium should not be adjacent to the laboratories.

GOVERNMENT ARCHITECTS IN INDIA.

AN "up-country" contemporary has, says *Indian Engineering*, a prominent article in one of its issues on the above subject that has attracted no little attention. It is contended, as has so often been done by us, that Government has been negligent in the past in regard to architectural matters, and continues to be more or less negligent still. Sir Ashley Eden will always stand out as an exception to the rule, and it is no secret that Lord Curzon is struck with the indifference that is noticeable among the local governments in regard to all things pertaining to architecture. The dull Indian official grows up with an aversion in this direction, and by the time he is holding high position the aversion becomes deep-rooted. It is needless to say that this attitude is both unreasonable and unjustifiable, and though convenient to the individual because it saves time and trouble, is a positive misfortune to the country, and is the primary cause of the depression. Something decisive is called for. We already know that the India Office is taking steps to get some of the Coopers Hill men trained as architects, but it must be several years before that move can begin to bear fruit. Meanwhile there are certain officers whose capabilities should be fully utilised. This should be done in a liberal, sensible and encouraging way, and work should be steadily and consistently and not fitfully placed in their hands. Architectural art is not brought out in a mechanical way and to order when wanted, but is a thing of quiet growth requiring careful nurture; it improves by regular practice, even though there may be some risks and failures to be faced. It must not be subjected to severe restraint, but must have a degree of freedom. The architectural artist should be the pet of his community, but not at the same time the *bête noir* of his superiors.

ST. MARY'S HALL, COVENTRY.

THE Society for the Protection of Ancient Buildings has taken considerable interest in the repair of St. Mary's Hall, Coventry, one of the most valuable archaeological features of the city. After correspondence with the local authorities, arrangements were made for the visit of two representatives of the Society, Mr. Oliver Baker and Mr. C. E. Bateman. The report of these gentlemen has been adopted by the Society, and is generally favourable to the scheme of the work of repair which is being carried out. They, however, point out that:—"In the ancient kitchen, at the south end of the main building, which was probably the original hall of the guild, a corbel, once one of the roof timbers, having perished, another of white stone has been inserted. This new corbel has been carved to represent a grotesque head with conventional foliage copied from one in another part of the building. This carving seems to us unfortunate, as, so far as we noticed, the rest of this exceedingly interesting old room is genuine old work, or frankly modern arrangements for cooking, and it would have been better to put in a plain corbel, such as was needed to carry the old post simply as a piece of repair, grotesque heads having no meaning to us of these days, and copies being valueless." Satisfaction is expressed that electric light has been substituted for gas in the great hall, as the fumes of gas must be exceedingly bad for the priceless tapestry, especially that made about 1500, which fits the wall at the back of the dais, but it is regretted that the simplest possible form of electric light was not used.

GENERAL.

Mr. F. W. Hasluck, B.A., has obtained the studentship offered by the managing committee of the British School of Archaeology at Athens, tenable during the session 1901-2. The value of the studentship has for special reasons been increased from 50*l.* to 100*l.*

The Louvre has now received the valuable collection of thirteenth and fourteenth-century church ornaments bequeathed by the late Baron Adolphe de Rothschild. The room, for the fitting-up of which he also left 250,000 francs, will be opened to the public in a few weeks. The articles are eighty-seven in number, and fourteen others go to the Cluny Museum in Paris.

The Dover Corporation has purchased an estate near the municipal buildings for 6,500*l.*, in order to provide more suitable accommodation for the museum and possibly a free library.

A Permanent Ruskin Museum, organised by Mr. W. G. Collingwood, is to be opened at Coniston, Lancashire, on August 31, being the outcome of a successful Ruskin exhibition held there last summer. It consists of a large well-lighted room in connection with the Coniston Institute, and has been especially built for the purpose.

The French Government has approved of a scheme for the construction of a new tidal basin at Boulogne-sur-Mer. The estimated cost is 240,000*l.*, and the building operations are expected to extend to four years.

The Local Government Board have sanctioned the borrowing of 12,000*l.* by the Cuckfield Rural Council, for the erection from Mr. Hine's plan of an isolation hospital.

The Leeds and Yorkshire Architectural Society visited last week Wheatfield Lodge and Castle Grove, Headingley, both of which have undergone alterations and additions from the designs of Mr. Butler Wilson.

An Excursion by members of the Geological Society of Great Britain to Clermont-Ferrand has taken place for the purpose of investigating the geology of the Puy-de-Dôme. The members have been aided by MM. Glangeaud, Géraud and Boule.

M. Roland Knoedler, the well-known picture dealer of New York, who has been a Chevalier of the Legion of Honour since 1881, has been raised to the dignity of officer.

The Governors of the Northampton Infirmary have considered two schemes for the improvement of the infirmary prepared by Mr. F. W. Dorman. Scheme B, which was accepted, was estimated to cost 29,500*l.*, and comprises the erection of two new pavilions, the conversion of the present infirmary into a home for nurses, and a rearrangement of some of the officers' quarters—practically a new hospital.

The Consular Report on the trade of Germany states that in a new building attached to some boiler works in Upper Silesia a novelty in windows has been used. Light is introduced through the stone windows. The ordinary panes of glass were impracticable on account of the nearness of the works to the railway lines, so pneumatic glass stones have been used. From the outside the appearance is the same as the so-called "Butzen" panes. They are translucent, and at the same time as strong as the stone wall in which they are set. They will withstand any pressure or blow that the walls will stand.

The Worshipful Company of Plumbers should be well satisfied with the result of their efforts to improve the technical knowledge and skill of the working members of the craft. At the recent examinations held in London and the chief provincial centres upwards of 400 candidates were examined.

An Excursion Meeting of the Northern Architectural Association will be held to-morrow, Saturday, August 24. Members are to assemble at South Shields station at 2.45 P.M. upon the arrival of the 2.10 P.M. train from Newcastle. The following buildings will be visited:—Messrs. L. Wright & Sons' biscuit factory in Holborn (Mr. J. H. Morton, architect), new Higher Grade school in Osborne Avenue (Mr. F. Rennoldson, architect), and the Mortimer Road schools (Mr. J. W. Donald, architect).

Mr. Thos. B. Bumpus, of 4 St. Michael's Alley, Cornhill, will publish early in the autumn "Summer Holidays among 'The Glories' of France, being notes chiefly architectural upon the cathedrals and churches of Normandy, Picardy, the Domaine Royale, Champagne and Burgundy: Bourges, Chartres, Le Mans, Tours, &c." by T. Francis Bumpus, author of "London Churches, Ancient and Modern," "Ecclesiology Germanica," "Stained Glass in England since the Revival," &c., with fifty illustrations.

The New Police Station erected on the site of the old Grecian Theatre, Shepherdess Walk, was opened on Wednesday. The premises will accommodate about thirty-four police officers and men.

Hughenden Manor has been materially enlarged, the work having occupied between two and three years. It has been carried out at a cost of many thousand pounds by Mr. Coningsby Disraeli, M.P., who came into the estate in succession to his illustrious uncle. Architecturally, the mansion is of the Jacobean style, and the added portion has been executed in accordance with the existing fabric.

A New public hall at Llanfairfechan has been inaugurated by an official opening concert. The hall is 89 feet long and 50 feet wide, and has a stage with proscenium. The stage is 25 feet deep, 15 feet being behind the drop curtain and 10 feet in front, so that the latter part may be used alone for meetings and concerts, and the whole for theatrical purposes. The front block comprises two shops, with the entrance to the hall between them, and a council chamber and three offices on the first floor. Mr. Richard Davies, of Bangor, was the architect.

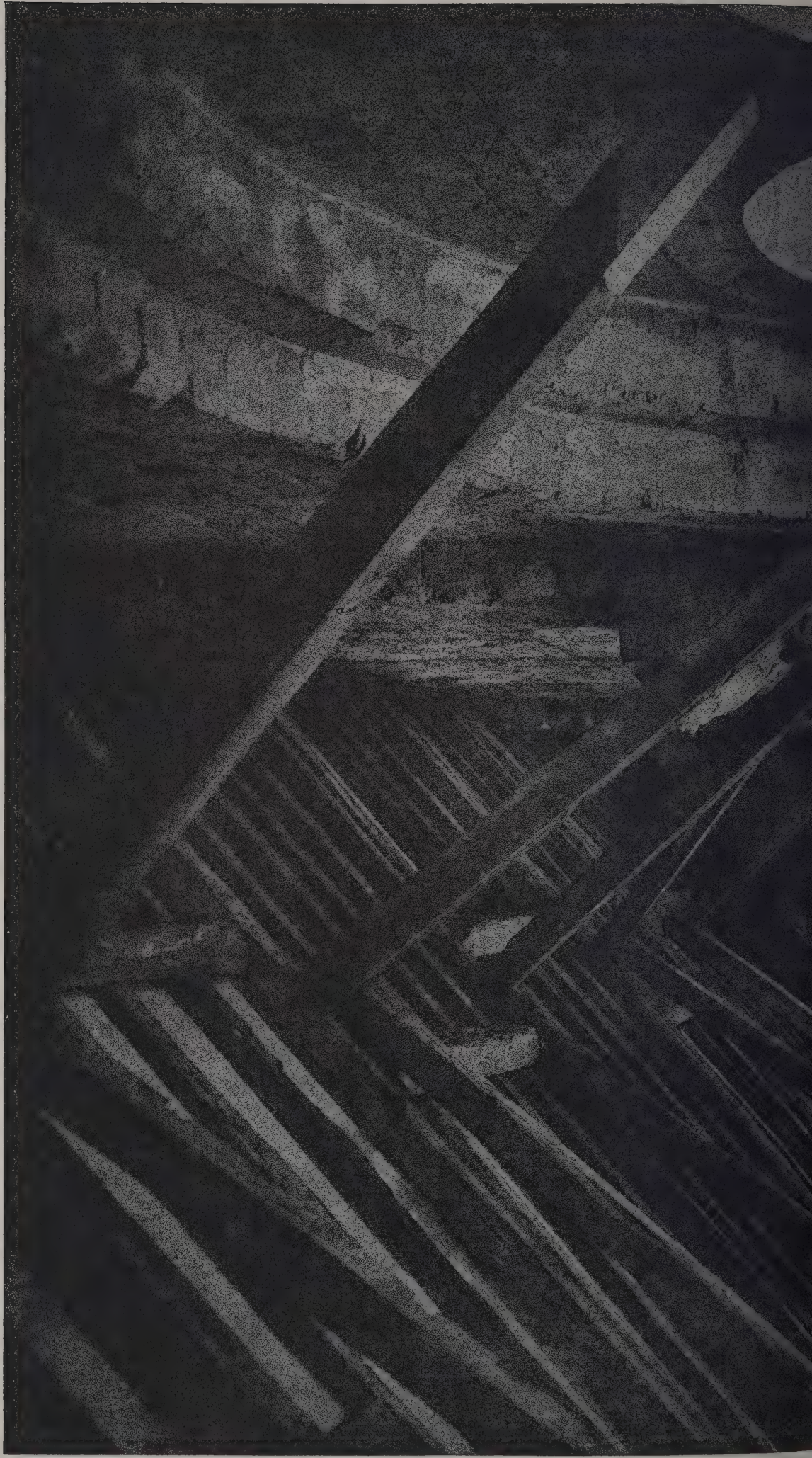


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CHIMNEY-PIECE, MORNING ROOM, "HART PURY," GLOUCESTERSHIRE.

E. GUY DAWBER, Architect.

The Architect, Aug 23rd 1901.





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CATHEDRAL SERIES, No. 350.—CHICHESTER: INSIDE THE TRIFORIUM, LOOKING WEST.



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CHIMNEY-PIECE, DINING ROOM, "HART PURY," GLOUCESTERSHIRE.

E. GUY DAWBER, Architect.

The Architect, Aug 23rd 1901.





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JOHN MURRAY, Architect.

The Architect, Aug 23rd 1901.

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THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

LONDON.—Nov. 15.—Designs are invited for new offices for the Hearts of Oak Benefit Society in Euston Road. Premiums of 100*l.*, 75*l.*, 50*l.* respectively are offered. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

PENZANCE.—Sept. 1.—Competitive plans and estimates are invited for laying-out ground situate on the Western Promenade, to include a winter garden suitable for band and other concerts, and lavatory accommodation for ladies and gentlemen. Premiums of 21*l.* and 10*l.* 10*s.* respectively are offered for the best and second best designs. Mr. T. H. Cornish, town clerk, Public Buildings.

SHEFFIELD.—Aug. 31.—Sketch plans, sections and elevations, &c., are invited for the alteration of the Ecclesall Church, i.e. the removal of the galleries, the reseating of the nave and the building of chancel, &c. Accommodation required for about 800. The Rev. T. Houghton, Ecclesall Vicarage.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ARGENTINE REPUBLIC.—December 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

AYLESBURY.—Aug. 27.—For rebuilding of two culverts over the road, one situate near the post office, Ludgershall, and the other abutting on the County Council road in Ludgershall. Mr. W. J. Cook, surveyor, 69 High Street, Aylesbury.

BACKWORTH.—Aug. 26.—For erection of stores, hall and two houses at New York, near Backworth, Northumberland. Mr. Eugene E. Clephan, architect, St. Nicholas Chambers, Newcastle-on-Tyne.

BARNSELY.—Aug. 27.—For erection of Primitive Methodist chapel, Royston. Mr. Joseph Oldroyd, architect, Broomfield House, Royston, near Barnsley.

BEDLINGTON.—Aug. 28.—For erection of dwelling-house and out-premises. Mr. J. G. Weeks, Bedlington.

BIRKENHEAD.—Aug. 27.—For erection of a mortuary in Livingstone Street, Birkenhead. Mr. C. Brownridge, borough surveyor, Town Hall, Birkenhead.

BLACKBURN.—Aug. 26.—For erection of a chimney, destructor buildings and pumping station at Throstle Street. Mr. William Stubbs, borough engineer, Municipal Offices, Blackburn.

BOSTON.—Sept. 3.—For erection of a cookery centre, pupil teachers' centre and evening science classrooms in Norfolk Street, Boston, Lincs. Mr. Jas. Rowell, architect, Market Place, Boston.

BRADFORD.—Aug. 26.—For erection of a shop, with work-rooms and stabling. Mr. Edgar H. Parkinson, architect, Old Bank Chambers, Market Street, Bradford.

BRIDLINGTON.—Sept. 3.—For erection of buildings at Bridlington grammar school. Messrs. Botterill, Son & Bilson, architects, 23 Parliament Street, Hull.

BRIGHTON.—Sept. 12.—For erection of 30 four-roomed artisans' dwellings in Dewe Road, Lewes Road. Mr. Francis J. C. May, borough engineer and surveyor, Town Hall, Brighton.

BUXTON.—For erection of a cottage in connection with Cold Springs Hall. Messrs. Garlick & Flint, architects, Buxton.

BURNLEY.—Sept. 2.—For erection of twelve houses and appurtenances at Walkmill, Cliviger. Mr. Thos. H. Mitchell, architect, Strand, Todmorden.

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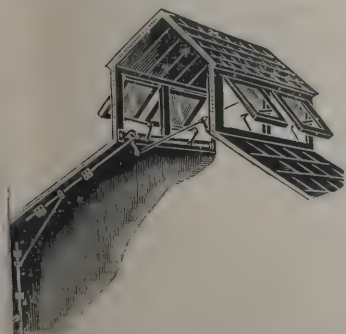
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Fig. 1.



COVENTRY.—Sept. 2.—For erection of residences and stabling, &c., Queen's Road. Messrs. Harrison & Hattrell, architects, 28 Hertford Street, Coventry.

DARLINGTON.—Sept. 2.—For erection of a stone retaining wall and ornamental iron palisading adjoining the river Skerne in Skerne Row. The Borough Surveyor, Town Hall, Darlington.

DEWSBURY.—Aug. 28.—For alteration and enlargement of offices in Union Street. Mr. Fredk. W. Ridgway, architect, Borough Chambers, Bond Street, Dewsbury.

DUNMOW.—Sept. 2.—For erection of new bathrooms, water-closet and iron staircases to the male and female wards of the union infirmary at the workhouse, Great Dunmow, Essex. Mr. Richard Creed, architect, 11 Finsbury Circus, E.C.

DURHAM.—Aug. 27.—For erection of a retaining-wall in brick and concrete on the South-Moor roadway, and a public convenience at Oxhill. Mr. Joseph Routledge, surveyor, Council Offices, Stanley.

DURHAM.—Aug. 30.—For erection of twelve cottages in Lambton Street, Langley Park (Witton Gilbert station). Mr. Charles E. Oliver, architect, Consett Iron Co., Ltd., Consett.

EGREMONT.—Aug. 29.—For alterations and improvements to the Oddfellows' Hall, North Road, Egremont, Cumberland. Mr. James Cowan, surveyor.

ENFIELD.—Sept. 3.—For erection of a junior mixed school at Chesterfield Road, Enfield Lock. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

FELLING.—Aug. 27.—For erection of new public offices, council chamber, &c., at Felling, Durham. Mr. H. Miller, architect, Felling.

GOOLE.—Aug. 28.—For erection of porches and other works at the schools, Swinefleet. Mr. F. Chambers, architect, Clifton Gardens, Goole.

GREAT THURLOW.—Aug. 31.—For erection of a dwelling-house at Great Thurlow, near Haverhill, Suffolk. Mr. A. J. Simpson, A.M.I.C.E., Haverhill, Suffolk.

GUILDFORD.—Aug. 30.—For construction of a covered way in connection with the dining-hall at the workhouse. Messrs. Peak & Lunn, architects, 36 High Street, Guildford.

HOVE.—Aug. 26.—For construction of laboratory and alterations to the town clerk's, rates and sanitary offices at the town hall. Mr. H. H. Scott, surveyor, Town Hall, Hove.

ILFORD.—Aug. 26.—For erection of a 34-bed ward, discharging block, additions to administrative block, two cottages, boiler-house, stable and addition to laundry, at the isolation hospital. Mr. Herbert Shaw, 7 Cranbrook Road, Ilford.

ILKLEY.—Sept. 2.—For erection of a mission hall at Ilkley. Messrs. Adkin & Hill, architects, Prudential Buildings, Bradford.

IRELAND.—Aug. 26.—For erection of four labourers' cottages in Bellarena electoral division, Limavady, viz. two in the townland of Margymonaghan and two in the townland of Ballyscullion. Mr. William Crawford, clerk, Board-room, Workhouse.

IRELAND.—Aug. 26.—For erection of a lecture hall at Stewartstown, co. Tyrone, adjoining Presbyterian church. Mr. Henry Hobart, architect, Dromore, co. Down.

IRELAND.—Aug. 26.—For alterations and repairs to houses, 56, 57, 58 and 59 Gratton Street, Cork. Mr. M. J. M'Mullen, 24 South Mall, Cork.

IRELAND.—Aug. 26.—For repairs and alterations at Fermoy R.C. church. Mr. Samuel F. Hynes, architect, 21 South Mall, Cork.

IRELAND.—Aug. 26.—For erection of a parochial house at Kiltyfergal. Mr. John M'Carry, architect, Stranorlar.

IRELAND.—Aug. 27.—For erection of a nurses' home at the workhouse. Messrs. Young & Mackenzie, architects, Belfast.

IRELAND.—Aug. 31.—For erection of a rectory at Belmullet, co. Mayo. Mr. Joseph S. Cairns, architect, Dillon Terrace, Ballina.

IRELAND.—Aug. 31.—For erection of a lecture hall, Ballygilbert, near Helen's Bay station. Rev. Wm. Dickson, Helen's Bay.

IRELAND.—Aug. 31.—For erection of a teacher's residence at Glencrow, Moville. Mr. M. A. Robinson, architect, Richmond Street, Londonderry.

IRELAND.—Sept. 3.—For erection of a coastguard station at Knightstown, county Kerry. Plans, &c., can be seen at the Office of Public Works, Dublin.

IRELAND.—Sept. 7.—For erection of schoolhouse and boundary wall in Banbridge. Mr. Thomas Larmour, hon. secretary, Dromore Street, Banbridge.

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LEAVESDEN.—Aug. 28.—For certain alterations and additions to the laundry at the Leavesden Asylum, near Watford, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

LEEDS.—Sept. 3.—For erection of buildings for the Leeds School of Art, fronting into Percival Street and Vernon Street. Messrs. Bedford & Kitson, architects, Greek Street Chambers, Leeds.

LEEDS.—Sept. 4.—For erection of twenty-nine blocks of buildings and the alteration of several others, with roads, drains and all fittings forming the extension of the City Hospital, Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LINCOLN.—Sept. 10.—For erection of public abattoirs in the cattle market. Mr. R. A. Macbrair, city surveyor, Corporation Offices, Lincoln.

LINCOLN.—Sept. 28.—For erection of a boiler shop about 435 feet long and 222 feet wide, and erection of about 960 tons in steel stanchions, girders, roof principals, &c. Messrs. Ruston, Proctor & Co., Ltd, Sheaf Ironworks, Lincoln.

LONDON.—Aug. 27.—For erection of three water-closets and certain fence walls and iron railings at the union schools, Millfield House, Upper Edmonton. Mr. A. A. Kekwick, architect, 18 Outer Temple, Strand, W.C.

LONDON.—Aug. 28.—For erection of an external staircase composed of granolithic concrete, with iron and concrete enclosure, wooden roof, &c., from the ground to the first floor of one of the buildings at the workhouse in the Fulham Road, S.W. Mr. Edwin T. Hall, 54 Bedford Square, W.C.

LONDON.—Aug. 31.—For repairs to 70, 72 and 74 Pentonville Road, N. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment, E.C.

LONDON.—Aug. 31.—For alterations and repairs, &c, at 36, 37 and 38 Camberwell Green, S.E. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment, E.C.

MANCHESTER.—Aug. 27.—For erection of a galvanised iron building for the electricity committee. Mr. F. E. Hughes, secretary, electricity department, Town Hall, Manchester.

MANSFIELD.—Sept. 16.—For erection of schools in Littleworth, Mansfield, to accommodate 890 children. Messrs. Vallance & Westwick, architects, Mansfield.

MIDDLESBROUGH.—Sept. 2.—For extensions of the borough asylum. Mr. A. J. Wood, architect, 22 Surrey Street, Victoria Embankment, W.C.

MIRFIELD.—Aug. 29.—For erection of a shed at Bankfield Mills, Mirfield, Yorks. Messrs. John Kirk & Sons, architects, Huddersfield.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

OSWESTRY.—For erection of classroom and offices at the school, Trefonen, near Oswestry. Mr. Frank Hearn Shaylar, architect, 19 Church Street, Oswestry.

OXCLIFFE MARSH.—Sept. 10.—For taking-down of a portion of the arch, the construction of a new arch in lieu thereof and the general repair of the structure of Oxcliffe Marsh No. 3 bridge, situate on the road leading from Lancaster to Overton-on-the-Marsh. The Chairman of the Main Roads and Bridges Committee, County Bridgmaster's Office, Preston.

PLYMOUTH.—For street works in the following streets and lanes:—Glamorgan Road, St. Leonard's Road Lane, Diamond Avenue. Mr. James Paton, borough engineer, Municipal Offices, Plymouth.

RAMSGATE.—Aug. 29.—For erection of a park-keeper's cottage in Ellington Park, Ramsgate. Mr. T. G. Taylor, borough surveyor, Albion House, Ramsgate.

READING.—Aug. 29.—For construction of ladies' swimming-bath and erection of lodge and conveniences. Mr. John Bowen, borough surveyor, Town Hall, Reading.

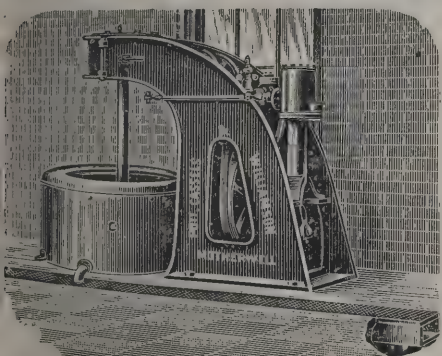
RODLEY.—Aug. 30.—For erection of two blocks of shop property on the Leeds and Bradford turnpike road at Rodley, Leeds. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

RUSTINGTON.—Aug. 28.—For erection of four seaside homes for children at Rustington, near Littlehampton, Sussex. Mr. Rowland Plumbe, architect, 13 Fitzroy Square, W.

SCOTLAND.—Aug. 26.—For construction of a concrete cable subway at the Dee village electricity works, Aberdeen. Mr. J. Alex. Bell, city electrical engineer, Electricity Works, Cotton Street, Aberdeen.

SCOTLAND.—Aug. 26.—For additions to electric-lighting station, Dudhope Crescent Road, Dundee. Mr. William Alexander, city architect, Town Hall, Dundee.

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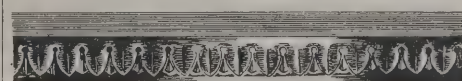
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SCOTLAND.—Sept. 2.—For erection of Doune station buildings for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—Sept. 7.—For erection of public washhouses at Allan Street, Stockbridge, for the Edinburgh Corporation. Mr. Robert Morham, city architect, City Chambers, Edinburgh.

SCOTLAND.—Sept. 19.—For rebuilding Kirkmichael Hotel. Mr. John Sim, architect, Montrose.

SHELF.—Aug. 26.—For alterations to Primitive Methodist schools, Shelf, Yorks. Messrs. Brayshaw & Dixon, architects, Bowling Old Lane, Bradford.

SOUTHBOROUGH.—Sept. 9.—For erection of a chapel and cottage in connection with the proposed new cemetery at Southborough, Kent. Mr. William Harmer, surveyor, 137 London Road, Southborough.

ST. ALBANS.—Sept. 9.—For erection of lavatory buildings to the court house, St. Albans. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, Westminster, S.W.

TRURO.—Aug. 27.—For erection of a cattle market. Mr. Measham Lea, city surveyor, Truro.

TYNEMOUTH.—Aug. 30.—For alterations to the western Board school, Tynemouth. Mr. F. R. N. Haswell, architect, Tyne Street, North Shields.

ULVERSTON.—Sept. 10.—For improvement works at High Bridge, on the main road from Ulverston to Dalton-in-Furness. The Chairman of the Main Roads and Bridges Committee, County Bridgmaster's Office, Preston.

USWORTH.—For erection of a farmhouse at Usworth, co. Durham. Mr. Stephen Wilkinson, architect, Pelton, near Chester-le-Street.

WALES.—Sept. 26.—For erection of new schools and offices at Burry Port. Mr. Richard Williams, architect, Burry Port.

WALES.—Aug. 30.—For alterations and additions to the Castle school, Kidwelly, Llanelly. Mr. J. B. Morgan, M.S.A., Llanelly.

WALES.—Aug. 30.—For erection of a villa at Treherbert. Plans and specification may be seen and form of tender obtained at the Baglan hotel, Treherbert.

WALES.—Aug. 30.—For additions to the lunatic asylum, Denbigh, North Wales. Messrs. T. M. Lockwood & Sons, architects, Foregate Street, Chester.

WALES.—Aug. 31.—For erection and completion of fifteen houses at Cwmpark Road, Cwmpark, near Treorky, Rhondda Valley. Particulars may be obtained at Park Hotel, Cwmpark.

WALES.—Sept. 5.—For erection of a county school at Holyhead. Mr. Joseph Owen, architect, Menai Bridge.

WALES.—Sept. 9.—For erection of swimming-baths at the public park, Aberdare. Mr. Thos. Phillips, town clerk, Town Hall, Aberdare.

WHITLEY.—Aug. 31.—For erection of a police-station and petty sessional court at Whitley, Northumberland. Mr. John Cresswell, county architect, Moothall, Newcastle-on-Tyne.

WIGAN.—For erection of stables, &c., for about forty horses, adjoining the new model bakery and warehouse in Dorning Street. Messrs. J. B. & W. Thornley, architects, Powell's Chambers, Millgate, Wigan.

WILLESDEN.—For erecting eight shops and fifteen two-storey flats. Mr. J. Minnis, 25 Lonsdale Road, Barnes.

WILTON.—Aug. 28.—For repair of six cottages and stable at Silver Street and Bell Lane, Wilton, Wilts. Mr. Henry J. King, town clerk, Municipal Offices, Russel Street, Wilton.

WITTON-LE-WEAR.—For erection of a laundry at Witton Tower, Witton-le-Wear, co. Durham. Mr. Stephen Wilkinson, architect, Pelton, near Chester-le-Street.

WOMBWELL.—Aug. 31.—For erection of six three-roomed dwelling-houses in Wombwell, Yorks. Mr. Jno. Robinson, architect, Wombwell.

WOMBWELL.—Aug. 31.—For erection of three dwelling-houses in Wombwell, Yorks. Mr. Jno. Robinson, architect, Wombwell.

WOMBWELL.—Aug. 31.—For erection of three dwelling-houses in Hough Lane, Wombwell, Yorks. Mr. Jno. Robinson, architect, Wombwell.

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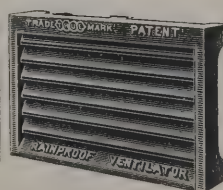
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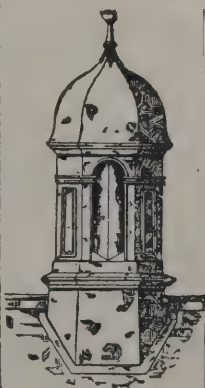
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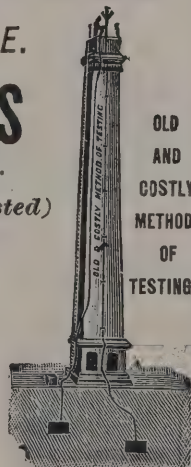
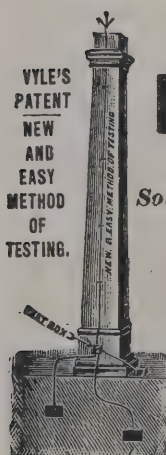
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J. & T. Binns	44,956	0	0
Buttle & Fowler	40,044	0	0
H. Lovatt	37,026	0	0
J. C. Trueman	36,663	0	0
A. Woodhouse	35,368	0	0
V. Hill	35,063	0	0
W. T. Squire & Co.	34,463	0	0
R. Finnegan	34,000	0	0
A. FASEY & SON, Grove Green Yard, Leytonstone (accepted)	32,216	0	0
W. Gradwell & Co.	29,329	0	0
B. Cooke & Co.	28,900	0	0
G. Eaton	25,630	0	0

LONDON.

For pulling-down and rebuilding of premises, High Street, Marylebone, W. Mr. J. RANDALL VINING, architect and surveyor, 89 Chancery Lane, W.C.

E. Lawrance & Sons	£7,128	0	0
Patman & Fotheringham, Ltd.	6,787	0	0
Holloway Bros.	6,693	0	0
W. Johnson & Co., Ltd.	6,554	0	0
H. L. Holloway	6,483	0	0
J. & C. Bowyer	6,436	0	0
A. Black & Son	6,121	0	0
R. S. BUCKERIDGE (accepted)	5,995	0	0
Architect's estimate	6,000	0	0

NORTHWICH.

For sewerage Castle Ward. Messrs. HENRY BANCROFT & SON, engineers, Mosley Street, Manchester.

M. Naylor & Sons	£11,662	3	0
C. E. Carden	11,177	15	3
T. Rowland	10,781	9	3
R. Lomax	10,179	19	4
S. HUTTON, Bowden (accepted)	8,483	7	0

OXFORD.

For erection of shire horse stud stables at Brook Green, for Mr. Max Michaelis. Messrs. F. S. BRERETON & SON, architects and surveyors; 292 High Holborn, W.C. Quantities by Mr. E. G. HARDCASTLE, 61 Chancery Lane, W.C.

W. Worsell	£4,189	0	0
G. E. Loveland	3,622	0	0
Josolyne & Young	3,497	0	0
Richard Dartnell	3,419	0	0
JAMES CARMICHAEL (accepted)	3,393	0	0

For farm-buildings, stables and cottage at Court Farm, and farm-buildings at Tandridge Court, for Mr. Max Michaelis. Messrs. F. S. BRERETON & SON, architects and surveyors, 292 High Holborn, W.C. Quantities by Mr. E. G. HARDCASTLE, 61 Chancery Lane, W.C.

W. Worsell	£5,495	0	0
Josolyne & Young	5,456	0	0
W. Akers & Co.	5,269	0	0
W. Smith	5,264	0	0
F. & H. F. Higgs	5,210	0	0
James Carmichael	4,874	0	0
E. J. SAUNDERS (accepted)	4,840	0	0

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PLYMOUTH.

For painting, &c., at the lodge, Burrator reservoir.
E. J. H. ARTHUR, Devon (*accepted*).

PREESALL.

For alterations and additions to the Preesall (Lancs) Church schools.

J. WILKINSON, Lindale Cottage, Preesall,
Poulton-le-Fylde (*accepted*) £358 0 0

ROCHDALE.

For fixing ten fans to be driven by electric power for ventilating offices and rooms in the town hall.

G. L. ADAMSON, Ohm Works, Rochdale (*accepted*).

For erection of 300 lineal yards of dry sneaked walling, with coping, at the recreation ground, Brimrod.

T. TURNER, 35 Sheriff Street (*accepted*).

ST. ALBANS.

For repairs, painting, &c., at the public library.

P. McCarthy	£97	0	0
Blow & Peters	88	5	6
D. Arnold & Sons	85	10	6
H. P. Dennis & Sons	83	6	0
L. Sell	78	0	0
Hiskett & Ewer	70	0	0
H. W. SAVAGE, St. Albans (<i>accepted</i>)	59	18	0

SHARPNESS.

For erection of the Union church schoolroom and classrooms.

ORCHARD & PEER, Stroud, Glos (*accepted*) . £1,750 0 0

SLEAFORD.

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CLAYTON & SHUTTLEWORTH, LTD., Lincoln
(*accepted*) £540 17 6

STAMFORD.

For laying asphalt footways, York kerb, granite channels and surface drains on the Northfields estate. Mr. JAMES RICHARDSON, borough surveyor.

J. M. Rouse	£1,000	0	0
Hinson & Co.	940	0	0
J. WOOLSTON, Stamford (<i>accepted</i>)	919	0	0

STOCKPORT.

For electrical wiring of the tramways car-sheds.

H. A. Jackson	£214	10	0
D. Frith & Son	205	0	0
National Electric Wiring Co.	204	3	0
National Electric Wiring Co. (alternative tender)	175	17	0
S. Fildes	157	16	0
Fidler & Roberts	151	17	0
Shaw & Co.	145	0	0

SURBITON.

For erection of mortuary and post-mortem rooms in Alpha Road, Surbiton Hill.

G. Merredew	£749	0	0
McDonald Bros.	690	0	0
Higby & Robson	681	10	0
J. H. Jarvis	675	15	0
R. Atkinson	598	0	0
W. PEARCE, Thornton Heath (<i>accepted</i>)	560	0	0

SWINDON.

For erection of a corrugated iron fire station at the Cromwell Street yard. Mr. H. J. HAMP, borough surveyor.

A. J. COLBORNE, Newport Street (*accepted*) . £104 6 10

THORNABY-ON-TEES.

For street works. Mr. CHAS. T. JOHNSON, borough engineer.

M. O. Doherty	£921	14	11
A. E. Hobbs	620	9	7
J. G. Spooner	545	5	6
W. ROBINSON, Stockton-on-Tees (<i>accepted</i>)	519	11	0

WALES.

For construction of a bridge (stone abutments and steel superstructure) over the Kenson river, and an approach road in the parish of Penmark, Llandaff. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.

H. A. S. Fraser	£695	14	10
C. Davies	474	15	10
F. Ashley	447	12	0
REES & OSMOND, Great House, Ely, Cardiff (<i>accepted</i>)	401	14	6

For erection of club premises, for the Baden Powell Conservative Club, Ynyshir.

Burnell	£2,498	0	0
C. Jenkins & Son	2,175	0	0
D. RICHARDS, Ynyshir (<i>accepted</i>)	2,172	0	0

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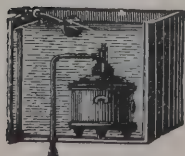
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WALES—continued.

For erection of a dwelling-house and other works at New Road, Llanelly. Mr. THOMAS ARNOLD, architect, Castle Buildings, Llanelly.

J. Evans	£1,263	0	0
G. Mercer	1,080	0	0
Brown, Thomas & John	999	0	0
B. HOWELL & SON, LTD, New Dock, Llanelly (accepted)	997	0	0

For erection of an art gallery and other work at Swansea. Mr. H. C. PORTSMOUTH, architect, 6 Fisher Street, Swansea.

W. Lane	£1,020	0	0
H. Billings	1,010	10	0
J. & F. Weaver	1,006	0	0
Bennett Bros.	982	5	7
T. Richards	965	0	0
T. MARLES & SONS, Swansea (accepted)	892	10	11

For erection of lock-up premises at Upper Bangor. Mr. W. G. WILLIAMS, architect, 220 High Street, Bangor.

R. & J. Williams	£896	0	0
W. W. Parry, jun.	879	10	0
W. Jones	878	4	0
Jones & Evans	837	0	0
R. Lewis, Upper Bangor*	805	0	0

For alterations to 13 Dean Street, Bangor. Mr. W. G. WILLIAMS, architect, 220 High Street, Bangor.

R. & J. Williams	£519	0	0
W. W. Parry, jun.	519	0	0
W. Jones, Bangor*	499	0	0

* Recommended for acceptance.

WATFORD.

For sewerage works for the hamlet of Aldenham, Herts. Mr. ERNEST LAILEY, surveyor, 9 Market Street, Watford.

T. J. Hawkins & Co.	£1,010	19	6
A. Green	939	7	6
G. G. Rayner	909	0	0
R. W. Swaker	855	0	0
G. Pitkin	796	17	11
R. G. Mann	769	0	0
R. L. Tonge	760	0	0
Bracey & Clarke	720	0	0
H. BROWN, Watford (accepted)	708	0	0

WALSALL.

For erection of boiler-house and laundry buildings at the work-house in Pleck Road. Messrs. BAILEY & MCCONNALL, architects, Bridge Street, Walsall.

G. Marshall	£4,226	0	0
J. Smith & Son	4,050	0	0
Sapcote & Son	3,989	0	0
J. Mallin	3,926	0	0
Harley & Son	3,723	0	0
W. Wistance	3,669	0	0
W. J. Webb	3,668	0	0
Guest	3,580	0	0
W. H. James	3,267	0	0
J. Tildesley	3,228	0	0
H. GIBBS, King's Heath (accepted)	3,200	0	0
W. Crisp	3,015	0	0

WHITEHAVEN.

For erection of a stone bridge over Crossdale Beck, at Crossdale, Ennerdale. Mr. GEO. BOYD, engineer, 33 Queen Street, Whitehaven.

J. GREEN, Pardshaw-le-Gate, Cockermouth (accepted)	£298	0	0
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WILLINGTON QUAY.

For construction of stoneware pipe sewers, manholes, &c. Mr. J. FLEMING DAVIDSON, engineer, Station Road, Wallsend.

R. Hudson & Sons	£1,376	0	0
J. Thompson	1,323	17	6
J. W. Robson	1,311	17	9
G. E. SIMPSON, Ellison Terrace, Newcastle (accepted)	1,279	15	4

Received too late for Classification.

RUGBY.

For additions and improvements to St. Andrew's boys' schools. Mr. E. H. LINGEN BARKER, architect, Hereford.

Hollowell	£1,540	0	0
Harris	1,535	0	0
Linnell & Son	1,460	0	0
Foster & Dicksee	1,444	0	0
Hopkins & Son	1,435	6	0
Sturgess & Son	1,314	10	0
Bax & Dawson	1,253	0	0
TATE & EASTWOOD, Market Harborough (accepted)	1,193	19	4

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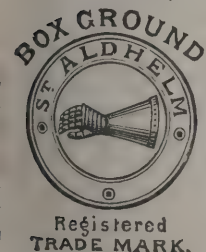
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CANNOCK.

For erection of an infirmary at the workhouse at Cannock.

Mr. ASHTON VEALL, architect, 84 Darlington Street, Wolverhampton. Quantities by architect.

H. Willcock & Co.	£5,534	15	0
F. Lindsay Jones	5,365	0	0
S. Wootton	5,314	13	0
M. B. Anderson	5,166	0	0
F. Sprenger	5,119	0	0
W. Hopkins	4,995	0	0
A. Williams	4,961	12	10
Espley & Son	4,940	0	0
J. Reynolds	4,896	0	0
E. Whittingham	4,845	0	0
Guest & Son	4,744	0	0
W. H. Gibbs	4,685	0	0
H. Gough	4,640	0	0
THOS. MASON, Hednesford (accepted)	4,595	0	0

Additional cost if wood-block floors, £89 16s.

TRADE NOTES.

THE Town Hall, Oakham, is being warmed and ventilated by means of Shorland's patent Manchester stoves, patent exhaust roof-ventilators and special inlet tubes by Messrs. E. H. Shorland & Brother, of Manchester.

THE heating of the new Primitive Methodist chapel, Holland Street, Hull, is to be by means of Spencer's patent "Ventilo" heating and ventilating radiators, supplied by W. F. Spencer, Cross Bank Works, Oldham, and 145 Queen Victoria Street, E.C.

THE Malvern District Council have just accepted the tender of Messrs. John Smith & Sons, Midland Clock Works, Derby, for a large clock with four dials, to be erected on the "Morris Tank," and the same firm are also making a large clock with four dials for the Salford cemetery.

ELECTRIC NOTES.

THE works in connection with the electricity supply scheme are now about to be commenced in the borough of Stamford. A convenient site for the works has been secured on the banks of the river, and the contract for these buildings will be

settled shortly. Mr. Warden-Stevens is acting as consulting engineer to the Corporation in the matter.

As directed by the Boston Town Council, Mr. A. Collins, A.M.I.C.E., London, has submitted to that body a report upon the electric lighting of the borough. Mr. Collins recommends the Council to adopt the continuous current distribution system. He estimates the cost of the scheme at 28,500*l.*, and a profit of 2,153*l.* when the works are fully loaded. He suggests that the Council should charge 4*75d.* per unit for private and 2*25d.* for public lighting.

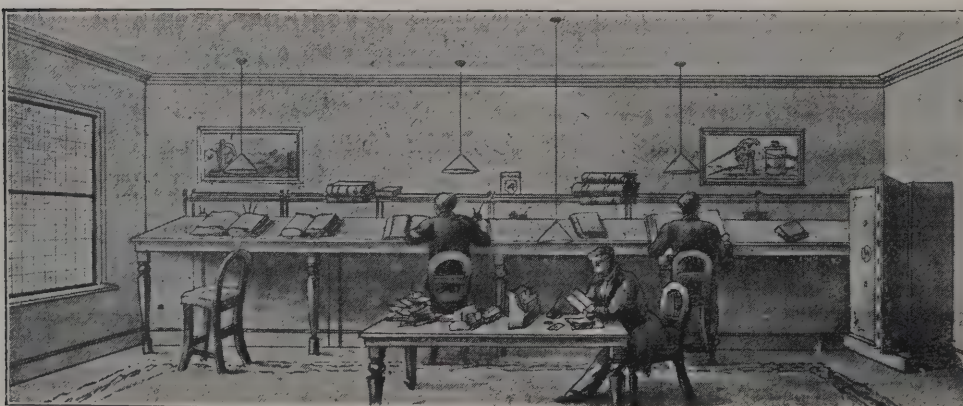
At the monthly meeting of the Mansfield (Notts) Town Council, held on the 16th inst., general approval was given to the sketch plans of the buildings for the electricity works, and the engineer was instructed to get out quantities and advertise for tenders. The town clerk reported that the Corporation Bill had received the Royal assent, and it was decided to take steps to raise 50,000*l.* capital for purposes of electrical undertaking and refuse destructor. The following scale of charges was adopted for the supply of electricity:—For quarterly payments: For the first 100 hours' use per quarter of the maximum demand, private lighting only, per unit, 6*d.*; motive power only, per unit, 4*d.*; for the remainder, 2*d.* and 1*d.* For monthly payments: For the first 30 hours' use per month of the maximum demand, private lighting only, per unit, 6*d.*; motive power only, per unit, 4*d.*; for the remainder, 2*d.* and 1*d.* The minutes were approved.

THE new engineering scheme for the Poplar Union is now nearing completion. It will be remembered that this undertaking is of a special nature, and is, perhaps, one of the most important of any relating to a union. It embraces water supply, heating, electric lighting, electric power, hot water and steam supply, and includes the provision of new boilers, engines, economiser, steam turbines, centrifugal and 3-throw pumps, steam-jet plant, dynamos, motors, accumulators, main, distribution and power switchboards. Also deep wells and subsoil wells, water-pressure drums, air compressors, deep-well pumping plant, and important pipework and electrical distribution arrangements. The whole undertaking has been designed and carried out under the supervision of Mr. F. J. Warden-Stevens, consulting engineer, of Westminster, and no less than eighteen firms of manufacturers and contractors have been employed in supplying plant and carrying out the works. New buildings have been provided for the power-house, which is divided into boiler-house, pump-room, engine-room, accumulator-room, engineer's office and stores.

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GREAT QUEEN STREET (PENLEY'S THEATRE).

VARIETIES.

A NEW school at Kelvinside Gardens, West Glasgow, was opened on the 10th inst. to provide for the accommodation of the children residing in Kelvinside district. It cost 7,000*l.*, and is furnished with all the latest improvements, including electric light. It possesses three classrooms to accommodate in all 650 scholars.

THE new children's homes which have been erected at Outlane, a suburb of Huddersfield, were opened on the 10th inst. They have a south front, and are built on the farmhouse principle, having a large kitchen or living-room and a parlour into which the children can retire. There is ground at the back where they can play and take outdoor exercise. The upper floor is devoted to bedroom, bathroom and sick-room accommodation.

IN opening the new Floral Hall at Brighton, just erected opposite the Town Hall, the mayor (Alderman Stafford) mentioned that the charter to hold a market at Brighton was granted by Edward II., and he thought it was a happy circumstance that the newest market, of which the Floral Hall forms the first completed section, should be provided in the reign of Edward VII. Until the close of the seventeenth century the market was held on the beach. The Floral Hall is 145 feet long by 30 feet wide, with a glass roof. Space is provided for twenty-nine stalls, where flowers will be seen to advantage.

NEW schools which have been erected at Whitehaven, Cumberland, were opened on the 13th inst. They were erected from the designs and under the supervision of Messrs. Oliver & Dodgshun, architects, of Carlisle and Leeds, and are built

entirely of red stone from local quarries. There are two departments, a mixed school for boys and girls and an infants' school, each having separate entrances, playgrounds, cloak-rooms, &c. There are also comfortable retiring-rooms for teachers. The playgrounds are provided with covered play-sheds and latrines to each department. Each building has its own ventilating turret, with extraction-shafts from the several school and classrooms. The group of schools provides for nearly 500 scholars, about 160 being infants. There is a complete heating system, fitted up by Messrs. W. Richardson & Co., Darlington, and the schools are furnished in the most up-to-date manner. The work has been carried out by Mr. Edwin Moorhouse, contractor, Whitehaven, Mr. McGill being the clerk of works, and the cost has been under 5,500*l.*

THE Archbishop of York consecrated a new church at Swinton, near Rotherham, on the 15th inst. The site was given by Lord Fitzwilliam, and is situate at the Swinton end of White Lee Road. The new building is in the Early English style of architecture and is not yet completed. The finished portion consists of chancel and part of the nave, providing seating accommodation for about 200 persons. Underneath the chancel there is a parish room which will seat about seventy or eighty people. Local stone has been used in the construction of the building, and the roof is of pitch pine and open timber. The cost is about 2,300*l.* When the scheme has been completely carried out it is expected that accommodation will be found for about 450 persons. The site is large enough to embrace, in addition to the church, a Sunday school and vicarage house. The chancel of the church and the passages of the nave are all covered with a pleasing red pavement. The architect is Mr. J. D. Webster, of Sheffield, and the work has been carried out under the superintendence of his son, Mr. J. Douglas Webster. The contractors are Messrs. Geo. Longden & Son, of Sheffield.

IN the construction of the Talla waterworks the Edinburgh and District Water Trustees have been beset with a great deal of trouble and delay, but a fresh difficulty has unfortunately arisen through the collapse of a large part of the tunnel which will convey the water into Edinburgh from the reservoir a portion of the way. The aqueduct, which leads from the reservoir about two miles' distance, takes the form of a long tunnel, which was being constructed by Mr. Best, contractor, Edinburgh, under the directions of Mr. Tait, the Water Trust engineer. It is believed that owing to the pressure of underground water on the hillside the walls of the tunnel gave way.

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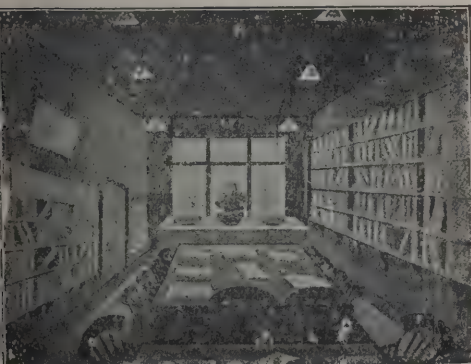
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Before the damage is made good the expense, it is estimated roughly, will exceed 15,000*l.* In the making of the tunnel a great deal of water was encountered, but it was thought that sufficient provision had been made for its escape both over and under the aqueduct. The works committee of the Water Trust held a meeting, when the mishap was under consideration. Without in the meantime fixing liability upon any of the parties concerned, it has been decided to ask Mr. Hill, C.E., Manchester, to report on the matter.

WE have pleasure in announcing the inauguration of the Society of Landed Estate Agents, the principal objects of which are (1) to promote and protect the interests of the profession; (2) to advise by mutual conference on all matters of practice relating to the management of landed estates; (3) to disseminate information by means of publications, correspondence, &c.; (4) to watch legislation on matters affecting the interests of agriculture and land generally, and (5) to provide a centre in London for members. The provisional Council consists of the following gentlemen:—Colonel Halifax Wyatt, for many years agent to the late Earl of Sefton, K.G., president pro tem.; Mr. E. F. Chamier, agent for the Rolle estates, North and South Devon; Mr. Dudley W. Drummond, D.L., J.P., agent for the estates of the Right Hon. Earl Cawdor, Sir James Drummond, Bart., and others in South Wales; Mr. Reginald C. Glanville, agent for the Antony and other estates in Cornwall; Mr. Godfrey Lipscomb, agent for the Margam estates, South Wales; Mr. E. G. Wheler, chief commissioner to His Grace the Duke of Northumberland; and the secretary (pro tem.) is Mr. William Broomhall, 16 Cockspur Street, Pall Mall, S.W. Membership is restricted to landed estate agents, their pupils and assistants.

BUILDING AND BUILDERS.

A NEW church for St. Mary's parish, Harrogate, is to be erected in the present vicarage grounds, considerable difficulty having been experienced in securing an eligible site elsewhere.

THE foundation-stone of a new school which is being erected at a cost of rather more than 10,000*l.* in Bursar Street, Cleethorpes, was laid on the 13th inst.

THE foundation-stone of a new church has been laid at Latchford. It will accommodate 600 persons, and its cost is estimated at 6,000*l.*

THE Gladstone National Memorial at Hawarden is now nearing completion, the roofing having been commenced. The building is to accommodate the St. Deiniol's Theological Library, and to cost 10,000*l.*

A NEW Sunday-school is in course of erection at Thurnscoe, Yorks, and the foundation-stone was laid on the 15th. The architect is Mr. E. Isle Hubbard, and the cost, exclusive of site, which is a gift, will be about 1,200*l.*

THE foundation-stones of the new Wesleyan chapel at Milford Haven were laid on the 15th inst. The site of the new building is in Priory Road. The structure has a frontage 39 feet 6 inches, and the estimated cost is about 3,000*l.*

THE foundation-stones of a new Wesleyan church at Helmsley were laid on the 16th inst. in the presence of a numerous company. The new building, which will occupy the site of the old one, is to cost about 2,000*l.*

THE contract for the rebuilding of the Oxford wing of Welbeck Abbey, destroyed by fire in October last, has been secured by Messrs. Troilope & Co., London. The contract is expected to be completed in two years, and 250 men will be employed on the works.

THE memorial-stones of a New Connexion church were laid at Bridgetown, Cannock, on the 19th inst. The new edifice is being erected on land adjoining the old chapel, built in 1865. It will accommodate 500 worshippers and cost upwards of 3,000*l.* The architect is Mr. A. Harrison, of Birmingham.

PLANS have been passed and a contract accepted for the erection of a Wesleyan chapel at Etchingam, Sussex. The designs are by Mr. A. R. B. Smith and provide for a structure with a frontage to the road. It will be a well-built chapel with an accommodation for 150 worshippers, and every regard will be paid to the requirements for which it is to be erected. The total cost is estimated to be from 600*l.* to 620*l.*

THE memorial-stone in connection with the Elland public baths, in course of erection on land adjoining the public offices, Elland, has been laid. The scheme, which entails an outlay of 6,000*l.*, has been entered upon at the express wish of the ratepayers as Elland's recognition of the Diamond Jubilee of the reign of the late Queen Victoria. The purposes committee of the Elland District Council was presented with a silver trowel by Councillor W. H. Eastwood, the chairman of the Council. The building, beside a large swimming bath, is to include Turkish and Russian baths, &c.

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THE new school at St. Leonard's, N.B., is now nearly completed. The new building is being erected to the south of the present school—which is to be utilised as an infant department—and on the west side of the road, and lies between two proposed new streets on land belonging to the Earl of Elgin. The building is of one storey, having camceiled roofs, the windows rising up to the ceiling as half dormers above the eaves of the roof. The front elevation extends to 116 feet, and is flanked at both ends by teachers' rooms in two storeys forming quasi towers. The entrance doors face the west. In the centre of the building is a hall for drill, 64 feet wide by 25 feet, around which are grouped eight classrooms for sixty scholars each. The architect is Mr. David Barclay, Glasgow.

AT the monthly meeting of the Scarborough Town Council, Councillor Pirie proposed the minutes of the corporate property committee, which included "That the town clerk be instructed to prepare the necessary contracts for carrying out the work of converting St. Nicholas House into municipal offices, to get the same executed by the contractors, and to affix the common seal of the Council thereto, and that the borough engineer be instructed to have the work proceeded with forthwith." Alderman Land, who seconded the adoption of the minutes, said that the committee was unanimous in recommending that the work should be proceeded with at once. During the last eighteen years something like 3,200% had been spent in adapting the present town-hall for municipal offices. The recommendation of the committee was carried by fifteen votes to five.

MR. E. A. SANDFORD FAWCETT, the inspector appointed by the Local Government Board, held an inquiry on the 20th inst. at the Guildhall, Broad Sanctuary, Westminster, respecting the application of the Middlesex County Council to that authority for power to raise by loan the sum of 250,000% for the purposes of the new lunatic asylum which they propose to erect at Napsbury, St. Albans, Herts. There was no opposition to the scheme of the Municipal Council. The site has been already purchased at a cost of about 50,000%, and the foundations for the main building are nearly completed. The new asylum, which is much needed to relieve the pressure upon similar institutions in Greater London, will be constructed to accommodate a total of 1,150 inmates. It was elicited in the course of the inquiry that no part of the quarter of a million of money which it is proposed to be loaned to the Middlesex County Council shall be applied to the payment of the cost of machinery. That authority is applying to borrow the money

on account of the cost of construction of the building, although it is not unlikely that it may exceed the sum named by a hundred pounds or so. On the completion of the inquiry the inspector intimated that he would make his report to the Local Government Board with as little delay as possible, in order that the building operations might not be unduly retarded.

A LOCAL Government Board inquiry was held in the Board schools, Cold Ashby, Northants, on the 14th inst. by Lieut.-Colonel A. C. Smith, R.E., inspector to the Local Government Board, with respect to the application of the Brixworth Rural District Council for sanction to borrow 350% for the purposes of sewage disposal and the erection of filter tanks. There were present the Rev. Canon Bury (chairman of the Council), Mr. J. H. Smeeton (vice-chairman), Mr. W. C. Woodford (clerk), Mr. A. Lewis (surveyor), Mr. T. F. Hazelhurst, Mr. Wickes, Mr. Gilbert and Mr. Gardner. The population of the parish was stated to be 258, and the area 2,076 acres. The assessable value was 1,550%. There were 68 inhabited houses, and there were no outstanding loans. The surveyor then explained the scheme. The outfall at the south end of the village was to be conveyed in 9-inch socket pipes to a piece of land in the occupation of Mr. T. F. Hazelhurst. The land, which was three-quarters of an acre in extent, was to be drained, levelled, fenced and laid out as a filtration bed. To the south-west of the village there was no land available, and two filter tanks would therefore be built and the effluent carried to the watercourse in socket pipes. There was no opposition offered to the scheme, Colonel Smith afterwards inspecting the site for the bed and the tanks.

AUSTRALIAN HARDWOODS.

MR. H. B. LEFROY, the Agent-General for Western Australia, writes:—"At its last meeting on August 1 the Council of the City of Westminster decided to proceed with paving to the extent of over 130,000 square yards, of which about 110,000 yards is to be laid down in wood, involving a cost to the ratepayers of over 70,000%.

"At that meeting I learn the Council decided to award the contract to American red gum and creosoted Swedish yellow deal.

"My Government has spent large sums of money in demonstrating the special merits of Australian hardwood for street-

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paving, and my predecessor, Sir Edward Wittenoom, K.C.M.G., published a pamphlet last year giving in a condensed form the opinions of competent surveyors and engineers in all parts of the United Kingdom, forming an overwhelming mass of testimony that 'Western Australian hardwood blocks, well cut, true to gauge, laid on an efficient system, and carefully supervised, both during and after laying, constitute for city and suburban thoroughfares the best paving known.'

"Copies of this pamphlet and any information about Western Australian hardwoods may be obtained at this office on application, and I would earnestly submit that the rate-payers of the City of Westminster should not rashly embark on an untried experiment with a foreign wood to such an extent while thoroughly tried material from another part of the British Empire can be put down at less ultimate expense.

"As the passing of this contract was not fully recorded in the recent issues of local Westminster papers which usually contain complete reports of the proceedings of the Council, I ask your kind insertion of a suggestion that, before adopting what appears to be an undertaking of an experimental character, a full statement of the reasons for abandoning what most surveyors consider the best-known paving be laid before the community at large."

CORRESPONDENCE.

Glasgow Exhibition.

SIR,—The executive committee having now decided—owing principally to the lateness of the season—not to adopt the scheme of mechanical ventilation of the Machinery Hall itself agreed upon with ourselves in May last, but instead to merely ventilate the large steam pipe trenches under the floor of the hall by Blackman fans, run by electric motors, we think it only right that the public and the Machinery Hall exhibitors should know how the whole matter stands at the present time. The original scheme of mechanical ventilation arranged for precluded the probability of disagreeable draughts being caused in the Machinery Hall, whatever the state of the atmosphere might be. The main supply of fresh air was intended to be drawn in from the high centre roof all along under the 500 feet length of ridge. The extraction of the vitiated air was to be induced by the thirty-one large Blackman fans (placed principally on the side walls about

15 feet high from the floor), and running at a fairly high speed, and delivering the air in volume outside at a very low-water gauge. By this simple but effectual method the whole air contents of the Machinery Hall would have been constantly changed and changing every four minutes, while even when the air outside got cooler (as it has been for about a week past) no down draughts would have been caused, owing to the considerable heat, always beneath and ascending, sufficiently warming the incoming air from the high roof before it got, say, within 10 feet of the floor. Besides, everything would have been under control and regulation, with the air in the hall always fresh and free from damp and dust. The plan of so-called natural ventilation, however, first temporarily and now permanently adopted for the Machinery Hall proper, consists in making as many new louvre apertures as possible in the roof and side walls, the opening up of the upper parts of the gables by the removal of all the glass at both ends, and the making of large openings in the end furthest from Dumbarton Road, making all the side windows to swing open, keeping all the big doors wide open, and thus practically throwing the whole place open to the outside atmosphere, with all its chance dampness and dust. Under the short spell of cooler weather at present experienced the draughts from these openings are most unpleasant and dangerous for the attendants near, and who cannot move away from them. With cooler weather outside and in the evenings later in the season these evils will be intensified. In view of this change of procedure without our knowledge, the writer came down from London in order to come to some understanding with the executive committee, whom we must free from blame, and who were surprised that the scheme of mechanical ventilation as agreed upon long ago with ourselves had not been carried out. We have arrived at an equitable settlement with the committee, who have met us in a most gentlemanly manner in the circumstances. We can only add that, even up till a few days ago, we have in vain done our utmost to get some effective scheme of mechanical ventilation for the Machinery Hall itself carried through, and we can now only leave the matter where it is and in the hands of the exhibitors concerned.—We are, &c,

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YARDLEY MUNICIPAL OFFICES.

THE Yardley Rural District Council are erecting an imposing building as a dépôt for public works, and it will be ready for occupation shortly. It stands on the Stratford Road at Spark-hill, near St. John's Schools, and its proportions and situation render it a conspicuous object. The building has a handsome appearance. The materials are thin red-sand bricks with white points and dressings of Pillough stone. The windows are stone-mullioned, and have wrought-iron casements fitted in with glass in broad-leaded squares. The roof is covered with Cotswold stone tiles, and is surmounted by a well-proportioned clock tower 80 feet high with four openings 6 feet in diameter for clock dials. The Council a short time ago decided to defer the purchase of a clock, being anxious to limit the expenditure on the building for the present, but the difficulty has been got over by the liberality of an anonymous donor, who has undertaken to put in a clock with four dials at a cost of 300*l*. This will be a great advantage to the neighbourhood, which hitherto has been without a public clock. The offices block facing the Stratford Road has on the ground floor clerk's general office, with private office and strong-room; surveyor's office, with private office and store-room for plans; rate collector's office, with private office and strong-room; and sanitary inspector's office and store. There are two main entrances, one of which communicates directly with a spacious stone staircase leading to the council chamber and committee-rooms on the upper floor. The council chamber is 50 feet by 27 feet, and is arranged in the centre of the building. This room has in addition a semi-circular bay. The roof is open-timbered, the walls are lined with wood, and the chimneypieces are of wood and stone. Two committee-rooms, 32 feet by 20 feet, are provided, one at each end of the council chamber, and are similarly treated. There are also provided on the same floor the chairman's private room, two retiring rooms, with lavatories, and the surveyor's drawing office with north light. At the rear of the offices, and with an entrance to the side road, are placed the fire station dépôt, mortuary and caretaker's house. The fire station has accommodation sufficient for two engines, stables for two horses, mess-room and ambulance house. The dépôt consists of stabling for nine horses, two isolated loose-boxes, harness-room, mess-room, fodder store, cartsheds, wheelwright's shop, smithy, store and lamp-room, all enclosed in a large yard. The mortuary has a north top light and inspection lobby, with airtight glass inspection window. The cost of the

buildings, including the furniture, is about 13,000*l*. The architect is Mr. Arthur Harrison, of Colmore Row, Birmingham, and the work has been carried out by Mr. William Bishop, of King's Heath.

SAND BRICKS AND SAND STONES.

QUITE recently sandstone bricks, manufactured by the Schwarz process, have been brought on the market to challenge ordinary clay bricks. They are made of silicious sand and lime. The process is said to be specially valuable in localities where stone quarries or clay beds are scarce, and where, on the other hand, sand and lime are abundant. In this process from start to finish machinery alone is used.

The main factor in Schwarz's process consists of a vacuum heating and mixing machine. The sand is first introduced in measured quantities into this machine, which is heated by steam at a constant temperature. Thus the moisture in the sand is evaporated, and is besides removed from the mixing machine by means of a vacuum pump attached thereto.

Subsequently powdered quicklime is added in a ratio of from 2 to 6 per cent, measured exactly according to the sort of sand employed. The quicklime slackens so actively that all remaining moisture disappears in a very short time.

A measured quantity of water is then added to the dried mixture of lime and sand, and under the influence of the heating steam a chemical combination of the silica and the lime, viz. the hardening, begins in the warm mass. All other chemical combinations, as, for instance, that of lime with atmospheric carbonic acid gas are avoided, as the operation takes place in vacuum, thus preventing any exterior atmospheric conditions interfering with or in any way modifying the process. *En résumé*, the claims of this heated vacuum mixing machine are:—

1. By its use bricks can be made every day of the year, equally in dry as in wet or cold weather.
2. Its principle of employing both heat and vacuum obtains the most perfect results regarding its outturn.
3. It is fitted and so regulated that with duly measured mixtures of lime and sand its average output year in, year out, is as absolutely homogeneous as human agency could ever cause an artificial stone to be. Upon leaving this machine the mixture falls automatically into the hydraulic or other presses, from which the bricks are then carried on specially-constructed trollies into one or more hardening boilers, and after from six

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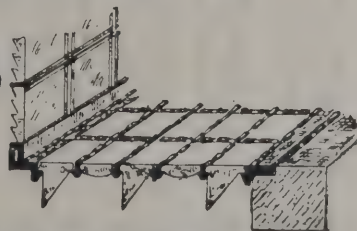
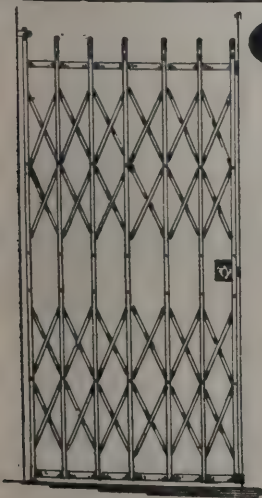
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to fifteen hours' time the bricks can be withdrawn therefrom quite ready for sale and use.

4. This process is also suitable to the manufacture of artificial coloured stones.

5. All the operations being mechanical great saving in manual labour is effected by this system. According to the number of presses used, in a day of eleven hours' work anything between 10,000 and 30,000 bricks can be produced.

6. The bricks produced resemble stone, their colour may vary according to the sort of sand employed in their manufacture, they can practically be made any colour, they do not readily absorb water, they resist also the action of acids, their shapes are very neat and regular, their surface extremely smooth and their angles very neat.

Of the validity of these claims we are unable to speak from personal experience: other sand bricks which have been introduced, have not, we believe, achieved much success. If this process is really an improvement on its predecessors we shall be glad to improve our acquaintance with it.

MARINE DRIVE, SCARBOROUGH.

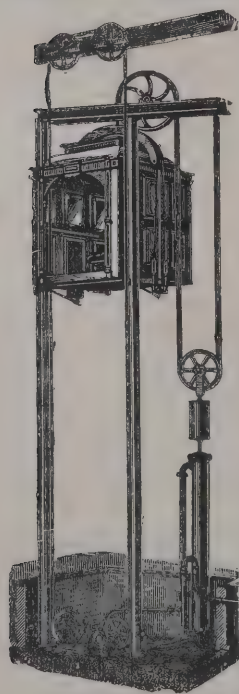
IN response to a letter from the town clerk inquiring if they had any reasons to give why the penalty of 50% per week for the non-completion of the Marine Drive contract should not be imposed, Messrs. B. Cooke & Co. have replied to the effect that they had received copies of the resident engineer's report, and they regretted that they were unable to agree with many remarks made therein, and pointing out that before Mr. Everett made his report, dated September 1, 1899, he consulted them with reference to time lost, and found their figures correct, but they were not aware of his having agreed to a further period of twenty-four weeks, as stated in Mr. Beard's report of April 1, and also that they were not aware of having laid any figures before Mr. Beard, as stated in the same report, nor had they been consulted upon the matter; that they did not agree with these reports respecting loss of time owing to weather and bad tides, and that they had kept a diary on the works and noted down daily when they were unable to work, and therefore they were in a position to substantiate the figures as stated in their letter of June 15, and further stating that with reference to the remarks contained in the town clerk's letter of July 15 they did not acknowledge that the Corporation had any right to make deductions owing to the contract not being

completed, as, in the first place, the time to be extended for bad weather and tides had not yet expired, and that there were other matters which had taken place for which they were not responsible and over which they had no control, and that they were further of opinion that the suspension of their certificates was contrary to the conditions of their contract. The letter was referred to the resident engineer to report upon.

AUSTRALIAN TIMBER AND TIMBER-GETTING.

THE timber resources of the Australian Parent State, although largely wasted in the past, are yet of a most extensive character, and under a proper system of conservation would become as valuable as any in the world. In a report by the Queensland Inspector of Forests, descriptive of a visit to New South Wales, that official states that on the Murray River dividing New South Wales from Victoria are situated the far-famed Murray River gum forests, the area of forests extending a distance of about 200 miles on the frontage of that river, but with occasional breaks, and running back from the river on an average of from one to six miles. New South Wales has an area of about 140,000 acres reserved for this timber, most of this country being liable to floods and densely timbered with gum, from the matured tree to the sapling and small plant. As showing the extent of the timber trade in the district, it may be mentioned that during the season December 1900 and April 1901 the quantity of timber obtained was 5,593 logs, containing an average of 1,150 superficial feet per log, equal to 6,431,950 feet of timber, on which royalty is payable of 4,047*l.* *os.* 5*d.*, at 1*s.* 3*d.* per 100 superficial feet. The greater portion of this timber was cut on behalf of a Victorian company, and is stacked in depôts on the higher banks of the Murray River, pending a rise of water, when it is removed by pontoons and punts, towed by small steamers to Echuca (Victoria), where it is cut into sleepers, mining timbers and for bridge and building purposes. The system of working is that any person desirous of cutting gum must apply to the State head forester for a permit, for which he pays 10*s.* per month, and may employ as many men as he may desire, giving to each a certificate that he is so employed. The State head forester allots a certain portion of the reserve on which the permit may be used, and as the timber is cut it is branded by the Crown at the stump, both log and

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stump being branded with white lead, each with a running number as well as with its length and circumference, a sub-forester entering every such log in his book for the State head forester's information. The timber is then removed to the river depôt, and if left in the depôt for three months royalty must then be paid thereon. For instance, timber removed to the depôt in January would require to be paid for at the end of April, and if not removed after the royalty is paid the owners must still hold a permit costing 10s. per month. No Murray River red gum is allowed to be cut under a circumference of 7 feet 6 inches at 5 feet from the ground, but small timber for piles, girders, &c., can be obtained at 15s. each up to a length of 30 feet, but above such length 6d. per running foot is charged. For the purpose of assisting in the production of this timber a system of thinning-out and cleaning-up of the reserves is adopted, and about 25,000 acres have been dealt with, on the following lines:—1. Gangs of men, about twelve in each gang, are employed under an overseer, at a wage of 7s. per diem to the men and 8s. to the overseer, to ringbark any large and useless trees and to thin out waste or crooked saplings, the latter being rooted out, and as this is done all fallen timber is gathered in heaps and burned, thus cleaning up the reserve. This work costs from 6s. to 10s. per acre. The outlay may appear heavy, but it is most valuable for the following reasons:—1. It prevents the destruction of numberless plants, saplings and trees by fire, through the fallen timber making a far larger volume of fire than the grass alone would make. 2. The destruction by ringbarking of useless timber and the cleaning by fire is found to produce numberless young gum plants, and to greatly increase their growth. 3. As each tree or sapling fit for cutting as a pile is worth at least 15s., the cost of the work is not to be compared with the future benefit to the State therefrom. 4. The cleaning-up of the reserves, which are in many parts let at a rental of 3d. per acre for grazing, tends towards obtaining a higher rental by the increase in production of grass for pastoral purposes. 5. The dead trees and logs being cleared enables the timber-getters to work more timber. 6. From examination of portions of the reserves before and after thinning out and clearing up, and from the healthier appearance of the young trees on the cleaned areas, in comparison with those uncleaned, and which it is considered is due to the trees obtaining a larger proportion of air, light, moisture and growing space, it appears that the work will be reproductive and greatly assist to maintain an ample and permanent supply of matured timber.

ZIFTA BARRAGE.

NINETEEN hundred and one has seen considerable progress made with this undertaking, which is one of the chain of works dependent on the great dam at Assuan. It is a barrage of similar nature to those existing near Cairo, and to the one being built at Assiout. The canals taking off at the Cairo barrages for the supply of water to the northern parts of Gharbia and Dakahlia provinces are so greatly drawn upon in their passage through the rich and heavily cultivated upper part of the Delta as to be inadequate for the proper irrigation of the lower districts. The water-level becomes so low during summer, and the quantity of water so small, that only at great expense in the use of pumps and lifting machines can a small supply be obtained, and many of the extreme north tracts are left completely dry and barren.

The present work, says the *Scotsman*, will pond up the water considerably at a point on the Damietta Nile, halfway between Cairo and Mansousa. New heads will be made to the canals which feed those districts, so that the canals which were formerly the tailwork of the barrages system will then become main arteries. They will receive water at a much higher level than was possible formerly, and will remain full independently of the canals to the south of them. On the east the Mansouria canal and on the west the Sahel canal will thus take direct from the river in summer. At present the Mansouria canal takes water from the Nile in flood time, but is fed from the Rayah Tewfik, whose head is at the Cairo barrages, in winter and summer. The Sahel canal is at present purely a continuation of the upper Gharbia system, and has no inlet from the river near Zifta. A new head to this canal at the new barrage is among the details of the scheme.

The new barrage will have 50 openings each 5 metres wide, with at the western end a lock of 12 metres width for the passage of boats. This year all the foundations of the lock and a length of about 95 metres of the barrage foundations have been completed, and over this portion the work has been carried up to floor-level. The walls of the lock have also been carried up a short way.

The method of construction is similar to that pursued at Assiout. The foundations are outlined by a row of iron-sheet piles driven to a depth of about 4 metres below the lowest point reached by the concrete. Their tops project up into the concrete, which is then laid to a depth of about 0.90 metre. Upon this is built a mass of rubble masonry in cement mortar



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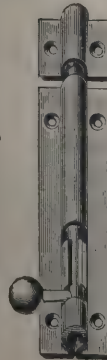
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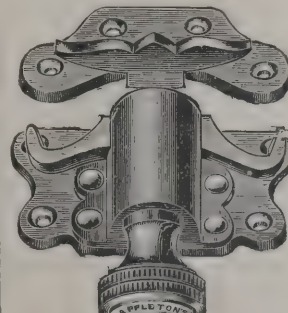
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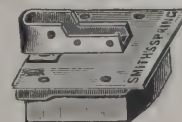

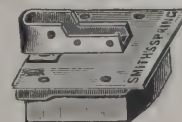

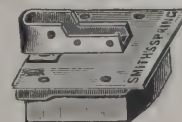
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a little over 2 metres in depth. Every effort is made to build this masonry as irregularly and with as few straight joints as possible, and during construction it presents the appearance of a large and very jagged rockery. At the top the surface is brought up smooth with a concrete made with fine chips and finished off with cement floating.

The work was not given out as a contract, but is being done directly by the Public Works Department engineers, using contractors for the supply of labour and materials. Between 4,000 and 5,000 men have been constantly employed all summer. These comprise all kinds of natives, from the Soudanese concrete beater with his weird chanting as he works to the Cairene mason, who is but little darker than many Europeans. A few European foremen are employed, but their number is small.

On the fall of the flood work will be taken up on the east side of the river, where wells for the sumps of the pumps have already been sunk to avoid delay in starting the season's operations.

THE BUFFALO EXHIBITION.

THE architecture of the Buffalo Exposition while partaking in many ways of the general characteristics of its predecessors, is, says the *Architectural Review*, of especial interest in its points of departure from previous exposition schemes. For example, there is to be found in it larger variety of treatment, greater exuberance of general detail and more complicated disposition of masses than have been adopted before. These differences indicate on the one hand highly developed imagination, on the other a lack of the appreciation of the limitations which occur even in so varied a problem as the conception of an exposition.

The value of ensemble has been sacrificed to the delight of variety. Everything, of course, depends upon the point of view, the original inception; and in this case it is manifest that the paramount desire has been that of gaiety, of joyous abandon. Taking this for granted and acknowledging that such a desire is legitimate and expressive of the purpose of an exposition, there still exists the doubt whether the work is not keyed to too high a pitch, and whether the continuous persistence in variety has not produced a monotony from the very lack of contrasts. Minor contrasts are innumerable, but broad comparisons are absent.

The plan is one of peculiar beauty on paper; it is almost imperceptible upon the grounds from the reiterant interception

of minor details upon its axis. Upon the plan the relative sizes of masses are well adjusted; in reality these masses have materially changed their character and become at times discordant. That much of this has been caused by changes during the progress of the work is evident. It is the fate of many details of carefully conceived plans to "gang aft a-gley" because of the innate depravity of unforeseen conditions. For instance, the grand entrance to the grounds is but little used, and the majority of the visitors filter in through small allées, which fact is due to the change of terminus of the street transportation lines.

The bridge, with its four majestic pylons, finely detailed, is conceived upon so grandiose a scale that it becomes impossible for the remainder of the architecture to be kept in scale with it, and the water beneath it sinks into insignificance. The pylons dwarf the vista seen between them. Even the central tower seems small in comparison, and it is not until the bridge is passed that the dignity of this tower is felt. Here on the right and left are pergolas without terminal accents, and with a change in scale which is startling. They are charming in character, and lead respectively to the Government building on the right and the horticultural building on the left. At this point the impression of multiplicity of detail is very strong. Everywhere are statues, fountains, lamps and shelters; the sky silhouette is restless with pinnacles and towers and domes; wall surfaces are conspicuous by their absence; monumental entrances, colonnades, arcades and bizarre and peculiar window forms are in great profusion. The whole effect is nervous, often virile, always interesting, but bewildering. One seeks in vain for a focus, for some one thing masterful and dominant. The great tower, rising to a very beautiful termination, expresses the intention of concentrated interest and holds attention for a moment from the distracting appeal of its neighbours. At its base is a colonnaded exedra, which by its very nature should be a terminal unit, but through and beyond it appear still other colonnades and pavilions. The great fountain, a most delightfully exuberant piece of design, is not sufficiently isolated to command proper attention. The basins, so admirably planned, can be seen only at intervals, and the water, kept agitated by too numerous jets, has no reflective surface. Every space is too much peopled and is too busy, and the surface grades have not been effectively treated. The buildings are not raised sufficiently; the small bridges destroy vistas; there is a want of broad-stepped terraces. The sunken mall and the sunken garden have great charm from within.

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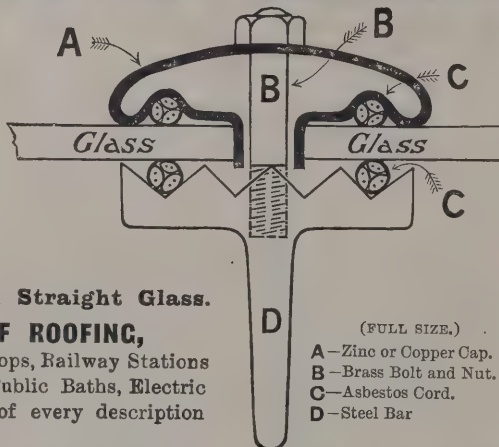
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Behind the tower is the most interesting portion of the grounds. Here the sweep of the peristyle and the two restaurants on either end and the small pavilions have very great merit, and form the one large composition on the grounds. The beauty of these buildings, especially of the towers, is worthy of all praise. Individually the various buildings are of great interest and in their details often of great beauty. Especially fine are the great portals, the cornices and eaves—everywhere is unusually well-composed and decorative detail—and the picturesque bits under archways, through colonnades and pergolas, are delightful and numerous.

With all this exuberance of form the one thing which could have harmonised the exposition was the adoption of one tone of colour throughout. On the contrary, a colour scheme exists that is peculiarly mischievous. The idea apparently was to start with strong somewhat barbaric colour at one end and terminate with more sophisticated and moderate colour at the other, the intention being one of attractive and perhaps chronological gradation. As a theory there is a certain literary appeal in the scheme. It appears to have the value of sequence and of crescendo, and might possibly be successful in a series of connecting interiors; but as a fact, applied in the open to isolated buildings of varying character, and with totally different light and shade, it is foredoomed to failure and can be only productive of a harlequinade. And as if this were not enough, the entire surfaces of the different masses are treated in different tints, upon which the stronger colour is displayed. The natural result is, especially at the barbaric end, that strong mustard yellows, *foncé* blues and vivid reds come in close proximity with pale tints of fawn, green and greys without the possibility of the arbitrary adjustment of proportions necessitated by such juxtaposition in order to insure success. The choral hall is especially unfortunate. Where that most satisfactory of materials for architectural decoration, gold, is used, it is in too large isolated masses.

There are some very successful pieces of colour. The main tower is good—the cornices, soffits and friezes of the building in front of the tower on either side exceptionally good, and the entire colouring of the court behind the tower fine. One of the most interesting buildings in every respect on the grounds, in scale, design and detail—the Stadium—is without colour. On the whole, the colouring of the "Rainbow City" leaves the impression that a very varied scheme of colour confuses and belittles a large scheme of architectural correlation of building and that the conception of the colour should be as simple and

as universal as is the general scheme of the architectural ensemble. It is ensemble that Buffalo lacks. It has the marked element of great and able variety not sufficiently controlled, and of unusually piquant interest without the quality of breadth.

PUBLIC IMPROVEMENTS IN BIRMINGHAM.

CONSIDERABLE progress is being made with the various public improvements which have been undertaken by the public works committee of the Corporation on behalf of the citizens of Birmingham. The principal scheme, of course, says the *Birmingham Daily Post*, is the reconstruction of the sewers, a project which was commenced about two and a half years ago, and will occupy the attention of the authorities and the finance committee, who have charge of the public purse, for some few years to come ere it can be said to be within measurable distance of completion. The re sewerage of the city is a gigantic undertaking, involving an enormous expenditure from the rates, but considerations of health made it imperative that the work should be taken in hand without delay and carried out as expeditiously as circumstances would permit. At the outset, as we have explained on previous occasions, the city was divided into five districts, and operations were commenced in Edgbaston and Harborne, a district which, in respect to its sewerage, was the worst in Birmingham. In the reconstruction of the sewers in the locality, which embraces practically the whole of the Edgbaston Parliamentary division, it became necessary to lay down about 64 miles of new foul water pipes, and in addition many miles of storm water pipes. The total cost of this portion of the scheme was estimated at 155,000*l.* in round figures, and it was believed that the work would be finished in about four or five years. This estimate in regard to time and money, it is expected, will be well within the mark. Nearly two-thirds of the work has already been accomplished, and if the same progress is maintained another twelve months or so ought to see the beginning of the end so far as this particular district is concerned. The work has been carried on by the department in a most impartial manner. No portion of the district has been favoured at the expense of another, for culverting operations have been going on simultaneously in every part of the area. Some of the worst neighbourhoods have been finished, and at the present time the work is proceeding in Edgbaston Park Road, Hermitage Road, Westbourne Road, Norfolk Road, Harborne

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Road, Calthorpe Road and some of the adjoining thoroughfares. A good deal of the work is in the hands of contractors, but by far the most important part of the scheme is being carried out departmentally. The weather is responsible for the progress made, but it is believed that the culverting in the roads named will be completed within the next two months, and then other thoroughfares will be closed to traffic. As soon as the district is resewered the next worst of the five districts will be taken in hand, and so the work will be continued until the whole of the city has been provided with new sewers, which it is anticipated will be sufficient for all practical requirements for about half a century.

Another important matter which is engaging the attention of the public works committee is the construction of the Rea main sewer at Saltley. It runs from Montague Street alongside the river Rea through the land of the Midland Railway Company and the Gas Department to beyond Nechells Recreation Ground, a 6-foot culvert being used between Montague Street and Saltley Viaduct, and a 7-foot culvert from that point to the terminus. This is a somewhat difficult and laborious undertaking, but the work has been in operation for more than twelve months, and if the weather is favourable the contract may be completed within the next six months. The Sewer Department is also very busy in other parts of the city not only in respect to the renewal of pipes, but in the inspection and superintendence of the sewerage in those districts where the building trade is especially active just now.

Street and road improvements are in progress on every side of the city. Those people who are acquainted with Pritchatt's Lane, which runs from Edgbaston Park Road to Somerset Road, well know what a narrow, awkward thoroughfare it is. It is an important link, which to all intents and purposes connects the Bristol Road with Harborne, and all who use it will rejoice to learn that it is now to be straightened and broadened and made something like what a public road should be. In the central parts of the city attention is turned to Summer Lane, where between Snow Hill and Hospital Street the macadam is being replaced by granite on a concrete foundation. The upper part of Broad Street has recently been relaid with wood, and the London and North-Western Railway are improving the bridge in Navigation Street which carries the thoroughfare over the railway from Hill Street to Pinfold Street. The wood floor on the top of the girders is in course of restoration, and when that is finished the road department of the Corporation will, at the

expense of the company, complete the work by laying down on a concrete foundation a new granite pavement.

Turning to the tramways, the chief matter on hand just now is the renewal of the cable line for a distance of about a mile and a quarter between Colmore Row and Hockley. This is a tedious undertaking, because it is impossible to disturb the metals in the daytime, and consequently the work can only be carried on for a few hours every night after the cars have ceased running. The work has been going on for several weeks, and it will be two or three months before the scheme is finished, but sufficient has already been accomplished to show that the repair of the line will be a blessing to the residents and shopkeepers along the route. When the joints between one rail and another are seriously worn and depressed there is a noisy jar as the cars pass along, and complaints have many times been made of the nuisance which is thereby occasioned. The same complaints are made on the Bristol Road route, but the cable district evidently is to be improved first. A good part of the line has already been relaid, and on that length the diminution in the noise is so conspicuous as to be the subject of general remark on the part of the passengers and also the residents in the neighbourhood. When that route is completed the Bristol Road line will no doubt be commenced. An important alteration is in progress in Hill Street. Two lines run from John Bright Street down Hill Street, but only one is necessary. The cars stop on turning into Hill Street to take up passengers, and it often happens that the prospective passengers so crowd the roadway that traffic is impeded. With the object of preventing an obstruction as far as possible the line from John Bright Street is being laid with a much wider sweep into Hill Street, and is being carried down by the station on the left-hand side, near the footpath. This will have the effect of compelling the passengers to take up a position on the footpath away from all danger arising at a point where the vehicular traffic has for a long time been seriously congested. It is impossible, however, to carry the line the whole of the way by the side of the footpath into Station Street, because the railway authorities would object to a narrow curve and metals closely laid to the goods entrance to the station, and so the workmen on arriving near St. Jude's schools will connect the new with the old line in the centre of the road. These operations are rendered somewhat difficult by the intricate character of the work, and as progress can only be made at night several weeks must necessarily elapse before the alteration is completed.

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The Architect.

THE WEEK.

THE First Commissioner of Works, when explaining the position of his Department in respect of the commission for the new offices in Westminster, created the belief that he possessed the drawings by the late Mr. BRYDON which were necessary for accomplishing the design. It would now appear the drawings are less complete than was imagined. Mr. BRYDON had been instructed to arrange for the execution of the works in sections. The first was the carcass of the building. The drawings which were prepared for that purpose could not be regarded as complete at the time of the architect's death. Any details were got out in a hurry and merely for the guidance of the quantity surveyor. The only conclusion which can be drawn is that the First Commissioner was not rightly informed about the character of the drawings, and the unfinished work of the architect which will have to be entrusted to other hands is of the last importance. The position of the First Commissioner in such circumstances is undoubtedly one of difficulty. To expect, as has been proposed, that an architect as able as was Mr. BRYDON should accept the fragments of designs and out of them produce a reality which will correspond with the unknown ideas of an artist who is no longer among us, is to suppose that a man will undergo great sacrifices in order to acquire reputation for another without a thought of his own interests. In the present case we have no DAMON and PYTHIAS to warrant confidence in heroic friendship, and, indeed, there is no record of the evidence of so self-sacrificing a pair of architects at any time. The conditions of architectural practice are not favourable to the production of so much amity. Nor is the First Commissioner likely to imagine that an unprecedented variety of unselfishness is at his disposal. It must now be plain to him that the least important part of the commission has alone been completed. We suppose the skeleton of the building must be accepted, for it has been arranged under official instructions. But as whatever will impart architectural character to the bare walls has yet to be designed, the most prudent course will be to allow to whatever architect is entrusted with so weighty a duty the credit as well as the responsibility for his own work. In that way only will the Office of Works be spared the trouble which will inevitably arise if a romantic notion is accepted of the relations between architects. The death of Mr. BRYDON is a misfortune, but he was not the only architect who was capable to design a simple Classic building. The manner of his selection was unwise, and the best course for the Government to take would be to follow the usual procedure, and to obtain designs for all that has to be done by means of a competition, which perhaps in this case had better be limited. On the other hand, the First Commissioner may have realised the whole extent of the work to be done, and the co-operation of Mr. BRYDON's chief assistant may be sufficient to enable the Office of Works to cope with all difficulties.

THE annual report of the Bristol and Gloucestershire Archaeological Society refers to the excellent work which has been carried out. The investigations which were commenced on the site of the Cistercian abbey of St. Mary, Hayles, in 1899 were continued in 1900, and the abbey church was carefully excavated under the superintendence of Mr. St. CLAIR BADDELEY and the general secretary. The excavations were temporarily suspended owing to the sale of the Toddington estate, but it is hoped they will be recommenced. The purchaser, Mr. H. ANDREWS, has assured the secretary and Mr. BADDELEY of his interest in the work, and has led them to believe that they would have his valuable assistance and sympathy. Lord SHERBORNE presented to the Society a calendar of deeds in his possession, and Mr. F. F. FOX the Little Red Book of Bristol, two handsome quarto volumes. The Council purchased "Dugdale's Extinct Barony" and several similar works, and have gladly adopted the suggestion of the Congress of Archaeological Societies that a list of the monu-

mental effigies in Bristol and Gloucestershire should be compiled under the direction of that Society. Mr. LATIMER, who ably represented the Society as secretary in Bristol for some years, has resigned his post, and the Council appointed Mr. J. E. PRITCHARD, F.S.A., in his room. Mr. PRITCHARD had already greatly strengthened the position of the Society at Bristol, having proposed fifty-five new members during the last nine months. The Council acknowledge the courtesy of the committee of the Clifton Antiquarian Club in permitting the Society to print several papers contributed to that Club simultaneously with the Transactions of that Society. The meeting of the Society was held this year at Chipping Camden, from which there were several excursions. One of the buildings seen was "The Priory," a former grange of Pershore Abbey, and at present the residence of Mr. F. D. MILLET, the artist. When the Society visited the building in 1884 it was in a deplorable state of dilapidation, but it has been greatly improved by Mr. MILLET, and is now used by him as a studio.

THE new series of *L'Art* seems to be conducted on the principle of rewarding purchasers at all costs. Lately we mentioned that a fine lithograph was presented after COROT by M. TH. CHAUVEL, the artistic director. With the latest number another plate is given, *Embouchure de la Toques*, after one of M. CHAUVEL's paintings. Similar prints are unknown in England, for high-class lithography is a lost art among us. There is also an original etching by M. PIERRE GUSMAN, who is a master of definiteness in detail. Various photographic illustrations embellish the pages. The literary contents as usual are from the pens of specialists. M. CHARLES NORMAND has brought to a conclusion his interesting biography of CHARDIN, the eighteenth-century painter, whose small pictures afford more interest to modern amateurs than those by many of his contemporaries. The painter was over-conscientious, and was not sufficiently expeditious to please his patrons. Before his works GREUZE was silent, and the best judges in the middle of the eighteenth century looked on his smallest work with amazement like that with which at a later time MEISSONIER's works were seen. M. GUIFFREY, the administrator at the Gobelins, writes on tapestry, and gives information of a kind which is not usually found in books on the subject. M. PAUL LEROI turns his long experience of artists and their works to account in his article on Marseilles, and in a criticism on the Salon. To say that the number upholds the standard of the new series is its truest eulogium.

WHILE many of the good people who believe their mission is to correct the faults of English manufacturers are lauding the advantages of the German system of technical education, and in that way aid our rivals, it is well to remember that authorities in Germany are not satisfied about the superiority of German teaching, especially when there is a test by means of results. That excellent magazine, *Dekorative Kunst*, in the last number, contains several illustrations of English textiles which were woven for furniture-makers. They are represented as being average specimens of English goods, and the writer does not hesitate to say that stuff no less handsome can be procured in Germany. But it becomes manifest, he says, at the first glance that the German patterns are borrowed, whilst the English have a character of their own. The English draughtsman, it is said, has been brought up to a belief in the virtues of self-help, which has no place in the German school system. The German, in art, as in other things, depends on State-help, and waits until it is forthcoming. The English patterns are described as clear and definite, and although the colouring may not be subtle it is decorative, sound and enduring. Moreover, there is peculiar technical skill shown in the combination of wool and silk in the pieces. While the Munich magazine gives us credit for superior industrial arrangements, in the next article it expresses a lament over the bungling of the competition for the QUEEN'S Memorial, which seems destined to end in a fiasco. What appears best in the project is, says the critic, the avenue from Buckingham Palace to Trafalgar Square, with groups of sculpture. This feature, it is thought, must have been suggested by the memorial avenue of the Hohenzollerns in the Tiergarten of Berlin.

FLOWERS AND DECORATION.*

WHETHER the laws of æsthetics approve or condemn the employment of flowers as subjects for ornament is of little account. So long as artists are found in the world there is no doubt they will continue to utilise leaves and blossoms. It may be illogical to represent forms which grow vertically as lying flat, as in floor or carpet decoration. For a like reason, the flowers most commonly seen on wall-papers are inconsistent with nature. We know, too, that the natural scale of flowers is not respected, and fidelity is not observed in the colours. Those who conventionalise flowers have, therefore, logic on their side. Their treatment ignores, however, the qualities which are accepted as most beautiful or interesting in vegetation. What is a still greater loss, the associations which belong to so many flowers could not arise at the sight of their geometrical diagrams, even in the mind of a mathematician. Representations of nature more or less accurate seem to be unavoidable. Indeed, it may be said that if ornamentists and poets were deprived of the liberty to employ "the stars that shine in earth's firmament" their arts would have to be revolutionised.

The question next arises, To what extent is accuracy in depicting or describing flowers essential? It is generally agreed that the poet need not take the place of a lecturer on botany in any of his references to flowers. It is preferred if he will simply suggest their characters, as if they bore some resemblance to human beings. All that is said about the modesty of the daisy, the purity of the lily, the obtrusiveness of the poppy, the forwardness of the violet and so on, are simply the application of qualities which are derived from men and women. SPENSER, whose vocabulary was most ample, did not hesitate in one sonnet to speak of the rose, the juniper, the eglantine, the firbloom, the cypress, the nut, the broom-flower and the moly as "sweet," and in repeating the adjective eight times, he showed good sense, for he expressed a characteristic that is applicable to most kinds of plants. In other cases he employed more special words, but a general appellative is often the most suitable designation. In the same way the flower, when employed as a *motif* in decoration, need not resemble an illustration in a book on vegetable physiology. GOETHE the poet, who was also a scientific botanist and dissected plants in his search for the original plant type from which all varieties were descended, once said that the influence of botanists on flower painters was most injurious. Artists were so concerned about counting the filaments and displaying the smallest details, the grouping, colouring, light and shade and other essentials were neglected. The same fault is still more marked in much of the flower decoration which is now produced. The artists seem to be eager to demonstrate that they have gained rewards for their knowledge of physiology, and details are introduced which are fatal to breadth of treatment. In the majority of cases we believe the people who buy pottery or textiles which are adorned with flowers are indifferent to the fidelity of the representations. What is most sought after is effect, and if that is gained there is no regret about the sacrifice of botanical truth. No sensible man or woman would go to wall-papers or the covering of furniture for instruction in science. In fact, if an artist were to invent plant forms which would be superlatively decorative he would gain more success than if he rigorously followed natural models which were created to serve other purposes than as patterns for ornamentists.

Racial characteristics count for much in art, and in spite of occasional lapses there is no doubt English folks seek after accuracy in all their work. Their sense of fitness also is opposed to incomplete things, and a plant form that would consist only of flower and stem would to some eyes appear an anomaly. Art, however, demands sacrifices, and as it is impossible to unite pictorial effect with the truth which botanists demand, the latter must give way. Nothing is easier than to observe in the works of great painters omissions and departures from reality when flowers and fruits are introduced, and they would have been amazed at any men of science who insisted that their treatment was defective. Sir GEORGE BIRDWOOD, for example,

used at one time to make an annual onslaught on new pictures because he perceived slight defects in the serration of a leaf or an excess of a petal in a flower. But he did not venture to assert a picture would be improved as a work of art or its pleasure-giving qualities enhanced if nature had been more scrupulously imitated.

It must be admitted that the artist is more likely to succeed in producing satisfactory results who is acquainted with the difference between a plant as an organised being and a decorative object which is inspired by the plant. There are certain characteristics of a plant which are more valuable than others to the artist, and by giving them prominence, as we have suggested, he resembles the poet. Who cares about the colour of daffodils when PERDITA speaks of the courage shown in their early arrival—

Daffodils,
That come before the swallow dares, and take
The winds of March with beauty—

or when MILTON invites "daffodillies" to fill their cups with tears? The flower by both writers is treated as subservient to the attainment of a particular end, and there is no lingering over any qualities possessed by it for the sake of rendering justice to its form or arrangement. The two poets loved flowers and studied their ways, but they never thought it was erroneous to make only partial references to them. MILTON evidently considered he was enhancing the importance of flowers when he endowed them with qualities derived from man's handiwork. Thus he speaks of "quaint enamelled eyes," "every flower that sad embroidery wears," "the soft downy bank damask'd with flowers," &c., expressions which suggest he was a creator and flowers were only materials for his use.

It is an exacting undertaking to treat flowers in a manner that would satisfy a botanist and at the same time to bring out their decorative qualities. This, however, has been satisfactorily accomplished in "Decorative Flower Studies." The work might be called a series of floral portraits; but it also furnishes us, unlike most portraiture, with analyses of the forty subjects. We might also say that the botanist or dissector of flowers appears on one page and the artist on the other, and the two classes of work are executed with equal competence. The representations or portraits of the flowers are drawn with a loving care to do justice to every variation of line, and also to suggest the fitness of the subject for decorative purposes. No attempt has been made to rival the books which have been published from time to time in which the colours of flowers have been expressed by means of machine printing. In the volume before us there is no attempt at gradation, and the colours cannot therefore be taken as competing with nature. It has been often affirmed that one of the causes for the scarcity of flower painters arises from the difficulty of representing colours with which people are well acquainted, and products which are adorned with coloured flowers are too often most absurd. It is therefore satisfactory to find in a book for the instruction of artists that the colours are manifestly no more than subdued suggestions of the originals, and in that way a lesson is given which should be utilised by manufacturers and others.

A first glance at the pages is sufficient to show that the drawings have been affected by the new modes over which battles are being waged. This is seen, to take one peculiarity, by the manner in which the stems of the flowers are treated. It would be easy to point to many examples of design in which flowers appear to be stemless, and sometimes that treatment may be judicious, but it does not suit with later ideas, and occasions arise when strength should be suggested by the introduction of stems, a course which will be fatal to many stereotyped arrangements. Several of the plates in the volume are distinguished by the marked character of the stems as much as by the blossom or the leaves. Among them we may mention the larkspur, columbine, love-in-a-mist, lavender, eschscholtzia, zinnia, pink poppy, fine-leaved heath, gorse, the thistle and others. In speaking of the plumbago, the author says:—

The chief characteristic of the plumbago, the real essential of its plant form, seems to be the upright character of its growth; each small shoot branching out of the main stem and rising vertically, though that main stem may have been induced

* *Decorative Flower Studies for the Use of Artists, Designers, Students and Others.* By J. Foord. London: B. T. Batsford.

by its own weight or other causes to take a different direction. So the first impression of the plant is of a series of upright lines, sufficiently influenced by the tremulous delicacy of the stems and the slight change in direction at the joints to give variety, without weakening the general effect of a very beautiful, natural, decorative scheme. And I feel sure that in making a decorative drawing or design from any plant, its natural growth and habits should be carefully studied, and never violated. And while strongly deprecating the idea of the untrained realist that nature alone is sufficient and can be taken raw, I believe that every earnest student of nature will find in her endless, beautiful *motifs*, and will so recognise their beauty and their fitness that they will feel at once "that is the way I must treat it." So to them it will be often more a question of selection and adaptation than of actual complete composition. And so many and so varied are the aspects in which nature reveals herself to different minds, that there need be no fear of monotony or repetition among those who study her and seek inspiration from her sincerely.

It is only necessary to compare the plate of the plum-bago in the volume with any engraving of the plant in earlier works on botany, in order to perceive how much more importance is attached to its verticality as a characteristic. In many other ways the book differs from its predecessors. The pink poppy, to take another example, has a pleasing blossom, which is suited for the designer's purposes. But what the author regards as the most useful parts are the "long graceful lines of its stems, the adaptable form of the leaves and its wonderfully decorative seed vessels." When speaking of the iris, which has been utilised since the early days of art, attention is drawn especially to the seed vessels, and they are said, "with their variety of curving form and the brilliant contrast of the orange berries with the silvery lining and dead green of the outer side, to offer fresh opportunities both of form and colour for workers in many branches of decorative and applied art."

It is also remarked of the common viper's bugloss that "the flower is of a very rich pure blue colour, with touches of purple on the stamens and buds, and with its sombre grey-green leaves forms a strikingly beautiful and unusual colour scheme." When describing the honeysuckle the author, while admitting it has been largely used, observes, "The beautifully simple form of the undulated leaves and the clusters of berries, seem to merit more attention than they have received." The shrub should always have interest for designers. It was one of the few forms which were honoured through being utilised by the old Greek artists. MILTON invites EUPHROSUNE

to come in spite of sorrow,
And at my window bid good-morrow,
Through the sweetbriar or the vine,
Or the twisted eglantine.

SHAKESPEARE also speaks of

the pleached bower,
Where honeysuckles, ripen'd by the sun,
Forbid the sun to enter, like favourites,
Made proud by princes, that advance their pride
Against the power that bred it.

When looking over the plates the question arises, Why certain varieties of plant forms which possess suitable qualities are not much used for ornament? The heath is one of them. It has been turned to account in France. Gorse is another, and the thistle receives far more attention from our neighbours than from Scotsmen, their wives and daughters. We are afraid the neglect originates in the commonness of the vegetation. In design as in other things financial value is of prevailing importance in England, and a piece of room paper or a textile which bore an ornament that could be described as derived from an orchid costing some hundreds of pounds could hardly fail to become a success. The enormous patterns which are seen on cheap papers and curtain stuffs owe much of their attraction to the belief which prevails among the humbler classes that very large plants are expensive and therefore beautiful. A visit to the Jardin des Plantes in Paris is enough to demonstrate to any impartial observer one of the differences between Frenchmen and Englishmen in their appreciation of ornament. Beds are to be seen containing plants which in England would be considered weeds and would not be tolerated in any art school or approved by any manufacturer. In Paris quality which merits to be utilised in design is alone taken into account, but in England judgment is determined by prejudices with which money is connected, it may be indirectly.

We are glad to see that in "Decorative Flower Studies" the French rather than the English system is adopted. It is announced in the preface that gardeners' specimens have been avoided, and what are irregularities and defects to the eyes of amateurs have been retained when they were characteristic of the flower. The words show a right spirit and the contents of the book bear them out. The plates should be inspiring not only in suggesting such ornament as can be derived from forty different prototypes, but in inducing students to seek out models from classes of vegetation which hitherto have been seldom utilised. The analyses of the subjects are sufficiently interesting to persuade students to apply the system generally, and, indeed, the use which can be made of "Decorative Flower Studies" is more various than the modest title and treatment would indicate.

CELTIC ART.

THE Celtic Congress which was held in Dublin last week does not appear to have produced any remarkable results. It is the misfortune of the race that, however shrewd they may be when dealing with everyday business, they become different beings in all matters which relate to their remote history. Then the Celt becomes compact of imagination, and ignores what on other occasions he would call common sense. In a multitude of counsellors there is supposed to be safety, and in Dublin Irishmen, Scotchmen, Welshmen and Bretons were to be seen and heard, but all the wisdom that was anticipated to arise seemed to have passed away to other regions. We do not deny that for a few hours unreality was able to exercise its sway over the Celtic mind, and may have produced some harmless pleasure.

The men and women who paraded the streets in fantastic dresses may have thought that they had attained the princely state to which their predecessors were accustomed at a time when every day brought its festival. But it is only necessary to turn to books with plates by Irish antiquaries and to works on costume in order to discover that in the days of old the dresses worn in Ireland were deficient in the picturesque. The allusions which are made to costume in the legends also confirm that belief, and considering the circumstances of the country, dress could not be otherwise than of the plainest kind. Scarlet, yellow and blue dyes were undoubtedly known and used, but the materials were coarse and the sartorial art displayed in fashioning them was of the humblest. The representations of the native Irish which were produced in the reign of ELIZABETH are testimonies that in a comparatively late period Ireland was not a land which was remarkable for finely-clad inhabitants. It was not, however, unique; the Scottish fashions in costume were not luxurious, nor the Welsh.

It is easy to conclude, when an occasional example of jewellery is discovered in Ireland, that similar ornaments were at one time common. Torques, collars of gold, chains, rings and the like are all supposed to have been plentiful. It is forgotten that such adornments were necessary to distinguish the chiefs, and were handed down from generation to generation. Nor, even if the goldsmith's work were more in use, is it safe to assume that the dress was in keeping with the ornaments. Gold was at one period, if the geologists are to be credited, occasionally found in small quantities without the trouble of digging for it, and was employed for the adornment of kings and princes or, more rarely, for ecclesiastical purposes. The illusion, however, still prevails, especially on occasions like last week's Congress, that the jewellery is only to be taken as a sign of the prosperity of the land in olden times and of the mineral wealth which then existed, part of which could be assigned to the production of rings, necklets and chains to be worn by many other people besides chiefs. MOORE'S song about the Irish maiden who wandered alone through Ireland wearing rich and rare gems and a bright gold ring on her wand is accepted as historical evidence of ancient riches.

All things taken into account, the jewellery is the most beautiful variety of Celtic art. The gold collar, which is among the treasures now in the possession of the British Museum, and which are demanded for the Dublin Museum by members of Parliament and others, is a delicate example

of engraving and repoussé work which would be worthy of any country in Europe. No less admirable are some examples in the collection of the Royal Irish Academy. In such manuscripts as the Book of Kells and the Book of Durrow we see art of a kindred style and no less praiseworthy; but, as JOHNSON says, when you have seen one green field you have seen all green fields, and the amateur who takes up the study of Celtic art would do well to confine himself to jewellery and illuminated manuscripts. There may be defects in both classes of work, and in neither can we see a form that recalls anything created, but faults are condoned out of respect for the skill and patience seen in the miniature creations.

When, however, we examine the carving on stone we see only a coarse imitation of what was admired in gold or on vellum. There are enough stone crosses to prove the extent of the capability of the ancient carvers. We need not speak of the figures of saints which are introduced on some crosses, for in a country like Ireland it is not fair to expect sculpture resembling what we find in some of the early French churches. Ornament is, however, more easily executed, and remembering all that was done by the metalworker and the scribe in Ireland, it was to be expected that more dexterity would be displayed in the ornamentation of stone. As regards stoneworking on a larger scale, the Celts in Ireland as in other countries were not remarkable for their architectural prowess. The round towers, like the brooches and the manuscripts, have thrown a glamour over Ireland, and have been taken to be survivals of a vanished architecture that was remarkable for its mystery and beauty. The average Irishman is incredulous when he is told of the conclusions of his countryman, GEORGE PETRIE. That able archæologist could not discover pre-Norman masonry in any part of Ireland in which mortar was used, and as the stones of the towers were set in mortar he inferred that they must have been raised subsequent to the Invasion. It has been likewise ascertained that builders from the West of England found profitable work in the erection of Irish churches and monasteries, and, owing to the absence of experience in quarrying among the natives, stone had to be imported from the same district.

With some Irishmen there may be a misgiving about the partial truth of the statements relating to the indebtedness of the Irish to the constructive skill of Englishmen. But they explain away all similar circumstances by saying that despotic laws prevailed, and in consequence strangers were enabled to execute work from which Irishmen, less capable, were debarred. There is the belief still that if Celtic art was in the twelfth and thirteenth centuries subdued by foreign Gothic, it was not exterminated, and it can still be invoked for the production of works which will equal in quality anything seen in the museums of Dublin or London. Faith in immortality is an endowment of the Celt, and he associates it with art. No one who is acquainted with Irish feeling was therefore surprised on learning that one of the issues of the Celtic Congress is to be an inquiry about the application of the forms which are characteristic of the metalwork, carving and illuminations to modern productions of different classes.

What we see in them and in all specimens of Celtic work is the specialty of interlaced ornament. It is also found in other varieties of early art. But it never was so generally used or brought to so much perfection as in examples which can be credited to Ireland. It does not appear to have originated there, for the inquiries which have been made of late years would show that the ornament, like the Celts themselves, had gone through a long process of emigration, and was known from the East to the West of Europe. The details are of a kind which might be thought to admit of endless repetitions. But when so skilled an ornamentist as the late Sir DIGBY WYATT first saw the Book of Kells in Dublin, he discerned almost at a glance that what seemed to be mechanical symmetry was not a minute repetition produced by one of the processes which at all times were familiar to artists; it was rather an original drawing of corresponding parts. If the Irish monks were acquainted with tracing and reversal they never employed that way of production, but throughout their drawing followed one general rule. Those who advocate the application of Celtic ornament to modern work evidently must be ignorant of the peculiarity we have

just mentioned. They see in the interlacing an opportunity for repetitions of an easy kind like those executed by monumental masons. Exact repetitions would not, however, express the original treatment. It might be more exact in straight and curved lines, but it would be wanting in a quality which the Celtic artists may have had sound reasons for adopting.

The execution of the convoluted forms cannot be otherwise than most expensive. It was on that account no doubt that Norman interlaced ornament is so imperfect, especially if compared with older examples, for the lines which so often merge in one another give the impression that the carvers never attempted to produce more than an imitation, which would deceive the uninitiated. The first question, therefore, that the zealots who contemplate the revival of Celtic art should ask themselves is, Are those who admire ornament likely to pay the price which would have to be charged if work in the Celtic manner were executed? The Celts whose labours are proposed for imitation were in many cases monks, and they laboured under happy conditions which cannot in our time be recognised by tradesmen. All illuminators loved to linger over their tasks, and Celtic work probably took more time to accomplish than later varieties. The same rule must have applied to other branches of industry. The trumpet-patterns, the dragons, serpents and other fanciful beings which grow out of the lines were tedious in amplification, and no better means could be devised to test the patience of any man endowed with energy. There is another query no less important, Is work of that class adapted to modern requirements? The ornament can never be carried out with expedition, and we all have to learn that the older the world grows there is less time available for elaboration of designs. But the most important question of all is, What gratification can the ancient ornament afford to the people of to-day, who would have to look upon it? In Celtic art there are no representations of things in the water, on the earth, or in the air. It is at the opposite pole to the Japanese variety. Nor can it be regarded as a conventionalising of any natural forms. It may, in some remote age, have had a meaning. Parallelism and concentricism were expressive to the Celts long anterior to the production of what is now designated Celtic ornament. Indeed, the circular treatment of the arms of Irish crosses seems to be only a developed application of symbols on pagan memorials. But the key to all the twistings and turnings has been lost, and people are never likely to find delight in gazing at puzzles for which there are no solutions. The ornament is out of keeping with our age, and it is therefore no bad symbol of the Celtic spirit whenever it refuses to assimilate itself with modernity.

AN ANCIENT JEWEL.

IN the address of the Bishop of Bristol on King Alfred which we lately published, his lordship referred to the jewel found at Athelney with the inscription that it was ordered by the king. It has been contended that the jewel is Byzantine, or it may be Indian in character.

It may not be generally known that about sixty years ago a jewel of similar character was discovered while excavating a sewer opposite Dowgate Hill, in Thames Street, at the depth of about 9 feet in a dark-coloured artificial stratum of earth, unaccompanied by any remains that could aid in throwing light on its history.

The ouche, or jewel, which became the property of Mr. C. Roach Smith, the archæologist, and is now, we believe, in the British Museum, is, according to his description, four inches and a half in circumference. It is composed of a circular compartment, one inch and a quarter in diameter, set with variegated enamel, representing a full-faced head and bust, the outlines of which, with a crown on the head and the drapery of a mantle and tunic, are formed of threads of gold effectively arranged so as to mark the features of the face and the folds of the drapery; this is enclosed in a border of rich gold filigree-work set at equal distances with four pearls.

The enamelwork is composed of a green and blue semi-transparent material of a vitreous character for the garments and a white opaque substance of the same nature for the face. The hair, indicated by a darker colour, is divided in two bands over the forehead. A crown with three globes surrounds the head, the fillets of which appear pendent on either side, with a

foliated termination. The bust is arrayed with the chlamys or mantle over a tunic gracefully attached to each shoulder. It exhibits distinct characters from the material used in the ordinary enamelled productions of the ninth to the sixteenth centuries, which are invariably opaque. It is almost transparent, possesses little hardness, has a fractured texture and presents the appearance of an imperfect crystallisation.

It would seem that a kind of box had first been prepared, and in it arranged the outlines or skeleton work of the figure, formed of thin plates of gold and constituting cells for the reception of the vitreous substance, which appears to have been poured in when in a semi-fluid state, and subsequently ground down to the required thickness. This was the opinion of Mr. Bridge, the goldsmith, but other authorities supposed the coloured material was introduced into the lodgments in a pulverised form, which melted on exposure to heat at a low temperature and assumed a vitreous appearance.

The fibula, ouche or brooch is an ornament of the remotest antiquity. Originating in the very earliest periods of civilisation as an indispensable adjunct to the dress, it has through thousands of years retained its place in the costume of all nations, varying from the simplest form and material to the most elaborate embellishments of the most precious gems and metal, according to the taste or luxury of the times. Towards the decline of the Roman Empire the passion for decorated dress gradually increased. From the fourth century the diadems of the emperors became more and more enriched with pearls and costly stones, the fibulae appear embossed and the paludamentum embroidered also with pearls and jewels. Later still we perceive on the coins of the Byzantine princes the diadems and robes profusely studded with these ornaments so as almost to conceal the objects they were intended to adorn.

It is curious to trace the analogy at certain epochs in works of art between the Byzantine school, France and England; but Eastern fashion seems to have had but little, if any, influence on the customs and habits of the Saxons, who retained a nationality of costume as well as of character, the superior elegance and classicity of which, as exemplified in the illuminated manuscripts, appears uncorrupted by intercourse with their eastern contemporaries. Although the gem found at Dowgate Hill recalls the style of Byzantine work, also of works of art preserved in France attributed to the eleventh and twelfth centuries, yet this similarity appears to extend only to general character; in details there is a marked difference.



The drawing, the arrangement of the dress and the simplicity of the crown, have altogether a purer and chaster stamp than the Byzantine works exhibit, while at the same time in the gold filigree there is a certain resemblance to the *entourages* of those beautifully ornamented gold Roman coins adapted for suspension round the neck.

The jewel of King Alfred in the Ashmolean Museum, Oxford, and a large convex brooch in the case of the Hamilton gems in the British Museum, are analogous specimens. The three are of precisely the same character and work, though differing in details. That in the Hamilton collection, which is the largest, being about 2½ inches in diameter, has filigree work of like character set with pearls, but no portrait or image, and the coloured glass is arranged in stars of four points, while that on the uppermost compartment somewhat resembles the *croix fleurie* of later times. This is believed to have been found in Scotland, but unfortunately nothing elucidating its history is on record.

The jewel of King Alfred, however, more closely resembles the Dowgate Hill brooch. There is the same mode of setting and the same simplicity of costume in the two figures, though the design on the unknown specimen is much superior. The fillets also which form the outlines of the subject are much finer. The transparency of the materials of the former is also greater, especially the green in the central compartment, which in appearance resembles glass. The filigree work of the two has a close affinity.

We are, therefore, justified in considering them of the same period, and if so, that period is ascertained by the Saxon inscription of + AELFRED MEC HEHT GEVVRCAN—"Alfred me ordered to be wrought."

If this jewel was a production of the foreign artificers mentioned by the historian Asser, who, under the personal superintendence of Alfred, executed works in silver and gold, the apparent mixture of Byzantine and Saxon work would be explained. Alfred had visited Rome, his father Ethelwulf also, who resided there twelve months. On his return this latter prince married a daughter of Charles the Bald of France. To this foreign intercourse may be referred the introduction in this country of a taste for Byzantine ornament. Artisans brought into England from Rome or Constantinople would, if they attempted a portrait, copy what was before them, and thus the costume of England and not of Rome or Byzantium would be attended to, while the general style of the work and the embellishments would be influenced by designs to which the artists had been accustomed and familiar.

ST. PAUL'S CATHEDRAL.

IN a letter to the *Times* Dr. G. Johnstone Stoney writes:—The important information given in your columns by Mr. Somers Clarke, the architect to the Dean and Chapter of St. Paul's, indicates that the foundations of the Cathedral were carried by Sir Christopher Wren through an upper layer, 15 feet or 16 feet thick, consisting of the debris of old London. In the lower part of this layer the foundations were spread out to enlarge their foothold on the next stratum underneath, which is a thin layer of "pot earth" varying from 4 feet to 6 feet in thickness. Underneath this comes a stratum some 16 feet or 18 feet thick of "sand (not at all solid) mixed with gravel stones, the lower part wet," and under the layer of sand and gravel lies the London clay.

It would appear from the facts as described by Mr. Clarke that the subsidence which has been going on more or less since the Cathedral was built is to be mainly attributed to the removal and rearrangement of material by water, and chiefly by the water travelling sideways through the lower part of the layer of sand and over the upper surface of the London clay. Water making its way along a layer of sand or gravel resting on clay acts in three ways. Such water is always charged with carbonic acid (and in this case probably with other solvent agencies), whereby parts of the constituents of the grains of sand and pebbles that it meets with are dissolved. Even pure water is able slowly to dissolve silicates. These chemical actions are what make the water where it oozes from such a stratum more or less hard. The percolating water is also constantly engaged in rearranging, however slowly, the pebbles and grains of sand between which it makes its way, and it slightly washes away the surface of any clay over which it travels. Observations upon the large effects which may be produced by these agencies in a moderate number of years are described in a paper of which an abstract is given in the "British Association Report for 1870," at p. 86 of the "Transactions of the Sections." It is evident, too, that the subsidence to which these events give rise is likely to be more in some places than in others, thus doing all the more mischief, since the water will prefer some special paths in making its way from the place where it enters the sand under the Cathedral to the place where it emerges.

It is evident, then, that if we can prevent any water from having access to the layer of sand, the chief cause of the subsidence which has been going on will be removed. The layer of pot earth which lies over the sand, being thin, is probably not in all parts impervious to water, and surface water may reach the layer of sand through it. But the greater part of the supply probably comes from the slow horizontal travelling of water which always takes place in a nearly horizontal porous stratum which has clay or other impervious material under it. The direction in which this subterranean water travels in that part of London is probably known, and at all events can be ascertained. It probably is from the north and east towards the south and west. If so, it would probably not be impossible to intercept the inflowing water, and carry it round instead of under the Cathedral by a deep-seated sewer to the north and east of the Cathedral, and also to guard the layer of sand under the Cathedral from surface water percolating downwards. If all water can be kept from

having access to the part of the porous stratum which is under and near the Cathedral, we may reasonably expect that further change in this layer will be prevented, and that the subsidence of the Cathedral, so far as it is caused by this, which is probably the chief cause of the subsidence, will be arrested. It is evident, too, that deep-seated excavations like those of the District Railway and Central London Railway, may, so far as their influence on the flow of water is concerned, have either a useful or a prejudicial effect—useful if they tend to intercept water which would otherwise ooze into the sand under the Cathedral, prejudicial if they lie on the other side of the Cathedral and drain away water from the layer of sand, thus increasing the flow of water through it.

The present letter does not take account of another possible cause of subsidence, viz. the squeezing out laterally of the London clay when tunnels at some distance from the Cathedral are made through it. The effect produced in this way is probably of trifling amount, and, moreover, sufficiently uniform to lead to a tolerably equable subsidence of the whole building. A subsidence of this kind does little harm.

AN OAK CABINET.

IN the lecture-room of the Royal Academy this year, among other works of sculpture was the "Upper Front of a Cabinet in Oak," by Mr. Mark Rogers, jun., of which we give a small illustration. "The Wheel of Fortune" is the subject used in the centre panel of the door of this cabinet, other



detail being also derived from the same source. When completed the work will have been carried through on uncommercial principles, the sculptor being responsible for the whole design, and one cabinetmaker for the making.

A Freehold Site of about half an acre in extent, with a frontage of 200 feet to City Road and Old Street, has been purchased, at a cost of 36,400*l.*, for the London Leysian Mission. The suite of buildings will comprise two mission halls to seat a thousand persons, with classrooms, club-rooms, drill-hall, gymnasium, dispensary, coffee-palace, restaurant, &c., and is estimated to cost 50,000*l.*

The Bill introduced last session by the Corporation of London for the widening of London Bridge having received the Royal Assent, the necessary plans and working drawings are being prepared in the office of Mr. Andrew Murray, the City surveyor, and the work will probably be commenced next year.

STAINED GLASS IN ENGLAND SINCE THE GOTHIC REVIVAL.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays among French Cathedrals," &c.

A BRIEF REVIEW OF ECCLESIOLOGICAL PROGRESS, 1855 TO 1875.

(Continued from page 123.)

DURING the two decades of the Revival now under consideration not a few architectural works appeared which will, it is to be hoped, long remain classics on our shelves; indeed, the whole period was so fertile in the production of ecclesiological literature that this somewhat lengthy digression from our subject may not inappropriately close with an enumeration of a few of its more important and interesting specimens.

Arranged for convenience sake alphabetically, they are as follows:—Burgess' "Architectural Drawings"; Carter's "King's College Chapel, Cambridge"; Colling's "English Mediæval Foliage"; Eastlake's "History of the Gothic Revival"; a volume of "Essays on Cathedrals," edited by Dean Howson (1872), and comprising not only divers subjects relative to the organisation of capitular bodies, but an admirable and instructive chapter by the late Precentor Venables on the Architecture of the Cathedral Churches of England, considered Historically; Ferrey's "Recollections of Augustus Welby Pugin"; Fergusson's "Handbook of Mediæval Architecture"; Freeman's "Cathedral Church of Wells"; George's "Etchings on the Loire"; Beresford Hope's "Cathedral of the Nineteenth Century"; "The History of Our Lord in Art," begun by Mrs. Jameson, and on her death continued and completed by Lady Eastlake; Johnson's "Specimens of Early French Architecture"; Longman's "Three Cathedrals of St. Paul in London"; a translation of Lübke's "Ecclesiastical Art in Germany during the Middle Ages," by Wheatley; * Micklethwaite's "Modern Parish Churches" (this sound, sensible book originally appeared (1871-72) in the *Sacristy*, a short-lived but valuable periodical which to some extent took up the work of the *Ecclesiologist*); Murray's "Handbooks to the English Cathedrals" (not quite up to the mark perhaps in some respects, but happily free from that indiscriminate kind of eulogy which was and still is too frequently the besetting sin of such publications); Nesfield's "Specimens chiefly Selected from the Twelfth and Thirteenth Centuries in France and Italy"; Neale's (John Mason) "Dalmatian Notes"; Noakes' "History of Worcester Cathedral"; Sharpe's "Architecture of the Cistercians"; Seddon's "Rambles in the Rhine Provinces"; Street's "Brick and Marble of North Italy," and "Gothic Architecture in Spain"; Texier and Pullan's "Byzantine Architecture"; Severn Walker's "Architectural Sketches in Worcestershire"; and a republication of Winston's various works on "Stained Glass" in a collected form.

To these must be added the *Ecclesiologist*, started in 1841 by the Cambridge Camden Society, and which perhaps reached the full tide of its usefulness and popularity between 1850 and 1865. Unfortunately the *Ecclesiologist* came to an end in 1868, and nothing permanent took its place.† Two

* This is a somewhat disappointing book, especially as regards the illustrations. The section devoted to church furniture is particularly *jeune* in this respect, reproducing as it does so many of Viollet-le-Duc's illustrations of French Mediæval ecclesiastical ornaments. Surely Germany is rich enough in such relics that the author need not have laid those from France under contribution. Thus the rood-loft in the Madeleine at Troyes is given in lieu of such interesting Romanesque and First Pointed ones as exist in the churches of Naumburg and Gelnhausen, and of such exquisite Middle Pointed examples as the screens at Marburg, Halberstadt and Oberwesel; and why should a Spanish doorway from St. Jago de Compostella have been given instead of the rich and imposing Golden Portal from Bamberg or the south doorways of Neuss and Paderborn? The translation, too, in certain portions, is weak; indeed, a re-edition of the whole is well worth someone's undertaking. It is much to be regretted that no translation of the same author's work on the architecture of Westphalia has ever appeared.

† Many of the articles which graced the *Ecclesiologist* during the quarter of a century during which it ran its course are so valuable that their republication and collection into a couple of volumes would form a welcome addition to the shelves not only of the professional architect, but of the amateur and dilettante.

useful little contemporaries deserve mention—the *Penny Post* (edited and published by the Parkers) and the *Church Builder*, the organ of the Incorporated Church Building Society. The former, but lately discontinued, was intended primarily to supply reading of a good, wholesome High Church tone—it could never be called ultra-Ritualistic, though latterly it became more “advanced”—for the humbler classes. It almost invariably contained an article upon some architectural subject, the auxiliary arts not being forgotten, while its “Editor’s Box”—which, to those possessing a set of these little volumes, constitutes quite a library of valuable information—had no small share in contributing towards the growing interest in matters ecclesiastical. This interest the publication, in 1863, of the *Church Times* considerably augmented. The *Church Builder* was, perhaps, more devoted to statistical matters in connection with the movement, but its pages were frequently enriched with an ably-written article or series of papers by an architect of eminence, as, for example, “Brickwork of the Middle Ages,” from the pen of Mr. G. E. Street. Humble as such publications may seem, they form links in the chain of the history of the Gothic Revival, and on this account deserve a passing notice.

From the close association of its compilers with the eccle-

To Rev. Thos. Helmore—Priest in Ordinary at and Master of the Children of the Chapel Royal—was entrusted the musical editorship of “The Hymnal Noted,” valuable assistance being rendered by Rev. S. S. Greatheed (vicar of Corringham, near Stanford-le-Hope), Chas. Child Spencer (organist of St. James’s, Lower Clapton), and Edward Cruse (for some time organist of St. Barnabas, Pimlico, and latterly of Christ Church, Clapham).

Rev. H. L. (afterwards Bishop) Jenner gave his cordial co-operation; to Sir Henry Bishop we are indebted for the lovely harmonies to the melody of “Alla Trinita Beata,” set to the hymn “Blessed Feasts of Blessed Martyrs”; while the late Sir Arthur Sullivan, then (1856) a Chapel Royal boy, was entrusted with the harmonies to some three or four melodies, including those of the “Magnæ Deus potentia” (the hymn for Thursday evening) and the “Jam Christus astra ascenderat,” for Whitsuntide.

Arranged on a similar plan, but with many of the old Latin hymns recast and wedded to melodies of a more congregational character, there appeared in 1861 “Hymns Ancient and Modern,” under the musical editorship of the late Dr. W. H. Monk, whose accompaniment of the Plain Song to the Psalms at St. Matthias, Stoke Newington, where he was for thirty-seven

42. **Tibi Christe Splendor Patris.**

Evening Hymn for the Festival of St. Michael and all Angels. From the SALISBURY HYMNAL.

Rev. M. F.—There was war in heaven: Michael and his angels fought against the dragon; and the dragon fought and his angels, and prevailed not; neither was their place found any more in heaven.

THE O Christ, the Father's Splendour, Life and virtue of the heart,
In the presence of the An-gels Sing we now with tuneful art:
Meet-ly in al-ternate chorus Bearing our re-spon-sive part.
2. Thus we praise with veneration All the armies of the sky;
Chiefly him, the war-rior Primæ Of Coe-lestial chivalry:
Michael, who in princely virtue, Cast A-bad-don from on high:
3. By whose watchful cares repelling, King of e-ver-lasting grace!
Every ghostly ad-ver-sary, All things e-vil, all things base;
Grant us of Thine only goodness In Thy Pa-ra-dise a place.
4. Laud and honour to the Father, Laud and honour to the Son;
Laud and honour to the Spi-rit, E-ver Throned, and E-ver One:
Con-sub-stan-tial, Co-eternal, While un-end-ing ages run. Amen.



A PAGE OF “THE HYMNAL NOTED”

(From an Illuminated Copy in possession of the Author).

siological movement the above list would be incomplete without some mention of “The Hymnal Noted.” It originated during the later forties with several members of the Cambridge Camden Society, who, dissatisfied with the then existing collections of Church song, were desirous of producing one that should be arranged upon strict ecclesiastical principles. The aim of its promoters was an excellent and well-timed one, but unfortunately the opposite extreme was run into, for the book, although it must ever stand a noble monument of erudition, viewed both from a literary and musical stand-point, proved too severely archaic for the popular taste, the hymns being, without exception, translations from the Latin, while the greater portion of the melodies to which they were set were drawn from the ancient office books of Salisbury and York, and others existing in capitular and monastic churches, libraries and so forth on the Continent.

The task of translating the majority of the hymns was assigned to that accomplished liturgical scholar, Rev. John Mason Neale. Aid was also rendered by Neale’s coadjutor in the formation of the Ecclesiological Society, Rev. Benjamin Webb, while from the pen of Dr. Irons, then vicar of Brompton, are the “Dies Iræ” and the “Cælestis Urbs Jerusalem,” the latter having been specially translated for and sung for the first time at the consecration of St. Barnabas, Pimlico, in June 1850.

years organist, folks came from far and wide to hear. The publication of “Hymns Ancient and Modern” marks an epoch in the catholic movement.

Probably no collection of its kind—and it has had countless imitators—has at various times been so severely criticised. This, however, it has long since outlived, and if the test of a book is its popularity, then its promoters have had every reason to be satisfied with the result of their labours, for they rendered familiar hymns teaching sound doctrine, besides bringing before English Church people the devotional melodies of their Catholic forefathers, and all without being too “advanced” for adoption in the majority of the cathedrals and churches throughout the land.

Besides embodying not a few of those grand old melodies of the Western Church with which the promoters of “The Hymnal Noted” had striven to render Church folk familiar, “Hymns Ancient and Modern” rendered popular certain tunes from old English, French and German sources, also bringing forward tunes by modern English composers of sterling merit. Indeed, to mention but a tithe of the names, it is not too much to say that those by Rev. J. B. Dykes, Sir John Stainer, Sir Frederick Ouseley, Sir Joseph Barnby, Henry Smart, Arthur Henry Brown, and the musical editor himself, have done more to stimulate an interest in church-going and to promote true ecclesiastical feeling than many a sermon.

NOTES AND COMMENTS.

THE work of the French archæologists at Delphi is almost complete. The latest operations were connected with the clearing of the running path for a distance of 580 feet by 90 feet. The Greeks adopted a very simple arrangement in order to insure a fair start for all the athletes. Along the line which marked the beginning of the course spaces were cut in the rocky ground for their feet, and the competitors were compelled to stand in them until the signal was given. Eighteen pairs of hollows for feet have been traced. Care was taken to prevent the use of wine as a stimulant by any of the runners. According to an inscription found among the ruins, any person who introduced wine was obliged to make a sin-offering of five drachmas to the god who presided over the course, the stadium between the structures at the two extremities being considered as forming a holy place which all were to respect. That running men should have a special deity at Delphi will excite surprise. But as the athletic games were held to be sacred there was reason for a belief in a divine ruler of them.

ALL who are acquainted with the history of the Geological Survey in this country will remember that it had at first to overcome a general prejudice, for its utility was not recognised. It was therefore necessary to explain that the money wasted on fruitless searches for coal, which could have been saved if sections of the strata existed, would more than pay for all the expenses of the Survey and provide means for the establishment of a geological museum. Up to the present time money for the Survey has been grudgingly voted. How differently the Germans act is shown by the production of the geological Survey of Saxony. It consists of 123 sheets, and reveals to all the particulars relating to the character of the land which geologists have ascertained. The cost of each sheet varies from 1,500*l.* to 2,000*l.*, and the whole series is estimated to have required an outlay of at least 200,000*l.* The expenditure is, however, considered as insignificant when compared with the information which can be derived by engineers, miners, agriculturists, contractors and others from a study of the plans.

THE report of the Public Health (Sanitary) Department of the Corporation of London shows how assiduous in their watchfulness are those who have accepted responsibility for the sanitary condition of the City. In proportion to the greatness of London are the enemies to the health of the inhabitants. It almost seems incredible, for example, that one ton in every 427 tons of meat received at Smithfield was condemned, and that the total seizures in a year amounted to 961 tons, which was, however, about 200 tons less than in the preceding year. In addition, 769 tons of fish were seized as unsound; 312 cartloads of rotten food of other kinds had also to be removed, including 90,000 tins of fruit, milk, game, &c. A large quantity of unwholesome fruit sent to this country to make jam was also destroyed. There are many other enemies. Last year it was necessary to take precautions against plague. Disinfection had also to be gone through, and shelters provided for people who had to abandon their residences. At Golden Lane 55,000 gallons of disinfectants were manufactured and nearly all was applied. The spirit shown by the Corporation can be tested by the use made of their property. The artisans' dwellings in Houndsditch cost 202,242*l.*, and an expenditure of 1,850*l.* a year is required for their maintenance, but the returns are only 183 per cent. on the capital outlay. In the course of the year 9,220 sanitary inspections were made. In flushing the more thickly populated and poor parts of the City during the hot months the enormous quantity used was 38,111,835 gallons of water, together with many thousand gallons of disinfectants. In the neighbourhood of Billingsgate flushing is frequent, and deodorants are used at least twice in twenty-four hours. Despite all the care taken the mean death-rate was 22.1 per 1,000, while in the infirmaries and workhouses it rose to 27.9. This increase is explained by the remarkable fact that the inmates of those institutions are in the proportion of 1 to every 25 citizens, a remarkable accompaniment of prosperity.

THE markets for building materials have not of late been steady, and when calculations are made for a tender a builder often discovers that a sudden variation in prices will affect many of the items. But time may press, and the alterations being made in a hurry are likely to be erroneous. In that way the notifications of errors in tenders, which are now more common than formerly, are often to be explained. But owing to the frequency with which contractors endeavour to escape the contingencies which may follow from an error public authorities are becoming sceptical. Last week the Merthyr Urban District Council received a letter from a builder whose tender had been accepted for the erection of 100 workmen's dwellings, declaring he had made mistakes in his figures, and that the work could not be carried out for the sum mentioned. But the Board looked on the application as evidence of a general desire among builders to obtain higher prices, and resolved that steps should be taken to compel the contractor to discharge his obligation to perform the work for the sum he had mentioned, and regardless of its insufficiency. There would be fewer builders' names in bankruptcy lists if more care were taken in pricing and calculating for tenders.

THE description of the works of DORMAN, LONG & CO., LTD., and BELL BROTHERS, LTD., of Middlesbrough, which is the subject of a small volume, enables us to realise what is required if the steel industry is to be preserved in England. Their works can be compared to a fleet of the latest forms of armoured vessels, and they inspire confidence that while they are in the van there is no likelihood of any succumbing to foreign rivals. The business of DORMAN, LONG & CO. dates from 1876, and therefore represents a period of revolution in the manufacture of steel. Besides the production of steel rails, joists and angles, sheets and wire are now manufactured of many descriptions. By the union of the firm of BELL BROTHERS (Sir LOWTHIAN BELL) rivetted girders of the largest sizes can now be executed. Columns and stanchions are also made up. Every part of the works is on a grand scale. One drawing office measures 120 feet by 32 feet, and generally thirty draughtsmen are engaged. The girder-riveting shops are 500 feet in length, and have two spans of 60 feet and one of 70 feet. During last year nearly 30,000 tons of structural steelwork were made at the Britannia Works. In the three combined works of the company about 3,000 men are employed, and 3,500 tons of finished material are the weekly output. In spite of the continuous demand a stock of 6,000 tons of girders, channels and flats is kept at the Middlesbrough Works in order to meet all urgent orders. The resources of the firm are almost inexhaustible, and in consequence contracts for gigantic works are undertaken. Among them are those of the WESTINGHOUSE CO. at Manchester, in which 14,000 tons of steel will be used; the BRITISH THOMSON-HOUSTON CO., Rugby; VICKERS, SONS & MAXIM, Sheffield, &c. For the benefit of London contractors, stock yards, rivetting and drilling shops are open at Nine Elms Lane. Messrs. DORMAN, LONG & CO. have also an office at 19 Victoria Street, Westminster.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: SOUTH-WEST CORNER OF NAVE.

BOARD SCHOOLS, PORTLAND ROAD, HOVE, BRIGHTON, FOR THE HOVE BOROUGH SCHOOL BOARD.

UPLANDS, BRIGHTON.

THIS house, the residence of Mr. HORACE VOULES (well known from his association with *Truth* and Mr. HENRY LABOUCHERE, M.P.), stands upon high ground overlooking Brighton and Hove, and just on the outskirts of both towns. Our illustration sufficiently indicates the style of the building and the materials used, the house, together with the lodges, stabling and farm-buildings having been built from the designs of Messrs. CLAYTON & BLACK, architects, of Brighton.

SALISBURY HOUSE, FINSBURY, E.C.

CHICHESTER CATHEDRAL.

AS we are now publishing illustrations of Chichester Cathedral, the following lecture "On the Causes of Sublimity and Beauty in Cathedral Architecture," apropos of the building, have interest. It was delivered in Chichester by the Rev. Philip Freeman, M.A., several years ago.

The study of church architecture may be approached from so many sides and possesses such varied sources of attraction, that we cannot wonder that persons of the greatest possible variety of tastes and temperaments should be found at the present day to take a more or less lively interest in it. The wonder rather is that any age should be found indifferent to a subject which appeals in so many ways alike to our highest faculties and aspirations and to our most ordinary moods and everyday habits of thought. It should seem as if no one in whom there lingers any feeling of association with the past—of delight in what is beautiful, of awe at what is lofty and sublime, or of reverence for that which enshrines and shadows forth holy things—could really be indifferent to the charms of church architecture. In a word, we are all of us by nature, or, however, by Christian education, lovers of it. It may therefore fairly be presumed that to call attention to any part of this wide subject is to open a book which all must read with delight, or rejoice in hearing read by others.

In selecting cathedral architecture, with especial reference to our own cathedral, for the subject of some very unpretending remarks, I am actuated, not merely by the circumstance of its being the peculiar phase of church architecture which is more especially and constantly before us in this place, but by the following consideration more especially, viz. that, if I mistake not, church architecture, by its very nature, is best studied in the larger and grander specimens of it. It might seem, perhaps, at first sight that for those whose lot will as a general rule be cast among the humbler, however beautiful, parochial structures of the land, the subject were best studied in specimens of that simple kind. But if we consider, on the other hand, what it is that church architecture should strive to be and to express, we shall perhaps be induced to correct this judgment. The proper business, then, or the highest aim, certainly, of church architecture being to give utterance and expression by means of a material fabric (so far as this is possible) to the highest and sublimest emotions we are capable of—viz. to religious and devotional feelings and ideas—we feel at once that greatness, where it may be had, is an element which such architecture cannot well do without. Altitude, length, distance, space, are the elements we crave for putting together something which shall speak for us what we feel. Our sense of the greatness and glory of Him whom we worship and of the height to which even our limited faculties are capable of soaring in search of Him, is in a manner relieved by being allowed to utter itself, as it were, in things vast and high; in aisles that stretch away from, or vaults that soar above us. What a swelling and soaring anthem is to the heart and voice, that a cathedral is to the aspirations of the heart and the eye. And the religious expression of humbler structures is due, I conceive, in a great measure to this; that, on their smaller scale, they reproduce and recall, by similarity of features, those impressions of sublimity and grandeur which can only be tasted in perfection in fabrics of imposing dimensions. Hence it is well that the pastor of the village church, boasting its tower and spire, perhaps its arched aisles, its receding perspective of roof, but with no pretensions to grandeur, should enter once in awhile the cathedral church of his diocese, to draw from it an elevated sense of what church architecture aims to be, and is, when scope is given to it. He will return to his miniature copy of the vaster pile, not so much with a sense of lack as with the feeling that he has around him in the scene of his own ministrations, germs, however undeveloped—elements, however crude—of all that man has to give of architectural utterance to the glory of Him Who is worshipped there.

In turning, then, to cathedral architecture, and especially to our own cathedral, we are studying architectural art not merely in its highest, but in some sense in its only true and perfectly realised form, and in its best form for purposes of study. As children learn to read and write correctly in a large character, so must learners in religious architectural expression have recourse to the greater, that they may learn to appreciate smaller specimens of the art.

Bearing these considerations in view, I shall draw attention to the features of cathedral architecture in the full confidence that our study of it will furnish us with the true key for unlocking the treasures, and will best train our age for estimating the beauties of all church architecture whatsoever.

Let me point out, then, some of the leading characteristics of cathedral or collegiate, as distinguished from ordinary or parochial, church architecture.

Grandeur, both of altitude and of ground-plan dimension, may indeed be found to a great extent in parochial churches, but as a general rule the cathedral church of a diocese takes the precedence of its daughter churches in these respects.

Even in this diocese, comparatively small as our cathedral is, there are few churches, indeed, which are half its length, and not one which is half its height. Its extreme length is 410 feet; the height of its spire 279 feet. Even its transverse dimension, *i.e.* its width across the transepts, exceeds the length of every church, except some few, in the diocese. Next I would observe that this grandeur manifests itself, after all, not so much in magnifying as in multiplying features. In a cathedral there are, interiorly, three storeys or tiers, instead of one or two, as in parish churches. To the arches of the aisles is superadded not merely, as in many parish churches, a clerestory but an intervening triforium, the triforium being that space above the aisle arches which results from the slope of the aisle roofs, and which is always in large churches laid open by arches. The name is derived by Professor Willis from "thoro'" or "thro'-farium," a Latinised Saxon word, signifying, properly, any gallery running along in the thickness of a wall. This threefold piling of tier upon tier of arches, each tier perhaps a church in itself, or fitted by its dimensions to be so, may not unfitly be reckoned one of the sublimest efforts of Christian architecture, recalling the less religious effort of Virgil's Titans:—

Ter sunt conati imponere Pelio O s m,
Scilicet, atque Osse frondosum involvere Olympum.

Here then sublimity results from the multiplication of the stages or elements of height.

The arches of the lantern, or central part, are, however, in all cases of necessity, vast in themselves. Here the multiplication which prevails elsewhere throughout the building is exchanged for the magnifying of a single feature; and it will be found that the four arches of which I speak are among the sublimest interior features of Christian architecture.

First of all, these four arches exhibit and bring out by their span whatever nobleness in respect of width is possessed by the four arms of the cruciform structure. And next, it is here, and here only, that the sheer height of the interior is exhibited in one precipitous fall from roof to floor. Elsewhere, the multiplication of arches and tiers, introduced for wise reasons, while it dazzles and astonishes by producing a sense of number and complexity—the grand arcade being thrice repeated in its every feature—necessarily reduces to the eye the appearance of direct height. While in the one case the height is scaled, as it were, by successive steps, in the other the clear downward sweep as of a sword (to borrow a picturesque expression from Mr. Ruskin) challenges the eye to mount by a single effort to the entire altitude. The contrast is pleasing, and doubtless serves greatly to enhance, by unexpectedness, the impression of sublimity. The prevailing rule of the interior structure is, however, subdivision, and rightly. There is no greater mistake than to suppose that a large interior is more sublime from not being broken into parts. Were the whole of our cathedral, as some might perhaps imagine would be best for effect, one lofty sweep of wall from floor to roof; were it, in other words, but of one stage throughout instead of three, it would immediately lose fully half its apparent size and elevation.

A remarkable instance of this is presented by York Minster, one of the largest and—with the single exception of Westminster—the loftiest interior in the kingdom. Notwithstanding this nothing is more disappointing than the interior view. The impression it gives, the nave especially, is that of a large parish church; the cathedral idea seems to have been wanting. And why? Because, instead of three storeys, there are—at least, in effect—but two. The triforium is so treated as to be a mere elongation, downwards, of the clerestory. The great law of the multiplication of parts as a means of giving the impression of greatness is, in this instance, violated. And, again, we have seen that much grandeur is the result of a proper contrast between the complexity of the storeyed nave and choir and the single grandeur of the lantern arch. This contrast at York is in a great measure wanting. In vain these arches soar to the great height of 100 feet; the contrast, which would render this unbroken precipice of stone astonishing, has been in a great degree marred by the faulty construction of the rest of the building. In Westminster, on the contrary, the contrast is perfect, and the effect sublime beyond description.

On the multiplication of longitudinal features as a necessary element of beauty and sublimity there is less need to dwell. Poets in all ages have been alive to the glories of "the long drawn aisle and fretted vault;" of the succession of "antique pillars, massy proof," of arch behind arch "in endless perspective." An eloquent prose writer (Hugh James Rose) speaks of "nave and aisle revealing their awful perspective to the astonished gaze;" our own great Church poet of the "far-shadowing awful nave," and the like expressions. Now all this effect, never attained in any other kind of architecture, is due mainly to that apparently interminable repetition and multiplication of similar parts which makes up the vista of a cathedral nave or aisle. And—to exemplify in a particular what has been before observed in a general way—even in the

case of parish churches where these "long-drawn" effects are precluded by the scale of the building, we nevertheless learn to love and appreciate such approximations to it as a few pillars or arches can make, as seeing in them the germ of the more perfect specimens. Extension by repetition is the law of the humbler no less than of the more noble structure; the ideal the same, though the realisation is less perfect. This is more especially the case when, as in so many instances, the cathedral has communicated some of her features to her daughter churches. Thus in this diocese the dark Purbeck or Petworth shafts which are so characteristic of the cathedral reappear in the noble conventual fragment of Boxgrove, in several others along the coast from Shoreham to Havant, and in this neighbourhood at Bosham, Appledram, All Saints in this city, and many others.

But why, it may be asked, should not the minor churches reproduce accurately on their smaller scale the multiplied features of the cathedral? The answer is that in some points it would be impossible—in others highly inexpedient. Multitudinous repetitions of arches in a church of moderate length would produce arches of a ridiculous smallness; and the attempt to give three storeys would only produce pettiness instead of grandeur.

There is, however, one simple but remarkable expedient by which the architects of our smaller churches strove to communicate impressions of infinitude to that which was by its nature not only finite, but greatly limited. Unable in this case to produce directly infinitude of effect, they yet deemed that through the eye something might be done in the way of suggesting it to the mind. Even numbers, it was perceived, convey to the mind the idea of completeness; there is a wholeness, a finished character about such numbers as four and six and eight. Odd numbers, on the contrary, convey the idea of incompleteness; there is about them a broken character; we habitually think of them either as the preceding even number with an addition of one, or as falling short by one of the next even number. They are suggestive, therefore, of stretching forward and onward, and so far they are akin to infinity. It is doubtless on this account that in our parish churches, where the eye counts eagerly and mechanically the number of arches in the nave or of bays (*i.e.* divisions) in the roof, the number of these is, as far as my own observation goes, in the vast majority of instances, odd. In the case of roofs I hardly ever knew an instance to the contrary; the great and famous modern roofs of Suffolk and Somersetshire are constantly of five, seven, nine or eleven bays or divisions. And wherever in a parochially-sized church the number of arches or bays in the nave is even, there immediately arises an unwelcome sense of completeness; the eye or the mind, instead of being left longing and stretching onward into the unknown and infinite, is thrown back upon itself with that sense of repose which is alike kindred to the spirit of Grecian and foreign to that of Gothic or Pointed architecture. In cathedral churches, however, and large ones generally, the number of arches in the nave is even, but then the number in the choir is odd; in all, therefore, odd.

It is an interesting question, itself closely connected with this subject of vista and multiplication of parts, from what point of view were churches and cathedrals expressly designed to be viewed? And considerations are not wanting which seem to answer the question pretty satisfactorily. Some point near the end of the longer axis of the building it must surely be, since thence the multiplication of parts is most fully realised. And considering again that the east end is that towards which the church idea by ancient tradition tends, since her rites draw us on from the western front to the eastern altar, it is clear which way the old architects would have us turn our faces to estimate best their glorious work. All this is confirmed by the fact that church doors, as an almost universal rule, are at or very near the west end; by our finding that church seats facing eastward are ornamented in the back and not on the front, chancel arches, in the Norman period especially, on the west side more than on the east.

The extreme west end then is, it should seem, the spot of all others for a survey. And it may be added that from this point we have before us the longest line contained within the church; a line drawn, namely, from the eye of the spectator or from the floor line at the west end to the top of the vaulting at the east end. Thus in a cathedral 500 feet long by 100 feet high the line from the spectator to the east end will be upwards of 510 feet. The next best point of view would seem to be such a point in the transept as commands most of the choir.

But I have not yet pointed out wherein consists the distinction in structure between a cathedral or collegiate and a parochial church. That distinction is that the choir is, as a universal rule, placed on a par as to broad architectural treatment with the nave; whereas in parochial churches the chancel, as a general rule, is on a smaller scale, both narrower and lower, than the nave. It is true that in the latest Gothic period they began to run the chancels on continuously with the nave, with like height and breadth, but this seems to be rather

a debasement than accordant with the genius of parochial church architecture. The reason of the distinction thus made is obvious. In a parish church the number of clergy is likely to be two or three at most, and their position is that of a few leading the services of the great body of the faithful; hence a modest dimension and altitude become the rule of chancels though at the same time the utmost beauty of details is fully lavished on them.

The theory of cathedrals, on the contrary, or of collegiate churches, is that of a considerable body, clerical and lay, living for the constant discharge of a high service—a service at which the attendance of the people is so far an accessory only, that it goes on whether they are there or not. It demands, therefore, for its architectural maintenance and expression equality, at least in all the nobler characters, such as those of breadth and height, with the nave. And so we find it. The rule of cathedrals is, that their choir be as high and as broad—some times as long—as their nave.

One more element of sublimity, common happily, though still in different degrees, to parochial and cathedral church architecture, may be mentioned. All writers on the sublime and beautiful, from Longinus to Johnson and Burke, have recognised some degree of gloom, or rather of indistinctness, as an important element of it. In sacred poetry the figure dimly perceived by Eliphaz, when "it stood still, but he could not discern the form thereof," and the description of death in Milton,

The other shape,
If shape it may be called that shape had none,
Distinguishable in member, joint or limb—(Bk. ii.),

have been justly commended as instances of this. A noble and more refined turn has been given by the great devisers of church architecture to this element of sublimity. Partly for the sake of contrast with ordinary and secular interiors, partly for the sake of the solemnising effect produced by tempering, subduing and colouring the natural white light, they had recourse to those expedients which are so familiar to us in the various forms of stained glass. It is, I conceive earnestly to be maintained that the primary object of stained glass is not to hang beautiful pictures on church walls. No, the "dim religious light," Milton (no Puritan in this) rightly perceived, is the proper aim of the "storeyed window," however "richly dight." Yet not a dim light merely, but a light coloured as well as subdued, till "all the air," as it has been happily expressed, "is thronged with shadows bright." And surely a beautiful thought it was, seeing that all ordinary secular matters are of necessity transacted in the common light of day, thus to resolve that light, for the uses of our more sacred hours into those rainbow hues which invest the type of mercy and peace. Partly, then, for the sake of a darkening and solemnising indistinctness, partly of beauty and symbolic meaning, do we fill our church windows, according to our ability, with the cunning workmanship of the artist in glass. A view which it is the more important to dwell upon in the present day because it is in a great degree independent of the particular artistic merit of the several specimens.

It may be observed, too, that there is less difference, perhaps, in this kind of sublimity of effect than in others, between cathedral and ordinary churches. The vaster body of coloured air, for such it really is in the former, added to the aerial distance, of course enhances the effect. But the smallest sanctuary may be rendered wonderfully imposing and awing by darkening down and colouring of the light; the principle is the same in all. The light itself enters veiled into the sanctuary.

Awed by a Holy Presence, sadly fair,
The daylight enters reverently there;
Still shedding, as it veiled and dimly falls,
Unearthly fresco on the mellowed walls.

It will be perceived, and must have been often felt, that when we would speak of the effects of church architecture, we as by a sort of necessity, have recourse to poetry. It is no unnatural. There is in truth the closest communion between poetry and church architecture. A cathedral, it may be boldly said, is a material poem; an utterance of sacred thought through the medium of sublime combinations, not of word but of the natural elements; the produce of the quarry, the forest and the mine. It sends up, even as it stands, the continual melody of its beauty and its harmony, its grandeur and its strength; and what can the finest poem, set to the noblest music, do more?

Of the poetical character of cathedral architecture in particular, no more striking proof can be found than the fact of its having proved a source of inspiration to our greatest poets, secular as well as sacred—from Shakespeare to Wordsworth and Sir Walter Scott, and from Milton to Keble. On the principle that nothing which is not in itself poetical can inspire fine poetry, we may fearlessly appeal to this proof of the poetical character of church architecture. It would be deeply interesting to form a complete collection of passages of this description. It would

be found that in many instances church architectural effect has been the latent and unsuspected source of the inspiration. Thus when Milton says, "Let the bass of heaven's deep organ blow," the comparison is not merely between an organ and the winds, but between the vaulted skies and a cathedral, resounding with the full power of its organ.

This same comparison, of a large church interior to the visible heavens, is an obvious yet a noble one; and though daring, not puerile or unreasonable. No one has carried the comparison to a greater height, filled it with more exquisite imagery nor clothed it in more ravishing language than Shakespeare. If we bear in mind that the vaults of cathedral roofs, choir roofs especially, were frequently coloured to represent the sky, and thickly powdered with stars, called in architectural language *pateræ* or *patines*, and remembering too the ancient notion of the music of the spheres, and the mention in Scripture that at the Creation "the morning stars sung together," we shall be at no loss to trace the inspiration of the following passage to its true source. The visible heavens at night are evidently represented as a material choir, the *pateræ* stars as choristers, accompanying with their voices the music made by angels and cherubims in higher and unseen heavens.

Here will we sit, and let the sounds of music
Creep in our ears; soft stillness and the night
Become the vouchers of sweet harmony.
Sit, Jessica: look how the floor of heaven
Is thick inlaid with *patines* of bright gold.
There's not the smallest orb that thou beholdest,
But in his motion like an angel sings,
Still quivering to the young-eyed cherubims.

Congreve, also a dramatic and therefore secular poet, bears his testimony to the poetry-inspiring power of a grand church interior. His inspiration is indeed less true; but its source is equally undeniable. The following lines in the "Mourning Bride" were pronounced by Dr. Johnson the finest poetical passage he had ever read:—

How reverend is the face of this tall pile,
Whose ancient pillars rear their marble heads,
To bear aloft its arched and ponderous roof,
By its own weight made steadfast and immovable,
Looking tranquillity! It strikes an awe
And terror on my aching sight.

These are noble lines; the writing of one who had felt his whole being mastered and subdued by the sublime interior effects which he describes. They are carried, however, I conceive into a fault, where they speak of terror as well as awe being inspired. The feeling engendered by this kind of sublimity is not terror, but awe, as the poet had at first rightly said; not the fear of evil, but the sense of being in a majestic and soul-subduing presence. This accordingly is Coleridge's just discrimination between the effects of Grecian and Gothic architecture in the mind, viz. that in the one case we are lost in admiration of the power of man; in the other, admiration itself is swallowed up in the overwhelming sense of our own nothingness.

The lines of Milton on cathedral architecture and music, already referred to, are too well known to need repetition; Wordsworth's sonnets on King's College Chapel and Sir Walter Scott's comparison of Staffa to a minster, scarcely less so. I will only add, therefore, in proof of my position and in conclusion of my paper, a passage from each of two great poetical minds of our day, the one uttering itself in verse, the other in prose—Mr. Keble and Mr. Ruskin. The following lines from one of the best poems in the "Christian Year" (Third Sunday after Epiphany), bespeak an exquisite appreciation of those elements of sublimity and beauty to which I have here endeavoured to draw attention, viz. the dazzled astonishment arising from the multiplication of similar parts; the awe inspired by perpendicular altitude; and the sense of superiority impressed by the apparently interminable reaching away from us of the ever-throwing vistas of aisles. He is speaking of the glorious mission of the church or cathedral architect:—

He, too, is blest whose outward eye
The graceful lines of art may trace,
While his free spirit, soaring high,
Discerns the glorious from the base;
Till out of dust his magic raise
A house for prayer and love and full harmonious praise.

Where, far away and high above,
In maze on maze the transepts sight
Strays, mindful of that heavenly love
Which knows no end in depth or height,
While the strong breath of music seems
To waft us ever on, soaring in blissful dreams.

No less eloquent, if less directly religious, is the prose poetry of Mr. Ruskin—speaking not of the interior but of the exterior sublimities of cathedral architecture, a fertile subject which time has not allowed me to speak this evening. He

commends the magnificence of conception "which has scooped the vast portals," as seen in foreign churches, especially in our own of Peterborough, "into the depth and darkness of Elijah's Horeb cave, and lifted out of the populous city grey cliffs of lonely stone into the midst of sailing birds and silent air."

SOMERSETSHIRE CHURCHES.

AFTER the meeting of the Somerset Archæological Society in Bristol several members visited some of the churches in the northern division of the county. Mr. Edmund Buckle, diocesan architect, explained the character of the buildings.

Whitchurch.

The first seen was Whitchurch. Mr. Buckle said it was a very good one to begin with, because it was a very characteristic example of the early Somerset style—the style which started from Wells and Glastonbury, and of which they found fragments in various parts of Somerset, and which spread itself into South Wales and Ireland. He drew their attention to the arches under the tower. The arch itself was perfectly plain, without any moulding on it at all, and it was not round but pointed. The jamb which supported the arch was a square, plain mass of masonry except for a little piece of very delicate moulding just below the spring of the arch. This was an early example of the transition from the Norman to the Gothic, and it was carried out in a manner which was local in its nature. The small shafts not reaching down to the ground but just supporting the capital were one of the characteristics of the style. He explained how in the twelfth and thirteenth centuries Somerset masons carried this style to Ireland, mentioning instances in Dublin where it was seen. The east window and the window of the south transept had retained their original tracery, which was of a rather advanced geometrical type which they might call Early Decorated, and all the mullions and divisions were worked in a very delicate fashion and out of very narrow stone in all cases. There were very delicate mouldings to be seen both inside and outside, and also the capitals were particularly to be noticed.

Lieutenant-Colonel Bramble added that in this church they had coloured glass of various degrees of badness, and they put a window with very dark glass over the pulpit in order to make it as difficult as possible for the incumbent to read his sermon. He supposed they wanted to force him to do it from memory. It showed the importance when stained glass was going to be put into a church that it should be done in connection with the architect or someone who was capable of looking a little beyond the window.

Stanton Drew.

Some information was given about the church by the Rev. H. T. Perfect. He said that the structure had gone through great changes, and but little of the earlier building remained. The upper part of the tower as far as the bells was taken down in 1847, and not rebuilt to its former height. The lowest part of the tower belonged to the thirteenth or fourteenth century. The interior of the church, too, had been much altered since the fourteenth century. In the wall they saw the old spiral staircase which led to the rood-loft in front of the old chancel. When the plaster was removed in 1889 traces of a text in old English black letter were to be seen over the upper doorway of the staircase, and remnants of coloured scrollwork above, running along under the wall-plate. In 1847 the central arcade was removed about 3 feet to the north, making what was then the narrower now the wider of the two aisles. The bosses on the roof, Caroline or Jacobean, were worthy of notice. In the north wall of the old chancel were apparent signs of a thirteenth-century window; it was not known when the old chancel was surrendered and the new one built. In 1889 the interior of the church was entirely rearranged, excepting structurally, and decently furnished.

Mr. Buckle spoke of the Decorated period as exemplified in the building. He said that architecture of that period was rare in Somersetshire, many of the churches in the county being Perpendicular. The work they saw was plain, and they might ask why it was called Decorated. The fact was that the bulk of Decorated work was the plainest ever put up, and the name was an unfortunate misnomer caused by the persons who first took up the study of Gothic architecture being struck by the richness of some specimens of it.

Chew Magna.

At this church Mr. Buckle first pointed out the Norman doorway, and said there were various signs on the outside of the church on that side of very early work, if not Norman. They observed inside that the arcade on the south side, running right through from wall to wall, was Early English in date; this arcade became finally the chancel wall, and ended up outside on a pilaster buttress. It looked to him as if the pilaster buttresses, which at first sight appeared to be Norman,

were really of rather later date. It was not a church which suggested an early plan. The building to start with must have been a nave and chancel, without any intermediate tower, and without anything to suggest the cruciform shape which they generally met with. If the tower was not in the centre of the church it was generally on one side of the nave; whether or not that was so there, there was nothing to guide them. The bulk of the church seemed always to have followed the present lines—to have throughout a rather wide nave, with aisles and a chancel beyond. In the chapel at the end of the south aisle they would notice that there were two windows, one above the other, indicating that that chapel was a two-storeyed building, and on the outside a place where the wall had been filled up, where obviously a doorway had been, that doorway being at the level of the upper floor. The manor-house of Chew Magna stood near the church, and they might have noticed what a long circuit the road made in approaching that place, in order apparently to come round the manor-house at a distance which would not interfere with its pleasure grounds. That manor house had belonged to the Bishop of Bath and Wells, and they were told that there was a bridge or gallery connecting his house with the church, and that in the church he had a private pew in an upper storey, which was approached by the gallery. Mr. Buckle reminded the members of Thornbury Church, where the Duke of Buckingham had had a similar privilege, and of St. George's, Windsor, where the royal pew was in an upper floor overlooking the altar. With regard to the screen, it must have been made up somehow or other out of the fragments of the old screen, and that was why it looked so poor and thin.

Chew Stoke.

Mr. Buckle said that Chew Stoke Church had been entirely rebuilt in modern times. The two aisles, they would notice, were entirely different in character. One was very florid inside, with angels sculptured all over it, whereas the other was of excessive plainness. When the place was taken down and rebuilt the then rector desired to have one part of the church rebuilt as it was before, and the south aisle was so rebuilt. It happened to have been a Decorated aisle of the plainest description, but when he was rebuilding the church the rector wanted to have some decoration in it, so he decorated the other aisle to make up for the plainness of the original Decorated one. The arcade was interesting from the point of view of showing that the builders of the Decorated period would stop at nothing in the matter of plainness. The great point of interest was the lovely tower and spire; it was one of the most elegant erections they had in Somerset. It was on a small scale, but the pointed and elegant spire, the charming battlements around, the figures preserved in their niches and the outline of the buttresses altogether made a very perfect picture. Only one of the figures could be identified; that was in the niche looking out over the church, and the figure was, as one would expect, the patron of the church, St. Andrew. One of the altars was dedicated to Maid Uncumber, who was not a very moral sort of saint, for wives were in the habit of petitioning her when they wanted to get rid of their husbands, and conciliated her with offerings of oats.

One of the members suggested that they were wild oats.

Lieutenant-Colonel Bramble humorously defended Maid Uncumber's character, having discovered some documents relating to her in St. Mary-le-Port Church, Bristol.

Dundry.

At Dundry Professor Lloyd Morgan described the geology of the quarries, from which much of the stone used in construction in Bristol and the churches round came.

Mr. Buckle said it was a quarry which, in his opinion, had had a very serious influence upon the course of architecture. He drew their attention to the absolute perfection of the outlines of the church buttresses. There was no mark of weathering anywhere. He observed that in the twelfth century Somerset masons went over to Dublin, where there was no stone, and took over, as he believed, this Dundry stone with them, the only style known in Dublin in the twelfth and thirteenth century being the Early Somerset style.

Brislington.

A paper by the vicar, the Rev. A. Richardson, on the history of the building, was read. It was stated that the church was dedicated to St. Luke, and was generally supposed to have been built in the fourteenth century. It might have been founded in connection with Keynsham Abbey by one of the De la Warre family, who were lords of the manor of Brislington from the eleventh to the sixteenth century. The church, which was built in the Perpendicular style, originally consisted of a chancel and south transept (certainly a chapel), a south porch and an embattled tower 90 feet high, and a nave with a south and middle aisle. The chapel, which was built in the south transept, and the only remains of which was

the piscina, was supposed to have been built for the De la Warre family, and a slab now resting on some debris near the south entrance gate to the churchyard was said to have been an altar. Mr. Buckle, however, was of opinion that this slab was the top of a monumental tomb, upon which a figure, probably representing one of the De la Warres, formerly rested. A stone in the churchyard commemorating the great age to which Thomas Newman attained was probably the work of an enthusiast. Possibly the man did live to be 103, and when the stone was refaced it was difficult to tell whether the middle figure was a nought or a five, and the carver gave the five in benefit of the doubt, making the age 153. A man named Newman used to pilot the ferry boat across the Avon to St. Anne's Chapel in olden times, but he may not have been a member of the same family.

Mr. Edmund Buckle said that he should call the architecture of the church, which Mr. Richardson had spoken of as Perpendicular, Decorated. The Decorated style was essentially a transitional style; it was a long transition from a very definite style which they called Early English to another very definite style which they called Perpendicular. The chancel was very much out of the centre line of the arch. The tower, he considered, was well worth looking at, and was of the same type as that which the members saw at Chew Stoke. In the case of Brislington, the four niches in the parapet are filled with original figures, but they had this peculiarity about them, that the figure overlooking the nave of the church does not appear to represent St. Luke, at the present time the patron saint of the church. In this case they had a bishop in that position—merely a bishop, since there did not seem to be any means of identifying him further. The other figures are the Virgin and Child, the exhibition of the Host, and a saint who could not be identified.

Bitton.

Mr. Buckle said he regretted Canon Ellacombe's absence because he and his father had been rectors of Bitton over eighty years, and they could understand what knowledge of the building Canon Ellacombe must have under those circumstances. All the alterations made in modern times in the building had been made either by him or by his father, and they had both of them continuously studied the church. It was one of the most difficult to understand that he knew. There was no doubt at all that the building dated back to a very early period. There were fragments left of work which was certain before Norman, and the question about it really was whether they were to call the original building there a Roman or Saxon building. The chancel arch was the place where most of this old work remained. What they saw most prominent in the chancel arch was a modern Norman arch. That arch was put in by the late Mr. Ellacombe in substitution for a classic arch which he found there, that classical arch having been put in by Wood, the Bath architect. Wood had lived in the rectory house against the side of the church and was church warden. At that time the chancel arch was in need of repair and he, of course, repaired it in his most modern style. When Mr. Ellacombe took down this classical arch in order to put up something more in harmony with the rest of the church, he found the remains of a most remarkable arch immediately above, and hidden by this classical work. They could see on the nave side just the start of the arch, but on the chancel side there was a little more left, because they had in the north corner the abacus, the capital from which this early arch started, and which was about the rudest piece of Roman work they could conceive. Above the chancel arch was a rude string-course, and above that the base of a panel. The carving represented a pair of feet resting on a little ledge—the feet of a large stone rood. An arm belonging to this figure had been found. The figure was probably 8 feet in height. Mr. Buckle went on to indicate that the nave must have been at one time very much higher than now. The nave was at present 93 feet long and 27 feet wide, and once was probably more than a hundred feet in length. The question was, How did this great building come to be erected like this? It seemed to him much more to point to a Roman basilica than to any style of building that he was acquainted with as having been set up at later dates. In considering the question of the size of the nave, it was a remarkable fact that the church at Keynsham, about two miles away, had a nave of almost exactly the same dimensions. He thought the two churches must have had some connection with each other—that they were erected by the same people, or about the same time, or else the one must have been deliberately copied from the other. With regard to taking Bitton Church back to Roman times, there was a Roman road which ran through Bitton, and Roman relics had been found there, so there was no doubt that there was a population there in Roman times. The chapel at the north-west end of the nave was built by one of the De Bitton family, who afterwards became Bishops of Exeter. It was an interesting point that the modern work in the church had been mostly done by local people.

Keynsham.

At Keynsham Mr. Buckle referred to the similarity in size of the nave with that of Bitton Church, being 26 feet wide and 100 feet in length. Supposing that it started by being a Roman basilica, as he thought was the case at Bitton, it had changed its shape completely. It was an indication of the different directions in which two churches, which started by being of the same shape and size, might develop according to different ideas. The tower was destroyed by a storm in 1632, and a brief was issued asking for help to repair the damage. In this brief the amount of the damage was by no means under-estimated. Describing the beautiful tower, Mr. Buckle pointed out on the sun-dial on the west front the words "Festina lente," and said they were rather difficult to understand. They appeared to mean that the people were not to hurry to come to church. On the south dial were the words "Venio ut fur" ("I come like a thief"), which were also rather puzzling.

It was humorously suggested that the motto "Festina lente" was put up by a local publican, who might have had his house opposite the church, to let his customers know that there was time to have another drink before going to church.

Queen Charlton and Publow.

The quaint little church of Queen Charlton was also described, and an inventory of the church, dated 1634, was read. At Publow Church Mr. Buckle drew attention to the magnificent tower, observing that the first thing that would strike them about it was the height. It had one more storey than they were accustomed to; there were three above the ground floor, in place of the usual two. He believed that the original design for the tower was the ordinary three-storey type.

Votes of thanks were passed to all who had contributed to the success of the meeting, special mention being made of Mr. Buckle and of Mr. J. E. Pritchard (local hon. secretary).

ARCHITECTURAL DRAUGHTSMEN IN AMERICA.

It was proposed in the report of the committee on education read at the thirty-fourth annual convention of the American Institute of Architects that draughtsmen should be eligible for election as members. A discussion took place:—

Mr. H. L. Warren: I find by conversation among the delegates that there is considerable comment made that one of the changes proposed by the committee on education was passed so summarily; in fact, I was myself rather surprised that it went through without any discussion. I refer especially to the addition of the word "draughtsman" in article ii, section 2. This was proposed by the committee on education with some hesitation, and I think that it ought to have received discussion, and I find now, after the delegates have had a chance to think it over, some of them wish to vote against it. I should like to move a reconsideration. If, however, there is other business now perhaps it had better be discussed to-morrow. The change on which I wish to move a reconsideration is in the very first portion of the report—article ii, section 2, after the words "any architect" add "or architectural draughtsman."

The motion to reconsider was put and carried.

Mr. Warren: I will suggest the reasons which led the committee to suggest that change. It was, in the first place, to provide for the possibility of admitting architectural draughtsmen of distinction to associate membership. It is believed that there are a good many men, men often somewhat advanced in life, who have attained considerable distinction in the art, although simply draughtsmen, who are valued and trusted assistants of architects of large practice. They are not gentlemen widely known necessarily, because the work that they do is known only through the principal for whom they work; but we can all of us think of men whom we know personally whose attainments are as high as a good many practising architects. It was that class of architectural draughtsmen whom the committee had specially in mind. It has been pointed out to me, however, by some of the delegates that that really throws the door open for admitting architectural draughtsmen generally who pass the examinations, and that would not be desirable. It may be a question whether young men will submit themselves for examination under the proposed rule if they have to wait a long time before admission to the ranks of the Institute. If, on the other hand, they waited several years before taking their examination they might then feel not so ready to be examined. If it is thought desirable not to add these words, "architectural draughtsmen," then, I think, we would be forced to create a third class, such as exists in the Royal Institute of British Architects, the probationary, into which draughtsmen should be admitted, having some connection with the Institute, but not being associates. I doubt whether this could be considered under the by-laws, as no notice of this matter has been

given. I think, therefore, perhaps it would be best simply to vote down that amendment and leave the matter as it stands now. If, on further consideration, the board of directors thinks it best to provide for the admission of architectural draughtsmen by special vote, or provide for a third class of ordinary members, that would come up at a later time.

Mr. Geo. B. Post: I was absent from the hall attending to committee business at the beginning of this discussion, but I understand that the amendment has been passed and it is now being reconsidered as far as the question of admitting draughtsmen to membership is concerned. I am opposed to the admission of any clause in the constitution or by-laws which would make it possible for draughtsmen generally to be admitted as associates, but I think it is a great hardship if some particular arrangement cannot be made by which draughtsmen, men who have all of the qualifications that are necessary for membership, possibly for fellowship, but whose circumstances are such, through accident or choice, that they are in the position of draughtsmen may be not admitted to membership in the Institute. I have in my office four or five men who would be eminently qualified to become associate members of the Institute, and one or two of them are qualified by experience and practice to be fellows of the Institute, but who would be debarred from becoming associates from the fact that they are draughtsmen in my office.

I think the matter should be referred to a committee to draw up some regulations by which men in this particular position may be eligible for membership as associates, but not be eligible for election to any office. Perhaps the recommendation of a fellow, in whose office they had been for a number of consecutive years, endorsed by several other fellows who knew their work, would be necessary to make them eligible. I am strongly opposed to any by-law which would make it possible for the army of draughtsmen to become associates of the Institute. But some provision should be made for those special cases of men of merit who, through choice, prefer a fixed salary to the exigencies of business ventures for themselves, so that they may have an opportunity of availing themselves of associate membership. One man in my employ was offered a position as a partner with a man of large practice. This man had been in my office for many years, and after considering the thing for several weeks he came to me and said he had made up his mind that the salary he got was a safer thing for him than the uncertainties of business on his own account. If I mentioned his name there are fifty men in the Institute who would know all about him, and know that he is a proper man to be an associate of the Institute, or, if in business for himself, to be elected as a fellow.

I think this matter should be recommitted. I therefore move, sir, that this article be recommitted to the same committee, and they be requested to see if they can, before the matter is finally disposed of in the convention, draw up some resolution which will make it possible for men of attainments who are draughtsmen to be admitted to the ranks of associate members, but to make it impossible for the army of draughtsmen to claim the same right.

The motion was put and carried.

At a subsequent meeting of the Convention the President said a committee was appointed to which was referred the question whether architectural draughtsmen should be admitted as associates. Was that committee ready to report?

Mr. H. L. Warren: The committee on education have reconsidered that portion of the proposed change which relates to the admission of architects or architectural draughtsmen to the Institute. As the by-law now stands, article ii, section 2, the reading is that "any architect," under certain conditions, may be admitted to associate membership. As the section stands it is lacking in clearness as to whether "practising architect" is intended or not, and that was really the committee's reason for proposing the change. They assumed that the word "practising" had been left out with the idea of admitting also draughtsmen. At any rate, it seemed to them a matter which ought to be made clear, and, assuming that to have been the intention, they proposed to add the words "architectural draughtsmen."

The committee find that that is clearly not the feeling of the delegates, and they are inclined to think that on the whole it would be better, instead of adding the words "architectural draughtsmen," to change the by-law by adding the word "practising," before the word "architect," so that it should distinctly confine associate membership to practising architects, but to add the following section with regard to architectural draughtsmen:—

"An architectural draughtsman, who is over thirty years of age, and who has been in the employ of a fellow of this Institute for five years or more, and shall be recommended by such fellow and two other fellows, and who shall have fulfilled all other requirements of associate membership, may, in the discretion of the board of directors, be recommended for associate membership, and may be elected as provided in the case of candidates for associate membership."

That would cover the case referred to by Mr. Post the other day.

The President: Is that to take the place of the first paragraph reported by you?

Mr. H. L. Warren: There will be a change in the first paragraph by adding the word "practising" before "architect," and adding a new paragraph relating to architectural draughtsmen.

On motion the recommendations of the committee were adopted.

KHALAM-KAR, THE HAND-PAINTED CLOTHS OF INDIA.

THE competition of mill-made European cloth has not only affected hand weaving, writes Mr. M. Azizuddin, in the *Journal of the Society of Arts*, but also crippled all the ancient Indian industries connected therewith. The trade in *khulam-kar*, or hand-painted cloths, which was once flourishing in Bandar (Masulipatam), Cuddalore and other places, has of late steadily declined. The famines of recent years have also helped to stamp out this decaying industry by contributing to the poverty of the classes engaged in it. As a class weavers and painters of cloth are rarely well-to-do, the majority of them being in the hands of the usurious cloth merchants, who take their finished goods in repayment of advances made to them. In famine years, the celebration of marriages being retarded, the demand for cloths of all kinds is diminished, and very often the weavers and the cloth painters have to give up their looms and brushes for field labour or some other occupation. On the return of favourable times most of them return to their profession from the out-door labour, while others, either owing to want of sufficient encouragement in the trade or the loss to a certain degree of their professional skill and delicacy, abjure the craft altogether. The State of course intervenes to help such persons to tide over the famine, but that cannot lead to the material development of the industry or to a substantial amelioration of its condition. The one satisfactory remedy seems to lie in finding a market for it.

Khulam-kar cloths cannot be placed in competition with European productions of a similar character, which, so early as the days of the Mogul Emperor Akbar, attracted the remark of being "the wonderful works of the European painters of world-wide fame." But the boldness of the designs, with the careful draughtsmanship of the minutest details, and their general finish and harmonious colouring, give them a fascination of their own, and this, taken with their cheapness, would necessarily find them favour in the eyes of many purchasers, if they could only be introduced in merchantable quantities into Europe. They can be utilised as tablecloths, bed-sheets, curtains and other articles.

The process of making these cloths is remarkably primitive and simple. The first stage in the process is the preparation of the cloth for the painting. This is done as follows. A sufficient quantity of gall-nut is powdered and boiled in water and the sediment is removed, after which one-fourth measure of buffalo's milk, or one-half measure of cows' milk, is mixed with water; the cloth is then put into it and saturated, and after a time it is taken out, strained, and allowed to dry. It is subsequently folded and beaten down with a dyer's block. The cloth is now ready for purposes of painting. The painter takes a quantity of alum and boils it in water. With this solution, which gives a pale dark colour, flowers and other objects are drawn artistically with a brush, or printed with a block on the cloth. The cloth is now dried, and gently washed in water. It is then boiled in water with pounded roots of nuna (*Morinda umbellata*). During the continuance of the boiling process, which lasts for nearly three hours, the cloth is frequently stirred up with a stick. It is then taken out and left to cool. When cooled it is immersed in water mixed with sheep-dung and immediately taken out. It is again washed well and dried by spreading for nearly six hours over the damp sand in the river bed. This process renders the vacant spaces between the flowers white. The white portions are then coloured with dyes of local manufacture, or with any European dye after it has been boiled with gall-nut water. White and black are believed by the Hindoos to be the origin of all colours, and are looked upon as extremes and as the component parts of the other colours. Indigenous black colour is obtained by burning pieces of old iron in dry plantain leaves, and then boiling them in water with sugarcane jaggery and pounded marking-nut (*Semicarpus Anacardium*). Yellow is manufactured by dissolving Bengal saffron with aplakaram, a substance akin to soda, and boiling in water with gall-nut flowers. Green colour is obtained by dissolving pure indigo in similarly treated water. Other colours are prepared by similar devices, and each colour is painted in separately. Finally, the cloths are soaked in boiled rice water and strained. They are then ready for the market.

The price of a bed-sheet of *khulam-kar* ranges from Rs. 1½

to Rs. 2. It is durable and of fast colour, and is commonly used by Mussulmans of Singapore and Sumatra and other places. In India it is largely in demand on marriage occasions, when it is used by the middle classes as a covering, or *palang-posh* (Anglice, "palampore"). It is also largely utilised in the decoration of Hindoo cars. This art was apparently introduced into India by the Mo(n)gols from Persia and in the days of Akbar, who showed a great predilection for the art of painting in all its applications, and gave it considerable encouragement. Abul Faz writes that the work of all painters was weekly laid before the Emperor, and they were rewarded according to the excellence of their workmanship; and that in this way much progress was made in the commodities required by painters, and that the mixture of colours was especially improved.

Although the Mussulman religion prohibits the drawing of likenesses of living objects, yet Akbar, with his wonted liberality of thought, not only encouraged the art of such painting, but even censured those who had on religious grounds imbibed a hatred for it. One day, at a private party of friends, the Emperor is said to have remarked:—"There are many that hate painting, but such men I dislike. It appears to me that a painter has quite peculiar means of recognising God, for a painter, in sketching anything that has life and devising its limbs one after the other, must come to feel that after all he cannot bestow life upon his work, and is thus forced to think of God, the Giver of life, and will thus increase in knowledge of God."

It is to be hoped that the *khulam-kar* cloths may find a market in England and Europe and America, in which case this vanishing industry will be resuscitated in India, and thus a portion at least of the Indian population, whose sole occupation is agriculture, will be better able to withstand the calamities to which they are recurringly exposed in seasons of scarcity.

TESSERÆ.

Arrangement of Organ Fronts.

IN representations of the oldest organs (which are, of course, very small) we find the pipes arranged in their natural order, the longest to the left hand and the shortest to the right, like the wires of a pianoforte or the strings of a harp. There are some pictures of organs of the fifteenth century, when, it must be observed, church architecture was declining, in which the largest pipes are placed in the middle and the smallest at the sides, a plan frequently used now for the pipes enclosed in swell-boxes. In other organs the reverse plan is adopted, putting the smallest pipes in the middle and the largest at the two sides. But the most common arrangement for pipes that are not seen is a sort of compromise between the latter plan and the natural arrangement, and consists in putting most of the pipes in their natural order, but some of the largest pipes at the right hand. This arrangement is neither simple nor symmetrical, and consequently is very unsightly, its chief (if not sole) advantage being that it suits pretty well the forms usually chosen for the fronts of organs without requiring such expensive and complicated mechanism as a thoroughly symmetrical arrangement. It has been thought proper for about four centuries past to build them with fronts symmetrical, as far as the eye can judge, with respect to right and left. So strongly have organ-builders been impressed with this imagined necessity, that though the Abbé Vogler at the end of the last century employed his ingenuity in simplifying the interior construction of the organ, a principal part of his system being that all the grooves which convey the wind to the pipes should be arranged in their natural order, and though his system has been adopted in its main features by several organ-builders, it does not seem to have occurred to the abbé himself, or to those who have taken up his system, that the front pipes also might as well be arranged in their natural order. Indeed, one of the objections started against Vogler's simplification system is the slight difficulty of accommodating it to a symmetrical arrangement of the front pipes. But, to state the question concisely, is it wise to go to a considerable expense in roller-boards and conveyance tubes, contrivances which do not improve the working of the instrument, but the contrary, only for the sake of having the front pipes symmetrically arranged? We may observe, by the way, that the apparent symmetry of most organ-fronts is unreal, for the corresponding pipes are not, in fact, of the same length, as will be evident on looking at the other sides.

Influence of German Glass Painting.

It can scarcely be doubted but that much of the extravagance which we find in later German architecture arose from the reaction of the glass painters on the builders. When fir painted glass was extensively introduced, the figures were grouped or separated by architectural details, such as niches, canopies, copied literally from the stone ornaments of the

building itself. Before long, however, the painter, in Germany at least, spurned at being tied down to copy such mechanical and constructive exigencies; he attenuated his columns, bent and twisted his pinnacles, drew out his canopies, and soon invented for himself an architecture bearing the same relation to the stone Gothic around him that the architecture shown on the paintings of Pompeii bears to the temples and buildings from which it is derived. In Germany, painters and builders alike were striving after lightness, but in this the painter was enabled by his material easily to outstrip the mason. The essentially stone character of architecture was soon lost sight of. With the painter the finials, the crockets and the foliage of the capitals again became copies of leaves instead of the conventional representations of nature, which they are and must be in all true art. Like Sir James Hall in modern times, the speculative mind in Germany was not long, when advanced thus far, in suggesting a vegetable theory for the whole art. All these steps are easily to be traced in the sequence of German painted glass still preserved to us. The more extravagant and intricate the design the more it was admired by the Germans. It was therefore only natural that the masons should strive after the same standard, and should try to realise the ideas which the painters had so successfully started on the plain surface of the glass. The difficulty of the task was an incentive. Almost all the absurdities of the later styles may be traced more or less to this source, and were it worth while, it would be easy to trace the gradual decay of true art from this cause.

Bellini and Titian.

Some excellent judges claim for Titian a distinct religious feeling in art. Inasmuch as he approached the complete artist, he had the capacity, in a high degree, of giving an appropriate expression to even his religious pictures, but this was rather the result of intellectual appreciation than of soul sentiment. So great and well-balanced a mind as his must have been in some degree devotional and imbued with a sense of the importance of religion. But it was not with him the governing feeling as with Giovanni Bellini. This distinction between these two great artists is admirably shown in the celebrated picture in the Camuccini Gallery at Rome, of which the figures are by Bellini and the landscape by Titian, and the Venus and Adonis, hanging beside it, which is wholly Titian's. In mythological subjects, nature and all that constitutes free yet dignified life, sensuous action and high capacities of physical enjoyment or intellectual excitement, we find Titian conspicuous. On the other hand, Bellini, who has brought Jupiter and his celestial court to feast on earth, has wholly failed in spirit. Their carnal feasting is a sad, laboured affair; no one is enjoying himself; all look as if guilty consciences or forced revelry disquieted them. The artist had no feeling for such a scene, and therefore failed in its treatment. The landscape of this picture is particularly solemn and grand. There are no harmony of colours or unity of conception in it, because neither artist painted on a common key, nor entered into the motive of the composition; yet it is, as a whole, one of the most remarkable paintings in Europe from its artistical associations and peculiar treatment.

The Episcopal Mitre in Art.

The episcopal mitre, the cydaris or tiara, worn by Gregory Nazianzen and the crown of St. Ambrose are different from modern mitres, but the latter are nevertheless ancient. The statue of St. Peter, placed in the seventh century at the gate of the church of Corbre, wears a round, high and pyramidal mitre. That of the Popes after this period is similar. In the East bishops, patriarchs excepted, made no use of it, contenting themselves with a staff in the hand. Though the use of the mitre was not common to all the bishops of the West, from the eleventh century, Popes Alexander II. and Urban II. granted the privilege of wearing it to various abbots. It even passed to canons of churches and secular princes. The ancient papal mitres are round, pyramidal and in the form of a sugar-loaf. That of Calixtus II. is flat. The seals have mitres, low, often terminated in an angle, and sometimes resembling bonnets tied with a band behind, the ends of which fall upon the shoulders. The most ancient mitre which has the nearest resemblance to the modern is that upon the seal of the Bishop of Laon in the tenth century. In general, Martenne thus describes the ancient episcopal mitre as double-horned or left, but lower than the modern. No pyramidal mitres occur upon tombs, and the original seals of bishops, after the eleventh century. We find a mitre of the eleventh century very low and wide in the fork. The slit of the fork is also in front. That of Hedda, bishop of Winchester, is low, ornamented or chased round the brim, sharp-sided, with an upright piece in front like the brim, a small cross being on each side; that of Dunstan, an archbishop, is similar, the crosses excepted. In the time of Edward I. they are much higher, but very wide in the fork, and concave, not convex, on the sides. Still, the old straight sides often remained. It has been said that the

episcopal mitres were gold, but the abbatial argent garnished gold, but there appears to have been no reason for this assertion.

The Superseding of Wren.

Bribery and corruption were employed so openly that no one considered Sir Robert Walpole's assertion that "every man had his price" to be untrue. Wren, one of the most disinterested of men, and who knew and studied everything better than the art of enriching himself, fell a victim to the arts of intrigue and bribery. George I. preferred his own country and his former friends both to England and new acquaintances, for whatever faults he may have possessed, desertion of his friends was not among them. But as money had worked such wonders in Paris, and the aid of the Regent of France and his Ministry had been bought at a very high price, the conscientious Ministers of the king of England found it necessary to become sellers, and therefore every place at their disposal became a marketable commodity, including Wren's office of Surveyor-General of His Majesty's Works and Buildings, which he had held with unequalled ability and honour to himself and advantage to his country for a period of more than half a century, being appointed deputy to Sir John Denham, "one of the fathers of English poetry," in 1666, and succeeded as principal, by warrant under the Privy Seal, March 6, 1668, after the death of the poet (who held it more as a means for supplying his necessities than to exhibit his qualifications), till he was superseded in favour of Mr. Benson in April 1718. It is not a little singular that Wren succeeded a poet and was superseded by a poetaster. William Benson was a critic of some repute in his day and a very minor poet. He published, among other forgotten things, "Virgil's Husbandry, with Notes Critical and Rustical," "Letters on Poetical Translations," and an edition of Arthur Johnson's Latin version of the Psalms. In a scarce work, the "Memoirs of John Ker," the author, a man of good repute, asserts that "it is very well known that Mr. Benson was a favourite with the Germans, and I believe nobody had more occasion to be convinced of the power of its influence than myself; so great, indeed, was it that Sir Christopher Wren, the famous architect, who contrived the stately edifice of St. Paul's Cathedral, and finished it in his own time, was turned out of his employment of Master of the King's Works, which he had possessed ever since the Restoration, to make room for this favourite of foreigners." In another part of the same work Mr. Ker says of the corruption of King George's court:—"Robert Walpole, Esq., had obtained a patent for the reversion of a place in the Customs for his son, which Mr. Benson, before mentioned, being informed of, he told Mr. Walpole he was in terms of disposing of it to another for 1,500*l.*, but would let Mr. Walpole have it for the same sum if he pleased; and upon that gentleman contemptuously rejecting it, he so resented it that Mr. Walpole was turned out of his posts and of all favour at court, even at a time when he was about to execute a great public good, that of reducing the National Debt." Thus was removed the man of whom Sir Robert Walpole said "the length of whose life enriched the reigns of several princes and disgraced the last of them."

Flaxman's "Britannia Triumphant."

The mind of Flaxman teemed with magnificent projects; not those airy schemes which arise in the minds of men who want genius to define their conceptions and skill to carry them into execution, and whose plans lie in their own crude fancies, like creation in the obscurity of chaos. He desired to be employed on some national work, and proposed, when the subject of the grand Naval Pillar was agitated, to make a statue of Britannia, 200 feet high, and place it on Greenwich Hill. That he could execute whatever he conceived no one doubted, but in order to show the world that he had not taken up the subject hastily, he published "A letter to the Committee for raising the Naval Pillar or Monument, under the patronage of the Duke of Gloucester," and followed it up by making "A Sketch for a colossal statue of Britannia Triumphant." To illustrate the national importance of such a work, he was ready with instances ancient and modern. But works which offer no immediate gain are too apt in this country to be looked upon as the splendid dreams of a visionary. "It may be all very fine, but what does it mean?" was the general exclamation with which the magnificent proposal of Flaxman was met. The committee deliberated and dined, as committees do, and then let the matter drop, an occurrence which grieved the meek spirit of the sculptor. He had in imagination seen this mighty statue rising in the dignity of form and sentiment, as a landmark "conspicuous far and wide," and he considered the coldness with which the subject was regarded as a fatal symptom. There was no bitterness in his regrets; he was too proud for that. Nor yet was he angry—perhaps he was never seriously in anger in his life; but he grieved deeply, and far more over the deficiency of public feeling than for his own disappointment. Some captious critic of the day said, "Flaxman is not contented with cutting marble into men; he wishes to hew

Greenwich Hill into a woman large enough to graze a couple of goats in her lap." The sculptor only smiled at this, nor was it otherwise when another of the wasps of the hour buzzed out with "There is to be a show at Greenwich of *little* Flaxman and *big* Britannia." The fame of Flaxman was too surely established to be shaken, either by the rejection of his colossal Britannia or by the impertinence of professional jesters. A quick succession of noble works from his hand had made many feel that a sculptor had at length appeared to vindicate the dignity of our national genius.

Whitehall Palace.

Of the magnificent palace which Jones designed for James I. to be built at Whitehall, the Banqueting-house is the only portion of the grand scheme that was erected. It would have covered an immense plot of ground, extending from Charing Cross on the north to Richmond Buildings, by Parliament Street, on the south, and from the river Thames on the east to the parade in St. James's Park on the west, including the site now occupied by the Treasury buildings, Melbourne House, the Horse Guards and the Admiralty offices, &c., as far as Spring Gardens. Four buildings, similar in external design with the Banqueting-house, are in the design, one opposite to it and the others, one near Scotland Yard and the other opposite thereto, and were to be used respectively as a banqueting-room, a royal chapel, a throne-room and a hall of audience. They were to have been connected by a variety of state and domestic apartments, official residences, spacious courts for light and air and every requisite accommodation fit for a royal palace for the greatest monarch in Europe. The circular court, surrounded by an arcade supported by statues, thence called the Court of Caryatides, is one of the finest ideas that was ever devised by the mind of an architect. The whole design is a perfect school for an architectural student, and would furnish texts for a series of lectures on architectural expression or appropriate character, arrangement, grandeur, internal arrangement and domestic comfort, worthy the talents of the most accomplished architect of the day.

Pythagorean Numbers.

Pythagoras considered numbers as the essence and the principle of all things, and attributed to them a real and distinct existence, so that in his view they were the elements out of which the universe was constructed. How he conceived this process has never yet been satisfactorily explained, but he was probably led to the supposition by observing that the periodical occurrences in nature, and almost all institutions and religious regulations and observances in Greece, were founded on numerical relations. Pythagoras thus traced the various forms and phenomena of the world to numbers as their basis and essence. But he did not stop here, he ascended still further to the principles of numbers themselves. These principles he conceived in the form of contrasting pairs, such as straight and curve, limited and unlimited, one and many, odd and even, and others. Further, he traced these contrasts to one first principle and element, the unit, which included both the even and the odd, &c., and thus the even was odd. This unit he considered as the formal as well as material basis of all things, and as identical with the one supreme being. The decad and tetractys or the quadrate, are likewise described as perfect numbers, and first principles; the triad was called the number of the whole, because it had a beginning, middle and end.

Art in Early Rome.

For the first 600 years of their national existence the Romans were mere barbarians in art. Their soldiers wantonly destroyed both the pictures and statues of Greece. After the capture of Corinth innumerable treasures of taste were sent to Rome, and their exhibition gave its citizens their first ideas of art. But so little was even their general, Mummius, acquainted with the value of the statues and pictures, whose beauty for the first time captivated his eye, that he required of those charged with their conveyance, in case of loss or injury, that they should furnish new. Grecian artists were also transported to Rome, and either sold as slaves or reduced to the condition of artisans. Deprived of their personal freedom and those sources of inspiration derived from national independence, their art degenerated into mere imitation.

GALWAY ARCHÆOLOGICAL AND HISTORICAL SOCIETY.

THE second half-yearly meeting of the above Society lately was held at the Railway Hotel, Galway.

The president (Hon. R. E. Dillon) presided. He proposed the formal election of candidates, and in doing so said that he was one of those who joined at the beginning of the Archæological Society a year ago. Since that time their membership had come up from a small number to 100, and added to that would be 13 who now sought admittance. He

rejoiced to say that the success of this Society as regards membership must be attributed to the energy of their untiring hon. secretary, Mr. Richard Kelly. They started this movement in the dark period, and when people would take no interest in it. All that had now changed. He (the president) regretted that up till now he had not taken a very active part in the affairs of the Society, but he would assure them that his absence was not due to want of interest, but owing to a bereavement which he had sustained.

Mr. Kelly (hon. secretary) then proposed the re-election of the late officers. All were taken separately, and the same officers re-elected.

Mr. Francis J. Biggar, Belfast, then proceeded to deliver a lecture on the ancient Abbey of Kilconnell, which was illustrated by excellent limelight views. The lecturer spoke for more than an hour, and was frequently applauded. His paper was a most interesting and carefully prepared account of that interesting Franciscan foundation.

At the conclusion of the lecture the Hon. M. F. Morris, M.P., proposed a cordial vote of thanks to Mr. Biggar, which was seconded by Mr. Perry, and spoken to by Dr. Cox, F.R.U., F.R.C.S.I., and cordially passed.

The following were elected members:—Dr. Cox, F.R.U., F.R.C.S.I., Dublin; Charles Kelly, K.C., J.P., Newtown; Professor Percival Wright, vice-president of the Royal Society of Antiquaries and president Royal Irish Academy; C. Tennison, Hobart, Tasmania; D. O' C. Donelan, J. P. Syllan, P. J. Lynch, Limerick; E. Lupton, solicitor, Tuam; P. J. Conroy, solicitor, Galway; R. Simmons, Galway; W. Fogarty, Galway; Dr. Sealy, Galway.

Papers on "Bunowen Castle," by M. J. Blake; "The O'Madden Country," by Dr. More Madden (Dublin); "The Corrib and its Islands," by Richard J. Kelly; "Headford," by E. H. Knox, were submitted, and will be published in next issue of the Society's journal.

GENERAL.

The King has been graciously pleased to grant permission to Messrs. Doulton & Co., Ltd., to use the title "Royal" in describing their potteries and manufactures.

An Archæological Congress is to be held at Athens in April 1903. Five meetings will be held at that city, and ten excursions will be made to places of importance.

Signor Fabio Gori, an Italian official, claims to have discovered the tomb of Petronius at Rieti.

A Hippodrome has been erected in Brighton on the site of the Ice Skating Rink, from the designs of Mr. Frank Matcham.

The New Steyning Workhouse, of which Messrs Clayton & Black are the architects, will be opened on September 26.

Mr. Patrick O'Sullivan, A.R.C.A., has been appointed junior art inspector under the Department of Agriculture and Technical Instruction for Ireland.

The Promoters of the Louisiana Exhibition, to be held in 1903, are endeavouring to make it more extensive than the Chicago World's Fair.

Mr. Oliver Morris, a well-known engineering contractor, died last week at Bristol.

M. Pellpot has been commissioned to make a picture of the naval review to be held at Dunkirk in the middle of September.

Mr. Augustus St Gaudens, the American sculptor, is to undertake the memorial of C. S. Parnell which is to be erected in Dublin. It will be completed in five years, at a cost of 40,000 dollars.

The Artisans of Birmingham, working through the medium of their trades council, have organised a movement for providing bursary scholarships for the children of their class in the Birmingham University. In furtherance of this object a polytechnic exhibition was opened last Monday at Bingley Hall.

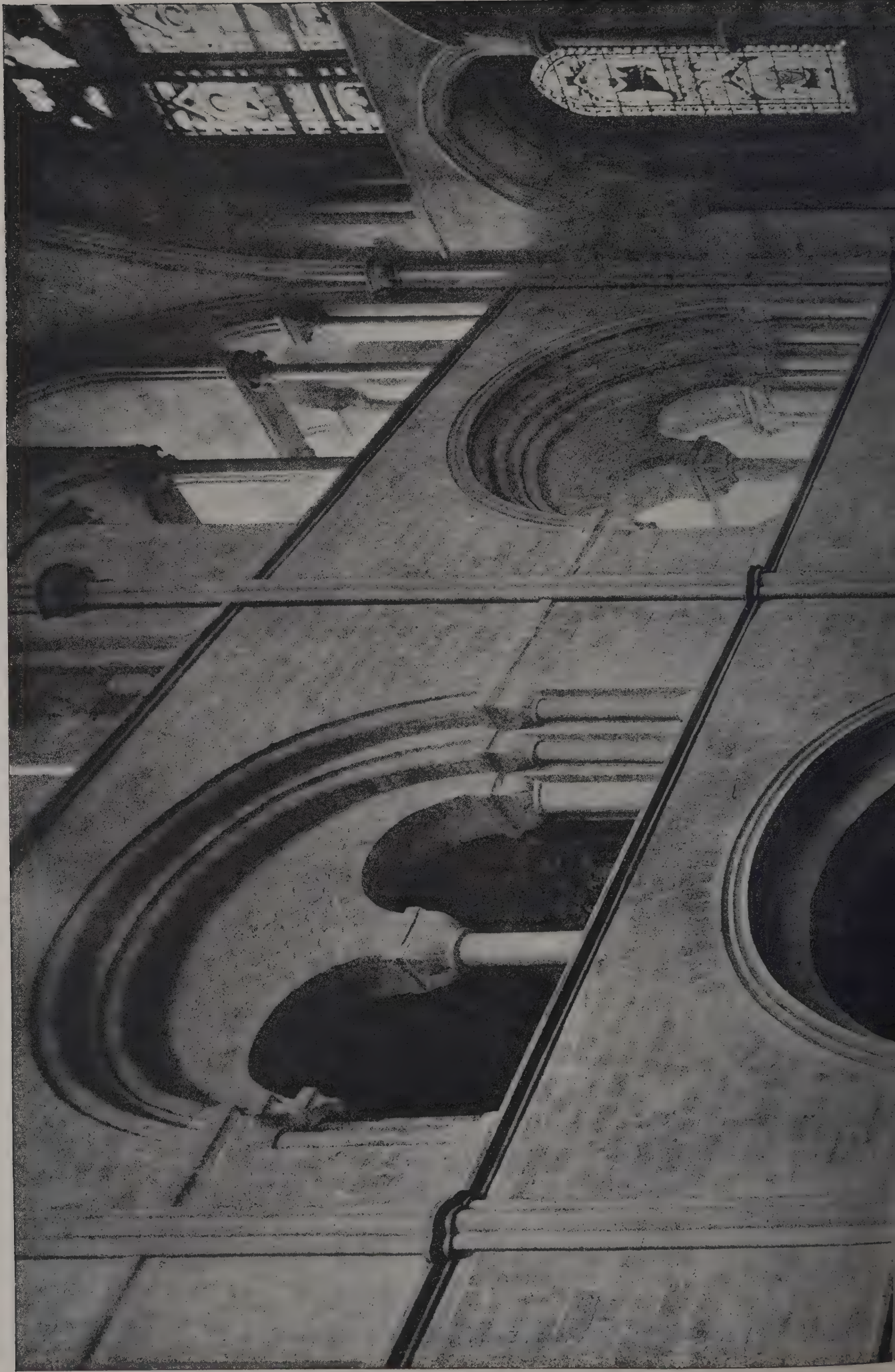
The Odéon Theatre, in Paris, is now being restored and decorated under the direction of M. Barth, the official architect for the building.

It is stated that three lifts have been ordered from an American firm in New York State for Buckingham Palace. They are run by electricity and are to be installed by American workmen.

The University of California is forming a department of research to study American Indian antiquities, folklore and languages. An attempt will be made to rescue all the fragments of folklore possible.

A Good Roads Congress will be held at the Pan-American Exposition on September 16-21. It is proposed to have addresses on the financial and engineering features of road building, to exhibit all kinds of tools and machines for highway work, and to construct sections of earth, gravel, stone, tar macadam, brick and other types of roads and streets.

The Architect, Aug 30th 1901.





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CATHEDRAL SERIES, No. 351.—CHICHESTER: SOUTH-WEST CORNER OF NAVE.

Die Architektur, Aug 30th 1901.





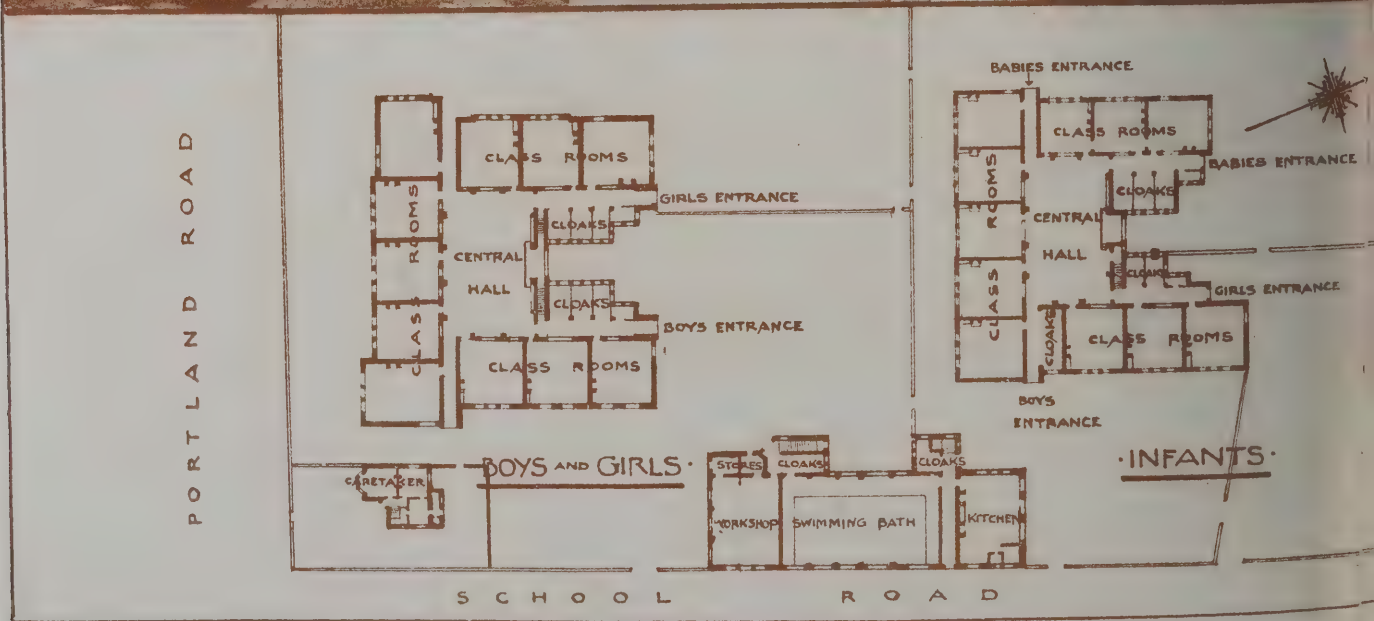
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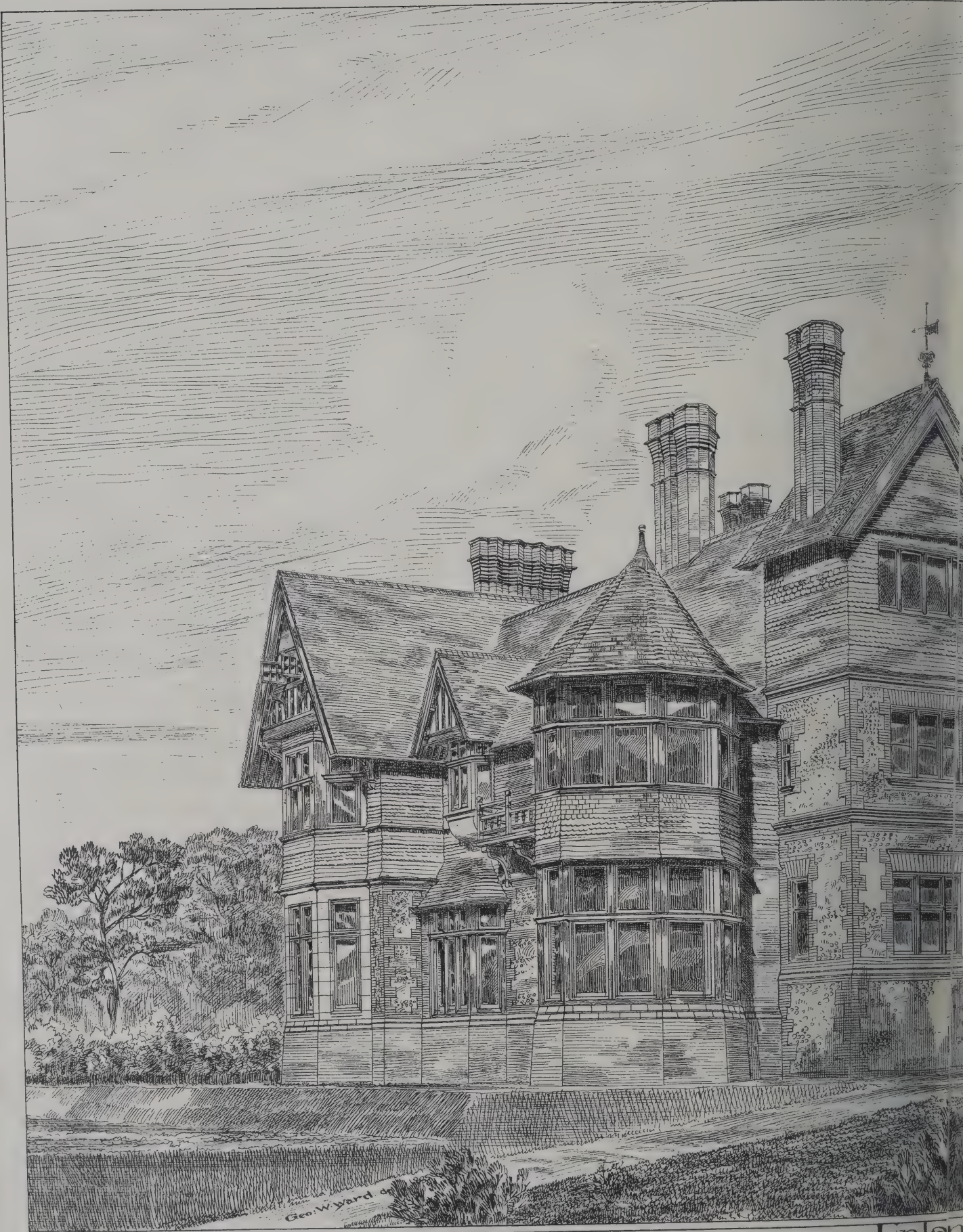
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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

LONDON.—Nov. 15.—Designs are invited for new offices for the Hearts of Oak Benefit Society in Euston Road. Premiums of 100*l.*, 75*l.*, 50*l.* respectively are offered. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ABER.—Sept. 7.—For additions to the Panteg hotel. Mr. Arthur O. Evans, Pontypridd.

ANDOVER.—Sept. 12.—For erecting a timber footbridge over the river Anton. Mr. J. Wormald, South Cottage, Andover.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

BARKING.—Sept. 6.—For erection of a corrugated iron building at the electricity station. Mr. C. F. Dawson, Public Offices, Barking.

BIRMINGHAM.—Sept. 16.—For building two cottages and extension of farm buildings. Messrs. Whitwell & Sons, architects, 23 Temple Row, Birmingham.

BLACKBURN.—Sept. 12.—For building homes for inebriates at Langho. Mr. Henry Littler, architect, County Offices, Preston.

BOSTON.—Sept. 3.—For erection of a cookery centre, pupil teachers' centre and evening science classrooms in Norfolk Street, Boston, Lincs. Mr. Jas. Rowell, architect, Market Place, Boston.

BRIDLINGTON.—Sept. 3.—For erection of buildings at Bridlington grammar school. Messrs. Botterill, Son & Bilson, architects, 23 Parliament Street, Hull.

BRIGHTON.—Sept. 12.—For erection of 30 four-roomed artisans' dwellings in Dewe Road, Lewes Road. Mr. Francis J. C. May, borough engineer and surveyor, Town Hall, Brighton.

BRISTOL.—Sept. 6.—For alterations to the kitchen department at the Royal Infirmary. Mr. E. A. Leonard, Royal Infirmary, Bristol.

BRISTOL.—Sept. 10.—For building a stable for the Great Western Railway Company. Mr. G. K. Mills, Paddington Station, London.

BURNLEY.—Sept. 2.—For erection of twelve houses and appurtenances at Walkmill, Cliviger. Mr. Thos. H. Mitchell, architect, Strand, Todmorden.

COVENTRY.—Sept. 2.—For erection of residences and stabling, &c, Queen's Road. Messrs. Harrison & Hattrell, architects, 28 Hertford Street, Coventry.

DARLINGTON.—Sept. 2.—For erection of a stone retaining wall and ornamental iron palisading adjoining the river Skerne in Skerne Row. The Borough Surveyor, Town Hall, Darlington.

DEWSBURY.—Sept. 6.—For works required in erection and completion of boys, girls and infants' conveniences, boundary walls, levelling and forming playgrounds at the Brownhill national schools. Messrs. Holtom & Fox, architects, Corporation Street, Dewsbury.

DUNMOW.—Sept. 2.—For erection of new bathrooms, water-closet and iron staircases to the male and female wards of the union infirmary at the workhouse, Great Dunmow, Essex. Mr. Richard Creed, architect, 11 Finsbury Circus, E.C.

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DURHAM.—Sept. 6.—For building seven houses at Old Penshaw. Mr. Wilson, Westbourne House, Shiney Row, Old Penshaw.

ENFIELD.—Sept. 3.—For erection of a junior mixed school at Chesterfield Road, Enfield Lock. Mr. G. E. T. Laurence, architect, 22 Buckingham Street, Adelphi, W.C.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FLOOKBURGH.—Sept. 14.—For rebuilding farm premises. Mr. C. P. Chambers, 34 Cornwallis Street, Barrow-in-Furness.

GREAT YARMOUTH.—Sept. 4.—For building a house. Mr. Chas. G. Baker, architect, Town Hall Chambers, Great Yarmouth.

GREAT YARMOUTH.—Sept. 6.—For building a small house in Moat Road. Mr. Sidney Rivett, architect, 5 South Quay, Great Yarmouth.

GREAT HARWOOD.—Sept. 7.—For building schools. Mr. W. H. Dinsley, architect, Cleveland Street, Chorley, Lancs.

HALIFAX.—Sept. 4.—For building a chimney-shaft at the electricity works. Mr. James Lord, Town Hall, Halifax.

HOOLE.—For additions to All Saints schools, Hoole, Chester. Messrs. John H. Davies & Sons, architects, Newgate Street, Chester.

HOLYHEAD.—Sept. 5.—For building a county school. Mr. Joseph Owen, architect, Menai Bridge.

HUDDERSFIELD.—Sept. 4.—For alteration to the galleries at the parish church of Linthwaite. Messrs. Boreham & Morton, 24 John Street, Sunderland.

ILKLEY.—Sept. 2.—For erection of a mission hall at Ilkley. Messrs. Adkin & Hill, architects, Prudential Buildings, Bradford.

INCE.—Sept. 21.—For building public offices for the Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

IRELAND.—Sept. 3.—For erection of a coastguard station at Knightstown, county Kerry. Plans, &c., can be seen at the Office of Public Works, Dublin.

IRELAND.—Sept. 7.—For erection of schoolhouse and boundary wall in Banbridge. Mr. Thomas Larmour, hon. secretary, Dromore Street, Banbridge.

IRELAND.—Sept. 10.—For building a coastguard station at Kilkeel. Mr. A. Ferguson, Insurance Buildings, Donegal Square West, Belfast.

KIRKBY LONSDALE.—Sept. 5.—For erection of an upper storey upon dwelling-houses at Ingleton Bridge. Mr. John Kassell, architect, Kirkby Lonsdale.

LEEDS.—Sept. 3.—For erection of buildings for the Leeds School of Art, fronting into Percival Street and Vernon Street. Messrs. Bedford & Kitson, architects, Greek Street Chambers, Leeds.

LEEDS.—Sept. 4.—For erection of twenty-nine blocks of buildings and the alteration of several others, with roads, drains and all fittings forming the extension of the City Hospital, Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LEWISHAM.—Sept. 12.—For constructing brick and concrete sewer. Surveyor, Town Hall, Catford.

LINCOLN.—Sept. 10.—For erection of public abattoirs in the cattle market. Mr. R. A. Macbrair, city surveyor, Corporation Offices, Lincoln.

LINCOLN.—Sept. 28.—For erection of a boiler shop about 435 feet long and 222 feet wide, and erection of about 960 tons in steel stanchions, girders, roof principals, &c. Messrs. Ruston, Proctor & Co., Ltd., Sheaf Ironworks, Lincoln.

LIVERPOOL.—Sept. 4.—For alterations and additions to workhouse. Mr. W. W. Thomas, architect, 15 Lord Street, Liverpool.

LONDON.—Sept. 12.—For building a cottage at the Home Park open space, Lower Sydenham, and for building a shed (brick and slated roof), for the Lewisham Borough Council. Surveyor, Town Hall, Catford.

MALDON.—Sept. 14.—For constructing new sewer and building filter tanks. Mr. H. G. Keywood, Public Hall Chambers, Maldon, Essex.

MANCHESTER.—Sept. 9.—For constructing retaining walls and an arched covering over the river Medlock, and paving the river bed at Clayton Vale. City Surveyor, Town Hall, Manchester.

MANSFIELD.—Sept. 16.—For erection of schools in Littleworth, Mansfield, to accommodate 890 children. Messrs. Vallance & Westwick, architects, Mansfield.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

MIDDLESBROUGH.—Sept. 2.—For extensions of the borough asylum. Mr. A. J. Wood, architect, 22 Surrey Street, Victoria Embankment, W.C.

OXCLIFFE MARSH.—Sept. 10.—For taking-down of a portion of the arch, the construction of a new arch in lieu thereof and the general repair of the structure of Oxcliffe Marsh No. 3 bridge, situate on the road leading from Lancaster to Overton-on-the-Marsh. The Chairman of the Main Roads and Bridges Committee, County Bridgemaster's Office, Preston.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

PATTERDALE.—Sept. 14.—For building police station. Mr. Joseph Bintley, 7 Lowther Street, Kendal.

PRESTON.—Sept. 7.—For building chimney-shaft and alterations at the infirmary. Mr. Walter Davies, 3 Winckley Street, Preston.

RUGBY.—Sept. 7.—For building public slaughter-houses, cattle-lairs, &c. Mr. D. G. Macdonald, surveyor, Rugby.

SCOTLAND.—Sept. 2.—For additions and alterations to the schoolmaster's house and school at Ballintuim. Mr. James M'Kenzie, clerk to School Board, Kirkmichael.

SCOTLAND.—Sept. 2.—For erection of Doune station buildings for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—Sept. 5.—For additions to nurses' home at Murthly Asylum, Perth. Mr. David Smart, architect, Perth.

SCOTLAND.—Sept. 7.—For erection of public washhouses at Allan Street, Stockbridge, for the Edinburgh Corporation. Mr. Robert Morham, city architect, City Chambers, Edinburgh.

SCOTLAND.—Sept. 19.—For rebuilding Kirkmichael Hotel. Mr. John Sim, architect, Montrose.

SOUTHBOROUGH.—Sept. 9.—For erection of a chapel and cottage in connection with the proposed new cemetery at Southborough, Kent. Mr. William Harmer, surveyor, 137 London Road, Southborough.

ST. ALBANS.—Sept. 9.—For erection of lavatory buildings to the court house, St. Albans. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, Westminster, S.W.

ULVERSTON.—Sept. 10.—For improvement works at High Bridge, on the main road from Ulverston to Dalton-in-Furness.

The Chairman of the Main Roads and Bridges Committee, County Bridgemaster's Office, Preston.

WALES.—Sept. 4.—For building a chapel for the English Calvinistic Methodists at Blaengarw, Glamorgan. Dr. J. L. Thomas, Blaengarw.

WALES.—Sept. 5.—For alterations and additions to the Shepherds' Arms, Cwmaman, near Aberdare. Mr. J. Cook Rees, architect, Neath.

WALES.—Sept. 6.—For building organ chamber, out-offices, &c., at the Mynydd Seion Congregational chapel, Ponkey, near Ruabon. Mr. C. Morgan, Wylfa House, Johnstown, Ruabon.

WALES.—Sept. 9.—For building two vestries at Cwmavon. Mr. G. E. Prosser, Cwmavon.

WALES.—Sept. 9.—For erection of swimming-baths at the public park, Aberdare. Mr. Thos. Phillips, town clerk, Town Hall, Aberdare.

WALES.—Sept. 13.—For building a school at Llanedy. Messrs. J. Davies & Son, architects, Cowell House, Llanedy.

WALES.—Sept. 16.—For building 200 houses at Dowlais. Mr. W. Dowdeswell, architect, John Street, Treharris.

WALES.—Sept. 18.—For building new harbour offices. Mr. T. Strick, Harbour Offices, Swansea.

WALES.—Sept. 26.—For erection of new schools and offices at Burry Port. Mr. Richard Williams, architect, Burry Port.

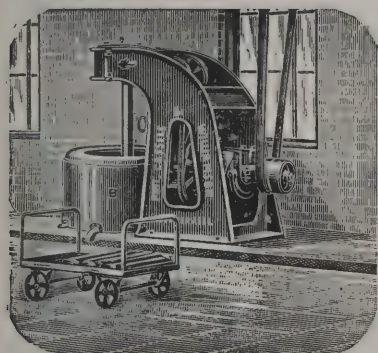
WALES.—Sept. 5.—For erection of a county school at Holyhead. Mr. Joseph Owen, architect, Menai Bridge.

WALMER.—Sept. 4.—For building new council offices. Mr. R. A. Wilson, Urban District Council Offices, Walmer, Kent.

WEYMOUTH.—Sept. 12.—For extension of the cast-iron outfall sewer. Mr. W. B. Morgan, Municipal Offices, East Street, Weymouth.

A NEW eight-day turret clock has been erected at the parish church, Dimsdale, Darlington, striking the hours on the fine bell of about 15 cwts., and showing the time upon three external copper dials, which are painted and gilt. All the wheels are of gun-metal cut on the engine, and pinions of steel hardened and tempered. There is also Lord Grimthorpe's gravity escapement and compensation pendulum, and all the latest improvements. The work has been done by Messrs. Wm. Potts & Sons, clock manufacturers, Guildford Street, Leeds.

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T. J. N. Cannon . . . £509 0 0

AXMINSTER.

For erection of farm buildings, Lower Westwater, for Mr. J. Dommett. Mr. ERNEST A. PRYER, architect, Dunheved Chambers, Axminster. Quantities by architect.

S. Ellis & Sons . . . £575 0 0
G. H. Lentell . . . 487 0 0
Clarke & Parsons . . . 479 0 0

For erection of a residence, Middle Westwater, for Dr. Dunstan, of London. Mr. ERNEST A. PRYER, architect and surveyor, Dunheved Chambers, Axminster. Quantities by architect.

C. Turner . . . £1,400 0 0
Hobbs & Sons . . . 1,338 0 0
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S. Ellis & Sons . . . 1,080 0 0
G. H. Lentell . . . 1,073 0 0

AYLESBURY.

For erection of a detached residence in Wendover Road, for Mr. J. Kingham. Mr. FRED TAYLOR, A.R.I.B.A., architect, Aylesbury.

Webster & Cannon . . . £820 0 0
W. Y. Green & Co. . . 820 0 0
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* Accepted, subject to variations.

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For additions to the National schools at Oakley, for the Brill school managers. Mr. FRED TAYLOR, architect, Aylesbury.
J. Holland . . . £227 0 0

BRIDGE OF WEIR.

For Bridge of Weir, Renfrew, drainage scheme. Mr. J. MURRAY, C.E., engineer, County Buildings, Paisley.

J. Donaldson . . . £3,650 2 5
D. & J. Stratton . . . 3,321 6 9
W. G. Flett . . . 2,666 1 0
W. Scott . . . 2,479 16 9
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BURGHILL.

For erection of two officers' cottages and four attendants' cottages on the asylum estate, for the visiting committee of the Hereford County and City Lunatic Asylum. Mr. ALFRED DRYLAND, county surveyor, Shire Hall, Hereford.
E. W. WILKS (*accepted*) . . . £2,116 0 0

CORNWOOD.

For erection of farm buildings and alterations to farmhouse, Cornwood, Devon.

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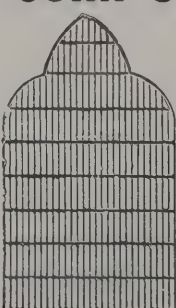
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CHEARSLEY.

For additions to house at Chearsley, Bucks, for Mr. F. T. Higgins Bernard, J.P. Mr. FRED TAYLOR, architect, Aylesbury. Quantities by the architect.

T. H. Kingerlee & Sons	£2,027	0	0
G. H. Gibson	1,850	0	0
Webster & Cannon	1,725	0	0
W. Y. GREEN & CO. (accepted)	1,642	10	0

EASTBOURNE.

For execution of works necessary in widening and improving Old Toll Gate Bridge, in Seaside, for the highways and drainage committee. Mr. R. M. GLOYNE, borough engineer.

J. C. Lacey	£500	0	0
A. H. ROSSWAY, St. Leonard's Road (accepted)	475	0	0

EVESHAM.

For reconstructing the ford across the Avon, for the Evesham Rural District Council. Mr. H. S. HARVEY, architect, 10 Albert Road, Evesham.

T. W. Pedrette	£998	0	0
T. VALE (accepted)	265	0	0
E. Hughes	251	10	0

FEATHERSTONE.

For sewerage works in Post Office Road, including manholes, lampholes, &c., for the Featherstone Urban District Council. Mr. FREDK. B. ROTHERA, engineer and surveyor.

Ward & Tetley	£382	12	8
E. Rothera	367	12	8
F. & G. WILSON, Park Lane, Wakefield (accepted)	373	11	3

For private street works in Dixon Street, including kerbing, flagging, channelling, draining, macadamising, rolling, &c., for the Featherstone Urban District Council. Mr. FREDK. B. ROTHERA, engineer and surveyor.

Ward & Tetley	£453	8	1
G. CLEMENTS, Featherstone Lane, Featherstone (accepted)	345	10	7

GRAVESEND.

For plant in connection with the electric-lighting scheme. Accepted subject to sanction by the Local Government Board.

Western Electric Co., cables and underground work £7,220 0 0

Lancashire Dynamo Co., dynamos	3,552	0	0
Babcock & Wilcox, boilers	2,862	0	0
Lancashire Dynamo Co., engines	2,693	0	0
Babcock & Wilcox, steam pipes	2,226	0	0
Veritys-Pritchett, accumulators	1,577	0	0
Hughes & Stirling, dust destructor	1,550	0	0
Brooke, Hirst & Co., switchboard	830	0	0
Isler, well	310	0	0

GREENOCK.

For electricity works for the Greenock Police Board.

Contract No. 7.—Condensing plant.

MIRLEES-WATSON CO., Glasgow (accepted)	£2,158	0	0
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Contract No. 8.—Fan for induced draught.

BABCOCK & WILCOX (accepted)	380	0	0
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Extension of engine-room building.

R. AITKENHEAD & SON (accepted)	1,175	18	10
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HARWICH.

For making-up Hill Road in the parish of Dovercourt, and for hot-water fittings and gas services at the fever hospital at Dovercourt, for the Harwich Borough Council. Mr. HENRY DITCHAM, borough surveyor.

J. Moran & Son	£340	0	0
Bradshaw & Co., Queen Victoria Street, London*	280	5	6

* Recommended for acceptance.

HUNSTANTON.

For erection of a purifying-house and other buildings at their gasworks, for the New Hunstanton Urban District Council.

P. Banyard	£365	0	0
R. Shanks	365	0	0
W. H. Brown	358	0	0
Read & Wildbur	350	0	0
F. SOUTHGATE, New Hunstanton (accepted)	313	10	0

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HULL.

For various works required in erection of a warehouse at the Waterloo Mills, Cleveland Street, Hull, for the Waterloo Mills Cake and Warehousing Company, Ltd. Messrs. WELLSTED & EASTON, architects, Prince's Dock Chambers, Hull.

F. Southern	£900	0	0
J. R. Woods	833	0	0
H. T. Arnott	832	5	11
F. Beilby	815	0	0
Evans & Co.	813	16	1
H. J. Kirkwood	808	12	3
E. Good & Sons, Ltd.	773	17	10
T. Goates	773	0	0
M. Harper	766	0	0
J. H. Fenwick & Co.	753	15	0
B. Bilton	737	10	0
G. Houlton	726	10	0
G. JACKSON & SON, Witham, Hull (accepted)	692	14	c

KEIGHLEY.

For joiner and plumber's work required in erection of a pair of semi-detached houses at Ferncliffe Drive, Utley. Messrs. JOHN HAGGAS & SONS, architects, North Street, Keighley.

Accepted tenders.

J. Hartley, joiner.

J. W. Clough, Ltd., plumber.

Total, £393.

LONDON.

For alterations and additions at No. 101 Great Titchfield Street, W., for Mr. William Matthews. Messrs. H. FULLER CLARK & PERCY A. BOULTING, architects, 28 John Street, Bedford Row, W.C.

Patman & Fotheringham	£3,700	0	0
Clark & Mannocho	2,497	0	0
J. Hughes	2,408	0	0
H. M. Perkins & Co.	2,395	0	0
E. J. Saunders & Co.	2,380	0	0
A. A. Webber	2,333	0	0
H. Burman & Sons	2,064	0	0
John Anley & Son	1,920	0	0
J. D. PITCHER & SON (accepted)	1,904	0	0

LONDON—continued.

For alterations at No. 66 Berners Street, W. Messrs. H. FULLER CLARK & PERCY A. BOULTING, architects, 28 John Street, Bedford Row, W.C.

F. T. Bruton & Son	£445	0	0
T. G. Boulting & Sons	390	0	0
John Anley & Son	310	0	0
J. D. Pitcher & Son	294	0	0

MANSFIELD.

For electricity works. Mr. R. HAMMOND, M.I.C.E., M.I.E.E., consulting engineer, 64 Victoria Street, S.W.

Accepted tenders.

Western-Electric Co., mains	£8,895	11	11
T. Parker, Ltd., engine-house plant	6,180	0	0
J. Musgrave & Sons, Ltd., boiler-house plant	3,162	0	0
Tudor Accumulator Co., Ltd., accumulators, with 100 per cent. maintenance capacity guarantee	2,987	0	0
B Thomas, switchboard	1,462	14	3
Chamberlain & Hookham, meters	768	15	0
Johnson & Phillips, condensing apparatus	725	0	0
Gilbert Arc Lamp Co. Ltd., public lighting	428	14	0
Britannia Co., workshop equipment	336	3	11
Carrick & Ritchie, overhead crane	316	0	0

MONIFIETH.

For laying-out extension to Barnhill Cemetery and erecting walls and buildings at Monifieth, Scotland, for the Parish Council. Messrs. JAMES MACLAREN & SONS, architects, 24 Bank Street, Dundee.

Accepted tenders.

J. Mitchell, Monifieth, excavator	£588	3	5
W. Bennet, Dundee, mason	642	10	0

NEWCASTLE-ON-TYNE.

For providing and fixing a boiler at North View school, for the Newcastle School Board.

H. WALKER & SONS (accepted)	£110	0	0
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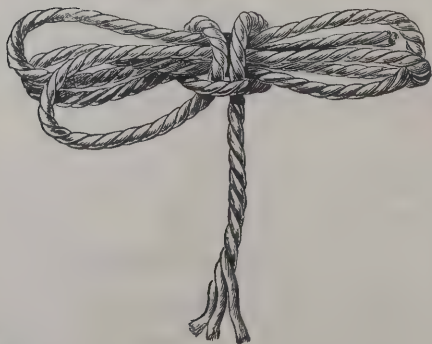
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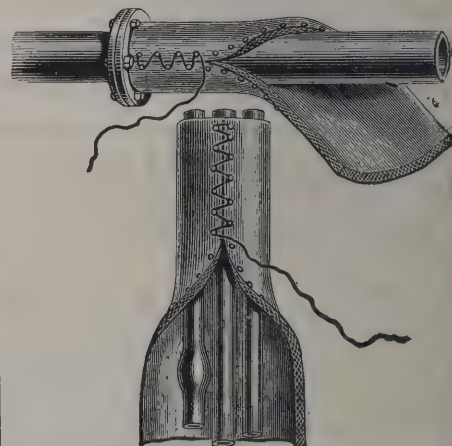
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H. Stevens & Son	£3,974	0	0
G. F. Quinton	2,683	0	0
E. W. Payne & Co.	2,605	15	6
J. & M. PATRICK, Wandsworth (accepted)	2,190	0	0

NEWTON ABBOT.

For erection and completion of isolation hospital, for the joint committee. Mr. WM. ROWELL, M.S.A., architect, Newton Abbot. Quantities by Mr. VINCENT CATTERMOLLE BROWN, Paignton.

W. E. Blake	£7,324	0	0
Mingo & Boone	6,785	0	0
F. A. Stacey	6,557	0	0
Yeo & Sons	6,000	0	0
G. Hicks	5,998	0	0
Parker Bros.	5,894	0	0
H. Mills	5,589	0	0
I. EDWARDS, Newton Abbot (accepted provisionally)	5,225	0	0

PEMBROKE DOCK.

For erection of a new two-storeyed school in Meyrick Street, Pembroke Dock, for the Pembroke School Board. Messrs. GEORGE MORGAN & SON, architects, 24 King Street, Carmarthen.

D. Thomas & Son	£10,552	0	0
Davies & Morgan	9,703	0	0
Davies & Griffiths	9,281	0	0
C. YOUNG, Pembroke Dock (accepted)	8,727	0	0

SCARBOROUGH.

For erection of a new building and alterations, for the committee of the Royal Northern Sea-Bathing Infirmary. Mr. C. EDESON, architect, Huntriss Row, Scarborough. J. BARRY, Brook Square (accepted) £1,430 0 0

PORT TALBOT.

For laying of about 800 yards of railway complete at the English Celluloid Company's works, Port Talbot. Mr. FRANK B. SMITH, architect, Port Talbot.

Lathey & Co.	£1,960	0	0
T. Summerton & Sons, Ltd.	1,829	13	3
T. & A. M. Scott	1,804	8	4
G. H. Mundy & Son	1,709	15	10
J. W. Davies	1,668	5	3
G. L. Strachan	1,510	0	0
Barnes & Chaplin	1,500	0	0
CLARK & CO., Cardiff (accepted)	1,425	2	8

WALES.

For building forty-four houses at Vochriw, for the Vochriw Building Club (at per house).

E. Edwards	£216	0	0
J. LEWIS, Caerphilly (accepted)	205	0	0
R. Jones	203	15	0

WARMINSTER.

For constructing new sewers, for the Urban District Council. TRYHORN & SONS, Salisbury (accepted) £1,115 0 0
Engineer's estimate 1,071 10 0

WELLINGBOROUGH.

For making, kerbing and draining roads, asphalteing yards and enclosing covered way and other works at the workhouse, for the Guardians. Messrs. SHARMAN & ARCHER, architects, Wellingborough.

Goodman & Merskitt	£482	0	0
R. Marriott	476	0	0
W. STEVENS, Wellingborough (accepted)	390	0	0

WEST DEREHAM.

For partial restoration of West Dereham Church, Norfolk.

Bardell Bros.	£790	0	0
John Boddy	585	0	0
W. H. Brown	540	0	0
J. W. Collins	493	0	0
Tash, Langley & Co.*	492	7	9
C. Fryer	475	10	0

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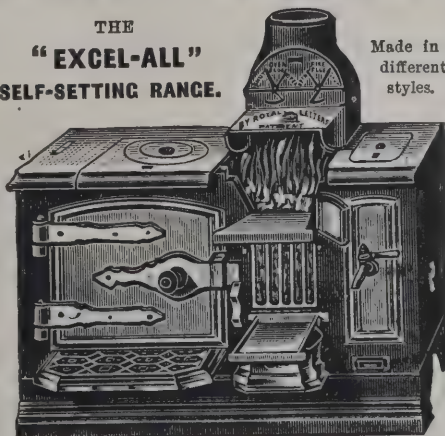
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WHITCHURCH.

For erection of a school, Whitchurch, near Cardiff, for the Whitchurch School Board. Messrs. ROBERT & SIDNEY WILLIAMS, architects, Borough Chambers, Wharton Street, Cardiff.

J. E. Evans	£4,800	0	0
H. Gibbon	4,770	0	0
J. Allan	4,739	0	0
F. Small	4,700	0	0
D. Davies	4,610	0	0
E. Williams	4,555	9	8
Turner & Sons	4,488	0	0
Cox & Bardo	4,466	4	0
G. Griffiths	4,445	0	0
C. C. Dunn	4,440	0	0
E. R. Evans Bros.	4,345	10	0
G. Couzens & Co.	4,296	18	0
W. Thomas & Co.	4,227	0	0
T. Bevan	4,195	8	0
W. T. MORGAN, Cardiff (accepted)	4,045	0	0

WOOLSTON.

For erection of new police station at Woolston, Hants. Mr. W. J. TAYLOR, county surveyor, The Castle, Winchester.

Patricks & Co.	£6,900	0	0
H. Avery	6,439	10	8
Hinton Bros.	5,948	2	0
Bagshaw & Sons	5,300	0	0
Dyer & Sons	5,000	0	0
H. STEVENS & Co., Southampton (accepted)	4,756	0	0

Received too late for Classification.

IRELAND.

For erection of four labourers' cottages in Bellarena electoral division, Limavady, viz. two in the townland of Margy-monaghan and two in the townland of Ballyscullion. Mr. JOHN W. WILSON, architect, Limavady.

R. S. Hill, Limavady	£516	10	0
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ISLE OF WIGHT.

For laying a water main in Park Avenue, East Cowes.

DEACON (accepted)	£132	12	0
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KENT.

For additions and alterations to the Cray Valley Cottage Hospital, St. Paul's Cray. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington. Quantities by Messrs. STANGER & SON.

G. Newton	£2,843	0	0
Rider & Son	2,810	0	0
Stebbings & Pannett	2,805	0	0
Garrett & Son	2,749	0	0
Somerford & Son	2,649	0	0
T. Knight	2,631	0	0
T. D. GRATY (accepted)	2,537	0	0

For additions to private residence, St. Paul's Cray. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington.

James Smith	£203	0	0
E. R. Thorne	185	0	0
T. D. Graty	185	0	0
G. H. Lay	180	0	0
T. Knight	138	0	0
STEBBINGS & PANNETT (accepted)	137	0	0

For a new iron schoolroom at Hockenden, St. Mary Cray. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C.

For the iron building.

R. A. Lowe	£450	0	0
Humphreys, Ltd.	310	0	0
W. Harbrow	303	0	0
F. Smith & Co.	298	0	0

For foundations and general work.

R. A. Lowe	619	0	0
Somerford	556	0	0
Stebbings & Pannett	355	0	0

For repairs to private residence, Orpington. Mr. ST. PIERRE HARRIS, architect.

W. R. Taylor	£267	0	0
R. A. Lowe	255	0	0
SOMERFORD & SON (accepted)	159	0	0

For additions and alterations to a private residence at Orpington. Mr. ST. PIERRE HARRIS, architect, 8 Ironmonger Lane, E.C., and Orpington.

Stebbings & Pannett	£258	0	0
Somerford & Son	244	0	0
E. R. Thorne	240	10	0
W. OWEN (accepted)	240	0	0

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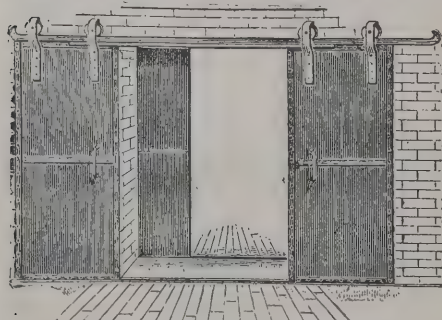
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NEW CATALOGUE.

A VERY practical and useful catalogue has reached us from Messrs. Hartley & Sugden, Ltd., of Atlas Works, Halifax. It contains a large number of carefully-illustrated descriptions of the various boilers for the manufacture of which the firm has achieved a well-deserved and world-wide reputation.

Notable among the boilers described are the Independent "Lawrence" boiler for low-pressure steam heating, which is made throughout from $\frac{3}{8}$ -inch thick wrought-iron plates, and all the joints are solidly welded together so that there is no danger of cracking in frosty weather or through sudden expansion. This is a little more expensive than some other patterns, but presents an unusual amount of heating surface by an inner circle of tubes and a circular flue round the boiler. Two of these boilers of the largest size are heating the Apollo Theatre in Shaftesbury Avenue.

The Independent "Effective" boiler, of somewhat similar type, but with increased heating surface provided by bent tubes in the firebox and two large open flues behind the firebox. Messrs. Hartley & Sugden have fixed a large number of these boilers, and they everywhere, we understand, give great satisfaction. The Independent new patent "Hornet" boiler, for low-pressure hot-water heating, which is so designed that in the spring and autumn, when only a very little heat is required, one side of the boiler can be shut off, thus ensuring a great saving of fuel; the circulation is rapid, and if the water contains any sediment it will all fall below the level of fire-bars, and can be easily removed before the boiler is permanently damaged. This boiler, which is one of the latest patterns, can easily be adapted for heating by low-pressure steam. It has two heating chambers, one on each side of the firebox, and either of these may be shut off at pleasure when a reduced heat is required.

The "Wasp" boiler is especially useful for a smaller apparatus than those already mentioned, although it may be made in larger sizes. Its distinguishing feature is a jacket which provides a flue service all round the outside of the boiler, thus considerably increasing its heating power for the same consumption of fuel.

The No. 3E pattern is a boiler exceptionally useful for hotel purposes, or in any case where a large hot-water supply is required. This boiler is specially provided with waterway bottom, so that no injury can be done to it by the rapid drawing off of hot water.

The "Hotel" boiler is the same boiler with a mantle providing an outer flue, and thus increasing the economy of fuel.

Of course every boiler in the catalogue has its special features, and each one seems to be excellent of its kind.

TRADE NOTES.

THE David Lewis Northern Hospital, Liverpool, is nearing completion. Messrs. Bennington, Son & Harvey are the architects. The whole of the mosaic floors have been carried out by the old-established firm of Diespeker & Co., of London.

THE new public baths which the burgh of Govan have been constructing for some time were formally opened on the 24th inst. The buildings are Classical in design, and involved a capital expenditure of £25,000. There are two large swimming ponds, with a gallery capable of holding 600 spectators. Also a laundry and washhouse. The baths, laundry, &c., have been ventilated throughout by means of seven large roof ventilators (Mackay's patent direct-acting) of Classical design to harmonise with the architecture of the buildings. The ventilators have been manufactured by Messrs. Cousland & Mackay, ventilating engineers, 150 Hope Street, Glasgow.

ELECTRIC NOTES.

THE contract for the switchboards for the Stewart Street station and all the sub-stations in connection with the electrical equipment of the city, has been let by the electricity committee of the Manchester Corporation to an electric company in Berlin. The cost of the contract is not far short of 50,000/.

THE quarterly meeting of the Whitehaven Town Council this week was largely taken up by a discussion on electric-lighting arising out of two recommendations of the water and lighting committee, viz. the appointment of an assistant electrician and an increase in the charges for electric current. Mr. Musgrave explained that the former was necessary owing to the pressure of work and the efficient supervision of the valuable plant at the electrical works. The increased charges for current were requisite to meet current expenditure, as on the present rate of charges there would be a considerable deficit at the end of the year. He pointed out that the existing charges were only one-half of the scale recommended by Dr.

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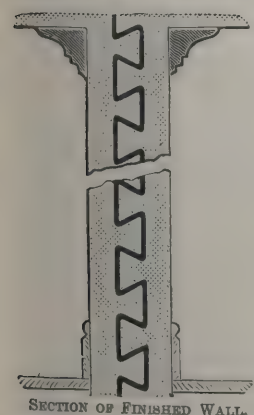
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Hopkinson, and that the proposed increase would now only be equal to gas at 3s. 6d. per 1,000 feet, 5d. less than the current price of gas in Whitehaven. The recommendations were confirmed.

THE new electric station at Farnworth, from which current will be supplied both for lighting and traction, was opened on Wednesday last. The new building has been erected on land the property of the Council, facing Albert Road, and, together with reservoirs and car-sheds, covers a space of 5,937 square yards. In case of extension the Council possess land adjoining to the extent of 9,841 yards. The frontage to the buildings is of an ornamental character. The steam generator plant consists of three boilers of the "Lancashire" type. In the generating station are three engines, each of 200 indicated horse-power, coupled to dynamos, with space for another if necessary. The elaborate switchboards and all the requisite machinery are of the most approved type. It is a matter of interest that, with the exception of the boilers, the whole of the material and equipment of the works have been manufactured in Lancashire. The tramcar shed, which adjoins the generator station, is not yet completed. It will be built to accommodate fifteen cars, of which eight are now being constructed. The overhead trolley system of tramway has been adopted, and the lighting of the town will be effected by fixing to the standards forty-five arc lamps. Already there is a considerable demand for the supply of the current for business and domestic purposes.

VARIETIES.

WHILE excavating at Maxton, near Dover, some workmen brought to light some Roman pottery in fine preservation.

THE members of the waterworks committee of the Leeds Corporation visited yesterday the proposed new watershed near Masham, power to acquire which was recently granted by Parliament. It is estimated that the ground will provide about thirty millions of gallons of water per day.

THE Auctioneers' Institute of the United Kingdom is to pay its first visit to Scotland next month, when meetings will be held in Edinburgh on the 12th, 13th and 14th. The Institute was founded in 1886. Its president this year is Mr. William Bennett Rogers, London.

A NEW elementary school in connection with St. Ignatius R.C. church, Wishaw, has been formally opened. The building, which is fitted with all modern appliances, provides accommodation for 500 scholars, and has been erected at a cost of 4,000l.

LORD MOUNT STEPHEN has been presented with the freedom of the city of Aberdeen in appreciation of his munificent gift of 25,000l. to clear off the debt on the Royal Infirmary. When he was an apprentice to a draper in Aberdeen, Lord Mount Stephen was tended in the infirmary for six weeks prior to leaving for Canada, and it was in recognition of that attention he cleared off the debt.

ON the 24th inst. the Right Rev. John Dowden, D.D., Bishop of Edinburgh, consecrated St. Ebba's Episcopal Church at Eyemouth, N.B. The small building dedicated in 1887 is now used as the chancel, and the new edifice forms the nave, taking the place of the iron building which was formerly used. The church is of the early English Gothic style of architecture, and was designed by Mr. W. J. Gray, architect, Berwick. It is provided with chairs to seat 200, and it has cost 700l.

A CORRESPONDENT telegraphs to the *Leeds Mercury*:—Considerable alarm was caused among local archaeologists by a statement in the *Westminster Gazette* that the old water tower at Chester was in danger of destruction. On inquiry I find that a portion of the old city wall has been pulled down to permit the widening of the Holyhead line. When the work is completed the wall will be rebuilt. The water tower, however, will not be touched. The citizens would not tolerate such a gross act of vandalism.

THE new Board school in Moston Lane, Manchester, which has been in course of erection for the last two years, has just been completed and opened. Accommodation is provided for 1,230 children (450 infants, 390 boys, 390 girls), and there is ample room for extension. This is the thirty-second school erected by the Board, and the first in Moston, excluding the temporary iron structure in Dean Mount. It has been erected at a cost of over 21,000l. The principal part of the school, which is the largest Board school in Manchester, faces Moston Lane.

By a new process, says the *Moniteur de la Céramique*, carbonate of lime stones can be made which have all the properties of natural stones, particularly useful as lithographic stones. It is based upon a discovery made by the inventor, Mr. P. A.

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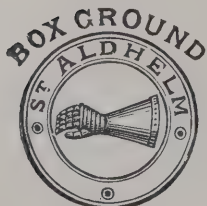
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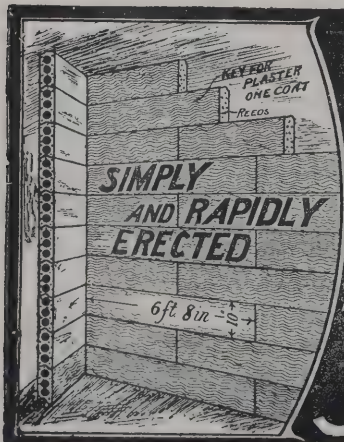
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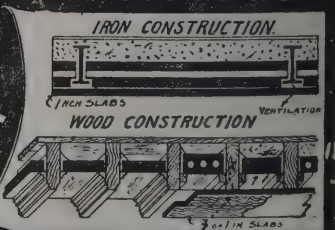


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BUILDING AND BUILDERS.

MR. ROBERT GEORGE SEAMAN, builder, of Crown Street, Ipswich, fell from a scaffolding in Stirling Street on Wednesday and sustained terrible injuries. He died within a few minutes of admission to the hospital. Deceased was supervising the reconstruction of a building.

IN connection with the proposed new church for Elland, Yorks, it has been decided to erect the transepts and half the nave and have a proper roof, instead of corrugated iron, as had been suggested as a temporary device. Contracts have already been let for the work.

PLANS have been adopted by the St. Pancras Borough Council for the erection of blocks of industrial dwellings on cleared sites in Brantome Place, Euston Road, and Prospect Terrace, Gray's Inn Road, respectively, providing accommodation for 584 persons, allowing two persons to each room. The total estimated cost of building is 32,367/.

THE parish church of Pocklington, Yorks, is undergoing a long-needed restoration. The architect is Mr. John Bilson,

F.S.A., of Hull. The condition of the fabric is very bad. The roof of the nave might at any time have fallen in. The pews are worm-eaten and rotten, and cannot be put back. The work at present in hand will not be so thorough a restoration as could be desired, owing to lack of funds.

THE Local Government Board order confirming the County Council Mid-Cheshire Isolation Hospital order has been received by the authorities affected. It contains clauses described as absolutely unique, and puts an end to resistance extending over five years. It imposes upon the Northwich Rural and Northwich, Winsford and Middlewich Urban Councils the duty of providing a joint infectious hospital, which will cost at least 15,000/. In default of the scheme being carried out the County Council will appoint a managing committee, and ten out of eighteen members will be councillors. Singularly enough it is only if the local authorities evade responsibility that the County Council contributes.

It has been officially announced at Buckie, N.B., that the Lords Commissioners of the Treasury have agreed to grant 15,000/ towards the sum required for the construction of a harbour at Craigenroan. The scheme entails the annexation of Portessie and district by the borough of Buckie. The estimated figures submitted embrace a total cost of 45,000/., of which 10,000/ is in hand, exclusive of the Treasury grant. A public meeting of the inhabitants will probably be held to further deal with the scheme.

THE Norton (Malton) Urban Council at their meeting adopted the surveyor's specification for the proposed swimming-bath, and the work is soon to be gone on with. The Council also decided to apply to the Local Government Board for permission to borrow 500/ for extension of water mains and additional pumping power. It is proposed to extend the water supply round by two of the noted training establishments—Whitewall and Spring Cottage—and to the entrance to Colonel Legard's Welham estate.

THE NEW DOCK AT DOVER.

SIR WILLIAM CRUNDALL, the deputy-chairman of the Dover Harbour Board, has made a statement in reference to the scheme for a new commercial dock at Dover. He says that, now the Dover Harbour Board are authorised by the Act

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passed in the last session of Parliament to complete the whole of the proposed works, and to increase the poll-tax they have power to levy from 1s. to 2s. 6d. per head, the work will be pushed forward as rapidly as possible. He has reason to believe that as soon as the harbour is ready to receive them, the Hamburg and Bremen Transatlantic liners will make Dover their port of call. At the present moment the *Deutschland*, which draws 30 feet of water, and the *Celtic*, which draws 33 feet, could lie alongside the end of the new Prince of Wales's pier at low water of springtide with 3 feet to spare. But until the Prince of Wales's pier, which has been completed at a cost of about 600,000l., is connected with the South-Eastern and Chatham Railway systems this Transatlantic traffic could not be adequately dealt with. It is proposed to provide the necessary railway facilities in connection with the improvement of the old outer harbour, which is to be deepened. Lock-gates are to be constructed at the entrance to this harbour, and the Prince of Wales's pier is to be connected with the railways by means of lines over these gates. The main portion of the scheme yet to be carried out is the erection of a water station in the commercial harbour. This station, which will be two and a half times larger than Charing Cross Station, will accommodate sixteen trains under cover, and have berths for four cross-Channel boats. The total cost of the works, including the sum required to pay off the debentures on the Prince of Wales's Pier, will be 1,750,000l.; and, assuming that the cross-Channel traffic does not increase beyond its present proportions, it is estimated that a poll-tax of 2s. 6d. per head would produce an annual sum of 50,000l. But Sir William Crundall anticipates a largely increased cross-Channel traffic, in addition to the development of a Transatlantic service, and if these anticipations are realised he believes it will not be found necessary to levy a poll tax of 2s. 6d. He pointed out the benefits which the railway company would derive from being able to run their boat trains to one port; and, in order to illustrate the advantages which the Dover route enjoyed, he claimed that Dover was five miles nearer the Hook of Holland than Harwich, twenty-five miles nearer Flushing than Queenborough, and about three-quarters of a mile nearer Boulogne than Folkestone. He also stated that a Transatlantic service from Dover would probably attract much of the traffic from America which now went to Paris over the Western of France Railway, because the passengers could come to Dover and

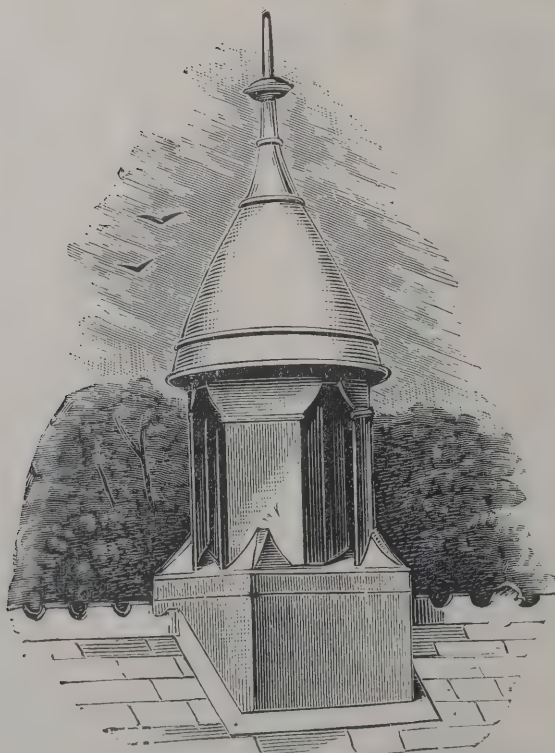
cross the Channel, and then proceed to Paris by the Northern of France Railway. It is estimated that the harbour could be prepared for Transatlantic traffic in two years, but it will take four years to complete the water-station.

BIRMINGHAM MUNICIPAL SCHOOL OF ART.

THE new session of the Birmingham Municipal School of Art will, says the *Birmingham Post*, begin on Monday, September 9. During the previous week the Central School will be open to public inspection from 11 A.M. to 9 P.M. daily, and the head master (Mr. Edward R. Taylor) will attend at the times stated in the programme in order, as far as possible, to arrange the courses of study of intending students. Morning, afternoon and evening classes will meet on five days a week at the Central School. The course of instruction includes drawing, design, modelling, painting, architecture, building construction, and technical instruction, under highly trained specialists, in the following amongst other processes:—Metalwork: Raising, repoussé, niello, chasing, etching, engraving, damascening, filigree and metal casting, enamelling, cloisonné, champlevé and limoges, stained-glass work, bookbinding, writing and illumination, embroidery and other needlework, wood carving, drawing for book illustration, wood engraving, the making of decorative cartoons, gesso-work. There are some changes in the personnel of the teaching staff. In the special lectureship on anatomy Dr. Wright, the lecturer on that subject in the University of Birmingham, joins Dr. B. C. A. Windle, F.R.S., who has for many years delivered a brilliant series of lectures at the school. The able services which Mr. W. H. Bidlake, M.A., A.R.I.B.A., has for a long time rendered as special lecturer on architectural history and architectural design, have done much towards giving to this department its distinguished position amongst the architectural classes of the United Kingdom. Mainly owing to his increasing practice as an architect, Mr. Bidlake is unable to devote to the school as much time as heretofore. But he continues his special lectureship in architectural history; and the committee have been fortunate enough to secure as his successor in architectural design Mr. Charles E. Bateman, F.R.I.B.A., ex-president of the Birmingham Architectural Association. Mr. Herbert T. Buckland will continue his attendance in the elementary architectural class on Wednesday evenings, and in both the elementary and

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advanced architectural classes on Thursday evenings. Miss May Morris will attend at intervals during the session as special lecturer and teacher of needlework; and Miss Mary J. Newill will be welcomed on her return to the school as teacher of that subject on two mornings and two afternoons a week throughout the session, and occasionally also in the evenings. The death of Mr. Louis Movio rendered vacant a teachership of metalwork. Mr. J. Paul Cooper has been appointed to fill the vacancy thus caused. Mr. Paul Cooper's qualifications justify the hope that he may continue and extend the work of his predecessor. Mr. Paul Cooper was trained in the office of Mr. Sedding, a London architect, who died young, but whose work, especially in Devonshire, early gave to him a high position among experts. Visitors to the Arts and Crafts Exhibition at the New Gallery in Regent Street, W., will recall Mr. Cooper's work. Whilst at Mr. Sedding's Mr. Cooper worked under Mr. H. Wilson, now a leading metalworker, and recently appointed teacher of metalwork at the Royal College of Art. For several years Mr. Cooper has done metalwork both on his own account and in conjunction with Mr. Wilson. Mr. Wilson says of Mr. Cooper:—"His work is of great interest to me personally, and I think it quite beautiful." Mr. Louis Joseph, the enameller and chaser, will continue his attendance in the art laboratories, and arrangements are in progress for further attendance of teachers there on and from September 9. Mr. Henry A. Payne, the distinguished ex-student, who is now well known not only as an exhibitor at the Royal Academy and at the New Gallery, but also as a designer for stained glass, has recently undergone a course of technical training in the stained-glass workshop of Messrs. Lowndes & Drury, London. Messrs. Lowndes & Drury execute all the stained glass made from the designs of Mr. Christopher W. Whall, whose work for English cathedrals and other buildings is noteworthy, and Mr. Payne has throughout his course in London had the advantage of Mr. Whall's supervision and encouragement. Mr. Payne is thus qualified to teach from beginning to end the process of stained-glass work; a room in the school is being equipped accordingly, and an interesting syllabus and full particulars as to Mr. Payne's attendance are given in the programme. For writing and illumination a syllabus appears in the programme for the first time; this class was successfully opened in February last, under the teachership of Mr. Ernest G. Treglown. Some bookbinding has already been done in the school. Mr. Francis G. Garrett,

who was apprenticed to Novello's as a bookbinder, subsequently worked there for several years, and also has been carefully trained under Mr. Douglas Cockerell, the teacher of bookbinding at the Central School of Arts and Crafts, has been appointed to teach bookbinding on Monday, Tuesday, Wednesday and Thursday evenings, in a room adapted to the purpose.

DERWENT VALLEY WATER SCHEME.

THE valley of the Derwent is being made ready for a great change. The water of the river is to be mounded into four big lakes of storage and supply. As Longdendale is to Manchester, and as the Elan valley will soon be to Birmingham, so in due time the Derwent valley will be to Sheffield, Nottingham, Derby and Leicester. The undertaking is a heavy one, and the Derwent Water Board, created in 1899, is responsible for carrying it through. First evidences of the board's activity can now be seen, says the *Manchester Guardian*. Near the confluence of the Ashop and the Derwent a cluster of cabins for housing navvies has made a mushroom-like appearance. There will be one reservoir between Bamford and Ashopton, another near to Derwent Hall, a third further up the valley that will swallow up Howden farm, and a fourth, still higher, that will take the place-name of Ronsley.

There will be much turmoil before the peacefulness that is now first being disturbed is restored. The railway is coming all the way from Thornhill, which is near Bamford, to the top reservoir at Ronsley. Under the shelter of the high moorland at Birchin Lee a thousand workmen will find their temporary dwelling-place. The railway train will take them away to their work in the morning and bring them home to their wives and families at night. Their children will go to school in the daytime; there will be recreation in the evening; the canteen will be a place for refreshment only; a village missionary will be retained—and a village policeman too. The village is nearly ready for its people, and theirs should be a happy and healthy community if they do not vex themselves with ills of their own making. The village may last a dozen years or more, for water schemes are slow of development. Birmingham got Parliamentary powers to go to Wales in 1892. Birmingham is still waiting for a draught of Welsh water, and its workmen's village will not be a deserted village yet awhile. The Derwent scheme will not be completed for many years; indeed, it was stated in the course of the Parliamentary proceedings that

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there would be no thought of constructing the supplementary storage reservoir in the Ashop valley—the valley that leads from Ashopton away in the direction of “The Snake”—for twenty years. The speed with which the work will be pressed forward will depend entirely upon the growth of the necessity for its completion. Leicester is urgently in need of an increased water supply. Sheffield, on the other hand, is so well off that the recent drought has occasioned no inconvenience. But when Sheffield found that three other communities were athirst for the only available watershed area to which it could itself turn in case of need Sheffield prudently claimed a share of the Derwent, and Parliament recognised the justice of the claim. The watershed area extends over some 31,946 acres, and it is estimated that the accumulation of water will make available 33,000,000 gallons of water per day. The county of Derby claims 5,000,000 gallons, and the four municipalities are to divide the balance according to a basis of percentage. Each is to bear a share of the cost calculated upon the percentage of water allocated. The total cost will not be less than 6,000,000 $\frac{1}{2}$, and this will cover the construction of the dams and the tunnelling, conduit-making and pipe-laying by which the water will be carried to its respective areas of supply. Sheffield will draw from the larger and lowest reservoir through a tunnel that is to be bored under the craggy escarpment of Bamford Edge. Leicester, which requires a higher-level service, will draw from one of the highest reservoirs. Excavation for the Howden reservoir has begun, but much progress cannot be made until the railway is made. The railway will have a junction with the Midland Dore and Chinley line, and by it all materials will be conveyed. There will be no need to go far afield for stone to make the dams with. The district is full of quarries—so full, in fact, that a Parliamentary committee has ruled that it was quite unnecessary to destroy the natural beauty of Lady Bower valley (Sheffield's approach to Ashopton) by hewing into its sides for stone. Further along the valley, in the Hathersage direction, the stone will be obtained—Hathersage, whence one can see Millstone Edge ruddy against the sky-line, a quarry where the stone is so excellent that it is hewn out and sent abroad for milling work as far as to Norway and to Canada. It has been estimated that the construction of the dams will use up nearly two million tons of stone, and that when the work is begun seven hundred tons a day will be required to keep it going. This alone is an index of the great industrial upheaval that is about to take the place of quiet rural pursuits in the Derwent valley.

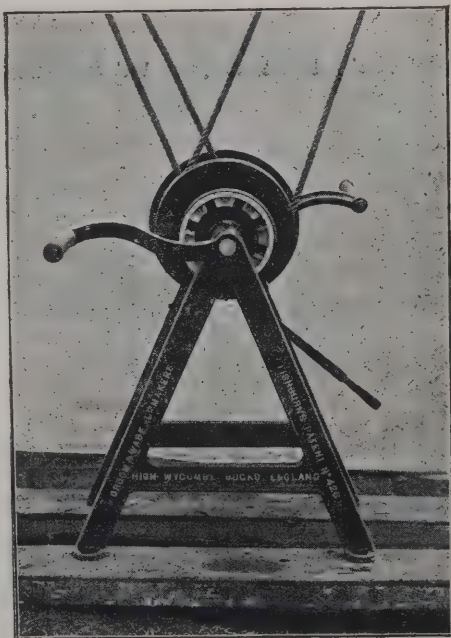
ELECTRIC LIGHT AT DURHAM.

DURHAM'S new electrical works, which are rapidly progressing towards completion, occupy a site abutting on to Silver Street Back Lane, and are in extent 120 feet by 90 feet. The buildings are all on the one ground-floor, and, commencing from the river, consist of a cell-room, engine-room and boiler-house, with the company's offices situate some few yards distant to the right. There are two sets of boilers, four in all, by Babcock & Wilcox, the coal being shot direct into the bunkers from the Back Lane. For the sake of economy a Berriman feed-heater has been laid down for the purpose of heating the water before passing into the boilers, whilst the boiler is fed from a large tank designed to hold 55 tons of water. This tank is from the Barrowfield Iron Works, Glasgow, and the feed pumps by Messrs. Weir. There are at present two dynamos, each of 140 horse-power. These are simply for generating electricity for the lighting, it being intended to lay down another dynamo of 280 horse-power when the electric trams are commenced. The electricity is carried from the dynamos to the switchboard, whence it is distributed by the cables to the various parts of the town. In order to maintain an even pressure of the current there is what is called a balancer and booster, which, together with the engines and dynamos, are by the Brush Electrical Engineering Co., Loughborough. The cell-room previously mentioned is for the purpose of storing the surplus electricity, which is kept there for use when there is little demand, thus enabling electricity to be supplied without working the engines. The cells are by the Hart Company, whilst the switchboard alluded to is by Messrs. Verity's, London. The smoke stack, which formerly did duty for the factory, has been taken down to the extent of 25 feet, and rebuilt 40 feet. This work was carried out by Messrs. Reid Ferens, of Durham. The buildings generally are being erected by Mr. T. Weatherell, of Newcastle, the architect being Mr. H. Graham, also of Newcastle. The whole of the work is being carried out under the superintendence of Mr. J. S. Frain, manager to the County of Durham Electrical Power Distribution Company, Limited. The work of laying the distributing mains in the town will be commenced this week by Messrs. Callender. The ground will first be opened out in the South Bailey and the Elvets, and with a view of getting this portion of the work done as speedily as possible for the convenience of traffic, three gangs of men will be engaged. The laying of the cables is a lengthy task, and even with the three gangs at work it is esti-

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mated that ten to twelve weeks will elapse before it is completed. The whole work, both in connection with the buildings and the cables, is being pushed on as rapidly as possible, and the company anticipate being able to commence supplying electricity by November.

THE LANCASHIRE AND CHESHIRE ANTIQUARIAN SOCIETY.

A STRONG contingent of the members of the Lancashire and Cheshire Antiquarian Society visited Leek on the 7th inst., accompanied by Mr. W. Harrison, their treasurer, and Mr. Yates, F.S.A., their secretary. They were met at the station by Sir Thomas Wardle, the Rev. W. Beresford and Mr. C. Lynam, F.S.A., and the leaders of the day (Messrs. W. Jarr and S. Unwin). They first drove to a fine barrow near Messrs. Broster's Mill, where Mr. Unwin read extracts as to its excavation from Mr. Sleight's "History of Leek" and the Rev. W. Beresford supplied some further details and corrections. Proceeding to the Abbey, Mr. Beresford acted as guide, pointing out a fifteenth-century gateway, a thirteenth-century coffin-lid and the ground plan of the monastic buildings. He then took the party to a large rampart of earth in a field to the east of the Abbey ruins. This rampart, he said, could be traced through Staffordshire in an oblique direction from Buxton to the river Severn, near Newport, in Salop. Mr. Barnes, of Hilderstone, had pointed out a passage in Tacitus which said that Ostorius Scapula about the middle of the first century, had subdued Britain south of the Trent. But Ostorius could not conquer the Lancashire and Cheshire men, and had ruled them off with this line. Dion Cassius, a later writer, also alluded to it; and there was reason to believe that after the death of the Emperor Severus, who died at York in 211, this same rampart divided the country into Upper and Lower Britain. When the Mid-Saxons came some two or three centuries later they found it still difficult to subdue Lancashire and Cheshire, and like the Romans they too were content to make this old line their first frontier. A passage in Green's "Making of England" showed that the middle English got their name of Mercians or Men of the Mark from fighting along this line; and the name of Meerbrook, or Mark Brook, existed to this day. As they saw it the rampart would not long resist an attack. But they noticed where they stood that a number of other ramparts made an enclosure of an oblong shape with rectangular corners. This was a Roman position.

There was another on Gun Hill, about two miles away, and upon these military stations the strength of the line depended. South of Leek the rampart carried a wall, probably like that described in the *Gentleman's Magazine* of 1797, made of the trunks of oak trees closely bound together, and a correspondent who was writing a history of the Offa's Dyke had noticed that Offa's Dyke had in places strong groves of holly planted on it. So had this.

Some of the gentlemen present pointed out that a similar dyke, called the Grey Dyke, ran through Bradwell in Derbyshire, and Mr. Beresford said that was precisely what one would expect, as the Mark ran right across England from the Severn towards Flamborough Head, and would take Bradwell in its way. Cheddleton (Chattel Town), Caverswall and other places were stations on the Mark.

An adjournment was then made to the Abbey House, the residence of Mr. Renney, which the party were allowed to explore.

Passing next to the Hermitage near the Abbey, Mr. Beresford pointed out the hermit's door, roof, fireplace and chimney-track. The hermit had three rooms—a sitting-room, an oratory with an aumbry, and a storeroom at the back. The river then ran in front of the hermitage and close under Abbey Green, and a little herb garden might be noticed hard by.

A move was next made to Mr. Hulme's Farm, Abbey Green, where Mr. Beresford had some surprises in store. He showed the red flakes of rock peeping out of the ground, from which flakes of rock Leek got its name. Here was a quiet bay in the hills, protected from cold winds and open to the sun, where the White Monks, who came from Pulton, near Chester, in 1214, probably spent the seven years from 1214 to 1221, till their abbey was ready for them. He showed the visitors a part of the Mediaeval cross which had formed, he thought, the centre of their place of worship during those seven years. And close by was the quarry where they hewed their stone. The floor of the cell occupied by the superintendent monk had been discovered through the thoughtfulness of Mr. G. Hulme, who, in pulling up a young tree on the spot, found a tile sticking to its roots, and had then bared the pavement. It was when invited to see these tiles that he (Mr. Beresford) had noticed the extraordinary characteristics of the hill in which the quarry lies. These he then pointed out to the visitors, asking them to notice how a bold promontory of rock was cut off from the hill behind it by a deep trench, and how the promontory was made difficult of access by two sharp arti-

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ficial escarpments one above the other, which ran round the projecting sides. The top was defended by a rampart and trench, where watchmen or slingers could lie hidden from view, ready to throw missiles at an attacking party. The place excited great interest amongst the visitors, who asked Mr. Beresford questions and made suggestions, one being that the stones were floated up the river to the abbey after the river was deepened for the purpose by a dam. The monks of Rievaulx, in Yorkshire, had floated their stones along special canals made for the purpose.

Mr. Beresford explained that this ancient British station at Abbey Green was linked by roads with other stations. The defenders had provided themselves with a road sunk in the ground along the bottom of Suddendale, deep enough for them to drive away their cattle towards the hills unobserved. That road led to another camp near Tittesworth Farm, and that camp was linked with another at Thorncliffe, and, further off, another near Colt's Moor of a larger size where cattle could be safely enclosed. The last three were camps in the forks of brooks, and were defended at the side subtending the angle by trenches or ramparts. The roads linking these ancient British fortresses together were disused; but those along the Roman line which became the Mark were still mostly in use.

At the tea at the Red Lion a vote of thanks was passed to the Rev. W. Beresford. The president of the Society (Professor Boyd Dawkins, F.R.S., F.S.A.) has since sent him a message of thanks for his kind attention to the members and the excellent descriptions which he gave of the places visited under his guidance. Mr. Boyd Dawkins very much regretted that he was unable to be present.

STEELWORK IN SKELETON BUILDINGS.*

THE present architectural design of buildings in which an iron frame is used for supporting the masonry is the cheapest form of dissimulation, and we can imagine the disgust with which our successors in years to come will regard the work of the present generation. The cause of this trouble lies in the attempt to apply the same architectural details to a skeleton building that are usually applied to a masonry

* A lecture delivered at the School of Architecture, University of Pennsylvania, by Mr. William Copeland Furber, C.E., and published in the *Engineering Record*.

building, or, in other words, to apply the architecture of stone to a structure of iron. The fundamental basis of the present architectural forms has the merit of once having stood for something of utility. The console, the dentil, the pediment, the column all once had a utilitarian office, and to the ornament has been applied until they have assumed a graceful form and have become the words of the architectural language in stonework. But they had the truth for their prototype and they have consequently developed rationally.

The architecture of the iron building of to-day is indefensible, because it is, first of all, a sham, a mere pretence, purporting by its detail to be a masonry structure, yet violating every principle of masonry construction. It is ridiculous to say the least, to see a building in which the cornices, brackets and consoles, which are the visible evidence of the bones of the structure, and apparently support the work above them, are wired or strapped to the iron skeleton. The galvanised iron cornice and similar shams are surely no worse.

The solution of any problem is arrived at by a series of compromises, and any one charged with responsibility should fully understand what these compromises involve from an artistic and utilitarian point of view, for the best results cannot follow when one or the other is ruthlessly sacrificed without consideration, but with a proper appreciation of the value of the two an architectural and structural solution can generally be found which does justice to each, and is also practical.

The first and most important thing to be done after the requirements of arrangement have been determined, is to rough out the plan and fill in the main lines of construction, for if this is done it is surprising how easily the rational development of a scheme will follow. It is well in beginning this method to have more than one approximate plan, and they should not be determined plans. The purposes of the building and its general or specific uses to which it is to be put should have been carefully studied out, and the designer should have fixed in his mind the limitations of the problem, or in other words he should have found out the things he cannot do. It is wonderful how it clears up the atmosphere to possibilities, discover what the impossibilities are. When you have discovered what you cannot do, the things you can do crowd themselves upon you.

Rust Protection.—There is probably no part of the material in an iron skeleton building which receives so little protection from corrosion as the skeleton, and this is because it is covered up. The ancient adage, "out of sight out of mind," is as applicable here as elsewhere.

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regarding this neglect as it is in many other matters relating to buildings.

Rustproofing a structure is, however, a very simple matter. Rust in steel or iron is due to three factors working together—water, an acid and oxygen. These three must work together to produce it. Ironwork in a building is liable to corrosion through the presence of water which is probably sufficiently charged with an acid and sufficient oxygen to furnish all the properties required to begin the work of disintegration at once, or, if it is not, can readily acquire them in short order.

Fortunately we have a material which possesses many useful qualities and at the same time the very valuable property of rendering harmless any water which may reach the iron. In the foundations of buildings which are below water level, or near enough to it to be wet by capillary attraction, we cannot hope to keep the ironwork dry, but by neutralising any acid that may be present in the water we can insure against corrosion. Portland cement, because it is a product of lime, furnishes an admirable base for any acid that may be found in water under ordinary conditions, and by reason of this, any water which may find its way through the cement cannot produce rust because only one of the combination which produces rust is present.

It is, therefore, highly important that with one of the three present we keep out the others, and this demands that the concrete be in contact with the metalwork at all points. It becomes, then, absolutely necessary to guard against such defects in the concrete envelope as would permit their entrance.

The concrete should be in the closest contact with the metal, and for this to be possible the metal must be clean—that is, free from mill scale and rust and not painted. In order, however, to protect the metal from accidental corrosion before it leaves the shop, it should be covered with one coat of raw seed oil. This oil is destroyed by the cement, and does not prevent the close contact of the steel and the concrete. In order to come specifications will require that all metalwork shall have the surface cleaned with the sand blast, so that the covering can be applied directly to the metal and not to the scale or skin which ordinarily covers it when it is received from the rolling mills.

After the surface of the metalwork is clean it is best, if possible, to cover its surface with a simple mixture of Portland cement and sand, but as this is not always practicable, a close contact can be assured by using a concrete made with a liberal

proportion of mortar and the aggregate or filler in small pieces, ranging in size from particles as large as a pea to those which will just pass through a $\frac{1}{4}$ -inch ring. If the material forming the aggregate is larger than this, it is apt to bridge over voids and prevent the ramming of the concrete into a solid homogeneous mass. The rate of expansion from heat being practically the same in iron and cement, if the contact is properly made between them they will act together thereafter, so that success in this rust protection demands that the work be done right in the first place.

Above the foundation construction, the next most vulnerable points are the external columns and girders. Rain and moisture can readily find their way through stone and brick walls, and if the metal is not covered with anything more than paint, which the mortar in the masonry has already destroyed in places, it is not a great while before corrosion begins. The concrete envelope should be placed around all external columns and girders, and the inside ones as well, if they are to be efficiently fireproofed. The concrete envelope is best secured in place by a fabric of wire netting of close mesh, which should have its edges bound together where they join. Around this netting should be placed the temporary boxing which is removed after the material has hardened.

Fireproofing.—One of the greatest faults of the modern systems of fireproofing is the thinness of the covering. Any non-conducting incombustible covering will prove reasonably efficient if it is thick enough and thoroughly secured to the columns and girders. The reason the coverings have been made so thin is this:—In the transposition from materials of low resistance like stone and brick to materials of high resistance like iron and steel, the difference in the areas required for walls and piers was so great and the space saved so valuable that the temptation has been to restrict the space occupied by the columns to the minimum. Consequently as little has been allowed for the column and girder coverings as the law allowed, and as a result a good deal of the so-called fireproof covering is insufficient and in many instances improperly applied.

In the fireclay covering and other rigid materials the common practice is to unite the component parts with mortar. This is not sufficient. Coverings of any kind of rigid or plastic materials should be fastened on with wire netting to give fibrous qualities, and prevent separation in case of blows sufficient to break the covering.

Semi-porous terra-cotta can be heated to redness and then

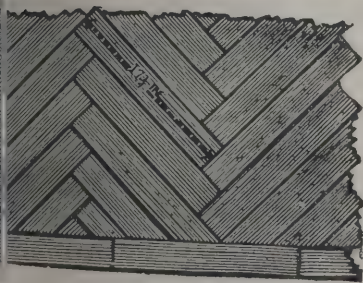
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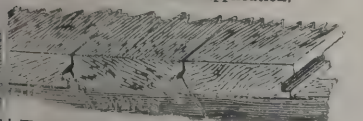
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plunged into water without apparent disintegration, and is probably one of the most durable materials which can be applied to the protection of ironwork from heat. This knowledge of its virtue, however, has led the manufacturers and the architects to decrease the thickness of the covering to such a point that it no longer answers its purpose in a satisfactory manner. This is particularly true of the covering of the lower flanges of the floor beams, where the covering is only about an inch in thickness. In this detail another great sacrifice is made, namely, that of air-cells. Dead air space is a very poor conduction of heat, but this valuable property has been sacrificed to keep the floor arches of the minimum thickness, notwithstanding the great loss of efficiency in the fireproof covering caused thereby.

A material which combines many good qualities useful in fireproofing is Portland cement, which, if mixed with sand, forms almost an admirable fireproofing material applicable in a plastic state on a wire-mesh fabric to any structural member.

The high temperature at which Portland cement is made indicates its fire resistance. It is also a poor heat conductor, and, if applied properly and in sufficient thickness, with air spaces between the coverings, will answer the purpose of fireproofing very well. It has, however, the defect of its qualities, that is, it can be applied so readily and so easily as to require careful inspection to be sure it is properly mixed and then properly put on.

The fireproof floor is usually made of porous hollow tile, expanded metal and concrete, or wire-mesh arches embedded in concrete. All these floors are good ones if they are carefully put in place.

The porous hollow tile can be easily laid, requiring merely a centreing of flat boards propped up under the floor beams. The tile is strong and easily laid and easily inspected, and defects in tile and laying can be readily detected.

The concrete floors of any construction require inspection in the mixing and the laying. Carelessness or dishonesty in the mixing or carelessness in the laying may lead to bad results later on. The strength of concrete is dependent on the use of suitable materials and careful treatment. Without these good results cannot be expected.

In any system of flooring the flanges of the floor beams should be abundantly protected, for the failure of a floor beam through heat would open a hole in the floor which would permit the spread of fire.

Partitions can be made of several materials; mackite, hollow

tile, expanded metal and wire lath all have their uses and are good. Where a partition is required to be of the minimum thickness wire lath or expanded metal on steel studs permit the thinnest construction. Care should be used to see that a partition is well secured to both the floor and the ceiling near the doorways, for if it is not the jarring of the door is apt to break it loose.

Wind-bracing.—In arranging a building for wind-bracing, sometimes the floor plans will permit a symmetrical arrangement of the cross-section in which the wind-bracing is to be put. Frequently, however, no such desirable arrangement is possible, and only certain sections can be utilised; this complicates matters somewhat, but careful study will usually permit a satisfactory solution of the problem. In some instances, due to the great uplift on the windward side or the lightness of the wall carried by the column, the weight of an adjoining column has to be engaged to contribute its load to the load on the wind-brace column, which is done by means of a stiff diagonal strut. This condition is met with only in high and narrow buildings.

Where each line of columns in a cross-section through a building is not utilised as a stiff section, the lines not so braced should be attached by means of a floor system to the stiff section, so that the unstiffened sections shall transfer their wind loads to the stiff sections at each floor or every other floor. This is best done by a system of diagonal rods below the finished floor line with turnbuckles for tightening them up.

Wind-bracing in a high building performs, during and after erection, the very practical office of facilitating erection, enabling the columns to be maintained in their correct vertical position; for with the best shop work the play of the temporary bolts in the holes is sufficient to allow a serious deviation from the vertical to occur, and with the temporary bracing of wood struts this can rarely be prevented. Departures from the vertical of 2 inches in a height of 100 feet can readily occur and are not noticeable except when compared with a plumb line. Wind-bracing can be made of certain lengths to fit between the columns and requires that each column shall be in its proper place before the bracing will fit, so that no gross error can accumulate. Great care, however, must be used to see that the columns are vertical before the rivetting is done. The plumbing is usually done by means of heavy iron weights attached to wire. The plumb-bob is first steadied in a bucket of water.

The wind-bracing also performs an additional office of

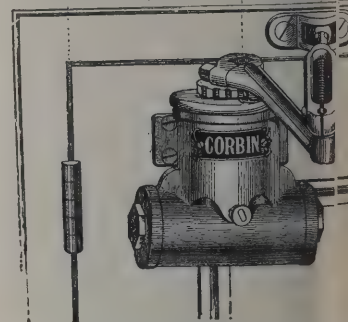
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venting any movement of the building which cracks the plaster and eventually weakens the connections. In the Woman's Temple Building in Chicago, which is built with cast-iron columns, without wind-bracing of any sort, the movement of the building is perceptible and is sufficient to cause pictures suspended against the walls to describe an arc in oscillating.

Eccentric Loading of Columns.—In designing a building the equal spacing of the span of girders should be adhered to if possible. Sometimes the architectural treatment, if decided upon in advance, does not permit it, yet it can frequently be accomplished if the pros and cons are rationally considered. If the loading is equal on both sides of the column in either axis, then the column can be made of a minimum section, for no extra material has to be included to provide for the strain caused by bending. But if the plan or the elevation does not allow an equal spacing of the column, then the sectional area of the column must be increased or the radius of gyration must be increased, so that the increased strain caused by the bending of the unbalanced load does not increase the strain from the vertical loads beyond the unit strains allowed.

An eccentric load will increase the sectional area of the column materially, depending, of course, upon the load and the lever arm through which it acts. Where the columns are continuous or a splice is made between the ends of the abutting columns sufficient to transmit bending, the bending strains are reduced—because of the continuity of the column—by the force necessary to make a contrary flexure, and such a reduction in the strain is justifiable under ordinary conditions. The only condition such a consideration requires is that every alternate floor shall not be loaded, and every intervening floor be empty. This is not likely to occur at any time in any building except a warehouse, where such loading might occur.

Good design will eliminate many of the evils of eccentric loading. In many instances the wall beams can be placed on the outer side of the column, balancing, or nearly balancing, the interior girder load at right-angles.

Long and Short Spans v. Spans of Uniform Length.—It is advisable always to make the column spaces uniform along the line of girders, so that the girders can be of the same depth and of minimum section. The following example will show the economy of the uniform span of girders compared with long and short spans alternating:—

Take a building having a width of three spans of 16 feet each, the rows of columns being 16 feet on centres, and assume

the gross floor load at 140 lbs. per square foot. The load on each girder will be $16 \times 16 \times 140 = 35,840$ lbs. At a 16,000-lbs. fibre strain a 15-inch 42-lbs. I-beam at 16 feet span will carry 39,270 lbs. or more than enough. But, taking this weight, the metal required for the girders in these three spans will be $3 \times 16 \times 42 = 2,016$ lbs. Now, compare the distance of 48 feet divided, say, into two spans of 20 feet each and one span of 8 feet, as might be required under possible circumstances for a corridor. The load on the long girders will be $20 \times 16 \times 140 = 44,800$ lbs. A 15-inch 65-lbs. beam will carry 45,230 lbs., a little more than enough. The short span will be $8 \times 16 \times 140 = 17,920$ lbs. An 8-inch 17 75-lbs. beam will carry 18,960 lbs., which is a trifle over our needs, but it will answer. The total weight of metal required will be $(2 \times 20 \times 65) + (8 \times 17 75) = 2,742$ lbs., or an excess over the spans of uniform length of 726 lbs., or 36 per cent.

Open v. Closed Column Section.—The practice in bridge work has always been to require that the members of the truss be open, and not to be of a box or tubular form. The open form was required because of the necessity of frequent repainting, and, because of this necessity, the most economical disposition of the metal was often sacrificed. The same requirement is now being applied to buildings, not on account of the repainting, which can never be done, but because the protective covering can usually be applied in a better manner and the work can be inspected while this is being done.

The principal objection to the closed section is that it permits the accumulation of chippings, rivet heads and debris of all kinds during erection, and these, with the water which is likely to get in, will produce rust. In some instances the closed section is the most economical, and is the best structurally, but the liability to rust outweighs its advantages. In other instances, however, where the loads are great and the space to be occupied by the column is limited, a closed section is the only one which can be used. Where this is the case the interiors of the columns should be filled with concrete before the section above is put in place, particularly if the column is in the outside wall. The erectors of the ironwork will probably object to this because it will delay their work, but their protest should not be allowed to interfere with this necessary precaution. Haste is a good thing under certain conditions, but permanence should not be sacrificed to haste. The specification requiring this, however, should be clearly set forth not only under the particular heading but under the ironwork as well.

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A BUILDER'S ACCIDENT.

A WORKMAN named William Painter had a miraculous escape from serious injury, if not death, last week whilst at work on some new buildings which are being erected in Tanner Street, Northampton, for the Northampton Gas Company. The framework of a new gasholder was in course of completion, and Painter, a skilled labourer, lodging at 23 St. Lawrence's Street, Northampton, was at work at the top of the structure. He had erected a stage of planks, and he was assisting to plate the top of the large gasholder, when the supporting plank suddenly broke. Painter was precipitated to the ground below, a distance of 23 feet. Fortunately he fell upon his feet, and as the surface of the ground was composed of sand the effects of the fall were considerably lessened. As he was falling he caught a projecting plank running from the ground to half-way up the structure, and by doing this he was able to break his fall. Singularly enough, when the staging broke at the top of the framework a large steel plate, 8 feet long and weighing 3 cwt., was also loosened from its place and, with the planking, fell immediately after Painter. Fortunately, just as he reached the ground the plate swerved on one side, and fell within inches only of Painter, who had a miraculous escape from being cut to pieces. The planks also fell clear of him, and all the damage he sustained were bruises about the body, on the thigh and ribs. His escape was a marvellous one. Had he fallen about 3 or 4 yards away, where the floor was of concrete, he would have been instantly killed. Another singular incident in connection with the accident was that although there was no one on the staging at the time it broke, only a few minutes before three men were working upon it, but had for some reason or other left that part of the scaffolding. Painter, who is twenty-three years of age, and whose home is at 34 Leicester Street, Kettering, was taken to the Northampton Infirmary and detained.

GERMAN PUMICE-STONE BRICKS.

ONE of the most interesting among the many industries located along the river Rhine and one which is unique, writes Mr. C. E. Carpenter in the *Canadian Architect*, is the manufacture of brick from pumice-stone, which is carried on in what is known as the Neuwied district. This district takes in the country on both sides of the Rhine between Coblenz and Andernach, a

distance of between 30 and 40 miles as the crow flies. On the left bank of the historic river, and right in the heart of the Neuwied, are the Eifelberg, a low range of gray, rock-clad mountains, which in former days, many centuries ago, spread their volcanic eruptions periodically over the entire surrounding district.

To these long-silenced volcanoes the people of the so-called Bimssand district owe their present unique industry and consequent industrial prosperity. It seems that the huge volumes of sand belched forth by the ancient craters had, with the passage of centuries, gradually disappeared beneath the soil, forming a sub-strata several feet below the surface. In many places, however, the layer of strata refused to disappear and yet not until quite recently did the scheme of utilising these valuable deposits present itself to the inhabitants of Neuwied. Even the practical Romans, whose régime along the left bank of the Rhine dates back scarcely more than four centuries, somehow failed to recognise the value of the stone for building purposes. It is also strange, but true, that Caesar and his successors, who threw up at this point on the river vast breastworks and other fortifications, did not realise the unlimited quantities of building material at their very doors. In fact the deposits have remained intact down to the present day.

The formation of the alluvial strata, several feet below the surface, is decidedly curious. Mineralogically, it is a foamy porous substance, reaching in many places a depth of 17 feet while in other localities its thickness is not more than a handbreadth. Equally simple as its formation is the method of removing it adopted by the miners. This consists of nothing more than clearing away the soil and piling the sand in long hills, from which it is shovelled direct into the mixing bed of water and lime close at hand. The pumice comes out of the earth in pieces, varying in size from mere grains to lumps some 4 inches across. It occurs in layers, but is frequently interrupted by small cuticular patches of more solid fragments of lava.

Before moulding the pumice is screened, the larger pieces being broken to pass through a sieve having $\frac{1}{2}$ -inch meshes. These screened pieces are then covered by a thin coating of cement, and the brick is moulded. The cement is not mixed with the pumice so as to form solid cement blocks, but by the fragments being coated first. The brick is then obtained by these coatings adhering to one another.

An idea of the quantity of ingredients necessary in the mixture may be gathered from the fact that for the manu-

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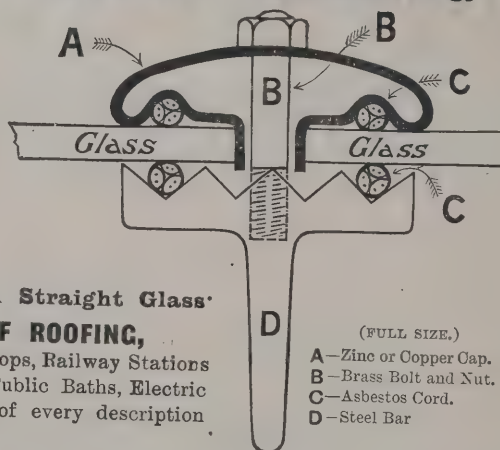
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factory of 20,000 bricks about 4½ tons of lime are required. After the mixing process the substance is poured into iron moulds provided with bottoms of detachable boards, which, after the removal of the moulds, act as driers. When the brick has been exposed to the air for a very short time they are ready for shipment.

As may be seen, the process of manufacture is simplicity itself. No modern machinery whatever is needed, and therefore none is used. An industrious workman averages from 300 to 1,800 bricks per diem, for which he receives the "magnificent" remuneration of 5 marks (about 5s.), and the working days are confined to the months between April and October.

The total production of Neuwied amounts to about 250,000,000 bricks. It gives employment to a small army of labourers, the most of whom are natives of the small villages of the "Westerwald" and the "Eifel." During the "campaign" these people practically live at their employment, in quarters furnished by their employers. The strictest sanitary precautions being required by the authorities, the season's work is in reality one long outing in the open air. In addition thrift is encouraged, prosperity is everywhere noticeable, and, altogether, the natives of the "land of pumice stone" are a happy and contented lot.

CONCRETE FOR FOUNDATIONS.

THE American Association of Railway Superintendents of Bridges and Buildings have published an important report on the use of concrete for foundations, culverts, bridge-piers, abutments and arches. In general, the opinion of the railway-bridge engineers decidedly favours Portland cement for concrete in place of natural cement. Not many years since American engineers, in view of the troubles which frequently followed the swelling or cracking of Portland cement as manufactured at that time, preferred for permanent work the natural cements; but the best Portland cement of the present day is, they remark, a very different material from that of ten or fifteen years ago, and work executed with it can be relied upon to a degree formerly unknown. Some of the contributors to the report point out that nothing but the best imported cement is satisfactory for concrete. The cost of Portland cement concrete for railway work seems to be now about the same everywhere in the United States, making allowance for local variations in cost of stone and sand, ranging

from 28s. 6d. to 35s. sterling per cubic yard, with an average perhaps of about 32s. 6d., and there seems to be little difference in cost between hand and machine-mixing, the former being cheaper for small work, and the latter for large on a large scale. In regard to quality, the railroad engineers find no practical difference between the hand-mixed and machine-mixed concrete, the machine-mixing being perhaps a little more regular, but any carelessness in machine-mixing involves worse consequences than in hand-mixing. As between wet and dry concrete, meaning by the latter a concrete on which water can be brought to the surface only by heavy ramming, the railway engineers prefer a moderately dry material, such as will not quake under the rammer, but on which water will show after a few minutes' tramping. Concerning concretework in freezing weather, again, the practice of the engineers does not quite support the theories. It is often averred that freezing does not injure Portland cement concrete, but nearly all the railway engineers prefer not to do concretework when the thermometer is below 20 deg. Fahr. In any case, they find it much more expensive in cold weather, and even when the sand and water are heated the concrete is unsatisfactory, inclining to crumble on the surface.

DRURY LANE THEATRE.

At a meeting of the shareholders of the Theatre Royal, Drury Lane, Lord G. H. Loftus presided. As to the alterations to the theatre, he said that the company had been in the past continually troubled by the London County Council. So soon as one requirement was complied with another was promptly put forward, in some cases involving the undoing of former work. Complaints had also been received of the heat in the circles and the cold draughts in the stalls and other matters. The board felt that when the alterations now being made were finished the company would have a theatre as perfect as any in the United Kingdom. The improvements which were now approaching completion would cost about 10,000l. These, however, included a number of alterations in excess of those required by the County Council, and the effect of which would be to considerably increase the earning power of the company. For example, the ventilation would be perfect, the stalls had been rearranged so as to give more room and better ingress and egress, and the uncomfortable boxes on the ground-floor had been removed and stalls substituted. The grand and first circles had also been extended so as to hold 200 more seats,

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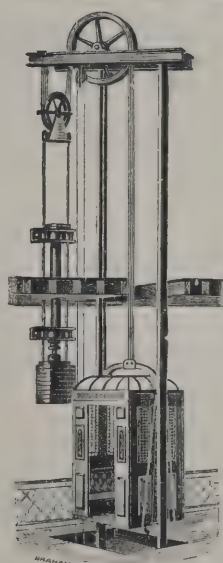
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the boxes on the same tiers had been greatly improved, and he felt sure that their patrons in every part of the house would find it more comfortable than it was before. He believed, moreover, that the board had finally satisfied the requirements of the County Council. The whole of the improvements which were now being made, as well as the past improvements, including the erection of the shops and flats, would, there was every reason to anticipate, be provided for without calling up any part of the 5s. per share still remaining unpaid on the shares.

AUSTRALIAN AND OTHER HARDWOODS.

THE Agent-General for New South Wales, Mr. Henry Copeland, has sent the following letter to the *Times* :—

As a resident in Australia for the last forty-five years, I have been much interested, and to some extent amused, by the controversy in your columns as to the relative value of the American timber in comparison to the Australian hardwoods for street paving.

It would appear from the correspondence referred to that America is sending over here a wood designated "red gum." Now I wish to say at once that I lay no claim to botanical science, and only wish to pose as an Australian bushman, having spent some happy years of my early life in the Australian forests as a splitter of rails, palings and shingles, and thereby acquired some practical knowledge of our Australian timber trees; but from my casual readings I was led to believe that Australia virtually possessed a monopoly of the gum tree. The various groups of the eucalyptus were supposed to have their habitat in Australia and the adjacent islands, known generally as Australasia. To my surprise, however, I now learn that America is exporting a red gum timber for pavement purposes, and my natural curiosity prompts me to inquire from your correspondents where is this "red gum" grown in America. I know that many years ago a large number of seeds or plants of the various forms of the eucalypti were exported from Australia to California; but I can hardly imagine that in one man's lifetime these transplantations have developed to the extent to admit of exportation on a large scale, and I naturally wonder whether the cute American, knowing the reputation which the Australian red gum has attained in England and other European countries, has ventured on doing a little commercial

piracy on our unique Australian botanical nomenclature. We have all heard the story of American wooden nutmegs, and I am inquisitive enough to wonder whether this article of commerce was manufactured from the American red gum timber.

I am under the impression that Australia possesses a virtual monopoly of abundant hardwood timber in suitable localities to enable them to compete with the whole world for the most serviceable and durable wood pavement; and, such being undoubtedly the case, it would appear to me a misfortune if any less durable wood were laid down in Westminster or elsewhere, inasmuch as wood pavement in the United Kingdom is as yet only in the experimental stage. Let me assure your readers that in New South Wales we have immense virgin forests, virtually untapped as yet, of hardwood timber trees within an accessible distance of our various shipping ports—trees ranging from, say, 6 feet in diameter at their base, running up to 250 feet in height; while the larger forests contain numerous glades of arboriferous giants with a modest girth of from 24 to 36 feet and an altitude of from 300 to 400 feet, while they are as straight as a billiard cue. Amongst the former may be mentioned the blue and grey gum, the iron-bark, the red gum and the flooded gum; these, however, are generally used locally for railway sleepers and house girders, but the larger and more abundant forest trees suitable for export for street pavement include the mountain ash, tallow-wood, blackbutt, box, woollybutt, mahogany, turpentine, spotted gum, messmate and stringy-bark. I have personally examined many logs of these trees, which have lain on the ground to my certain knowledge for from twenty to thirty years, and they were as sound as on the day they were felled—close-grained and almost as hard as iron. I have seen other logs, notably of iron-bark, which have been immersed in sea water for thirty or forty years, brought to daylight as sound as on the day they were immersed, barring some very slight signs of the *teredo* on the outer surfaces. Samples of these timbers can be seen at this office, as well as at the Imperial Institute and the Royal Gardens, Kew.

Why then, may I ask, should the corporations of the British Empire go outside the Empire for wood pavement or which the residents of the Empire have to walk or drive? Many of your people can never hope to tread the forests of Australia, but they may at least be enabled to wend their way to their offices and homes by placing their solid British feet on the blocks of the health-giving and microbe-destroying eucalyptus giants of the Australian forests.

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The Architect.

THE WEEK.

THE Irish Local Government Board must be hypercritical, and therefore difficult to please. Four times plans for artisans' cottages at Ennis, co. Clare, a town where the streets are very narrow, have been sent to the Board for approval, and four times they have been rejected. On the last occasion the estimated cost of 148% per cottage was declared to be too high. The plans were all prepared by the surveyor to the Urban Council, in accordance with the official instructions. The Local Government Board recommended that before advertising for tenders the Council should submit the plans to a consulting engineer, and obtain from him a report as to what modifications and additions were necessary, so as to secure comfortable dwellings at a moderate cost and avoid all uncertainty and dispute in connection with contracts. They further suggested that the Council might ask to be allowed to inspect the satisfactory plans recently approved in Limerick. No objection could be raised to the refusal of the Local Government Board to approve of plans from Ennis, but to ask the Council to seek in a rival town for models was more than any inhabitant of Ennis could be expected to endure. The surveyor accordingly said he would abandon all connection with the scheme, for no matter what plans he prepared they were rejected, while whatever was sent from other Councils was accepted. After a long and angry discussion it was decided by a majority of one to inspect the Limerick plans.

HASTINGS, as one of the Cinque Ports, has a history, and an immense quantity of documents relating to it exist. Some are in the Hastings Museum, others in the British Museum and the Record Office; but those which are regarded as most interesting belong to private owners. The late Mr. THOMAS ROSS, who was five times mayor of the borough, had accumulated many manuscripts which go back as far as A.D. 1433. These have been placed in the hands of Mr. CHARLES DAWSON, F.S.A., the keeper of the historical manuscripts in the Hastings Museum. Like many others of the class, the manuscripts are in archaic handwriting, and mostly in old and abbreviated Latin and French, and are undecipherable to the majority of those who see them. Mr. DAWSON now proposes that if the Corporation will pay for the cost of printing the records, he will undertake to provide gratuitously the translation into plain English, collation, and the general editorial work connected with the publications. The documents would be arranged in order of date, and would be connected with a running text translated from the contemporary chronicles of England, and other results of archaeological research would be introduced under their relative dates. The work can be commenced without delay, so as to be useful to the town at the time when its liberties and that of the Cinque Ports generally stand in need of real historical evidence, and expenses might be reduced by the sale of the book to those interested. Mr. DAWSON's generous offer is now under the consideration of the Corporation.

THE Italian architect Signor MAINONI D'INTIGNANO prepared for the Queen Dowager of ITALY a design for a casket which is to contain the coat of mail worn by her husband, the late King HUMBERT, on the day of his assassination, and which was perforated by the balls. The casket is now complete. It is Renaissance in style. Ebony is the principal material, and it is adorned with bas-reliefs and ornaments in silver. On the front are the arms of Savoy, with the initial letters "H. R." The angles bear the royal escutcheon with the device "Fert." On the cover is the inscription *XXIX. Julii, MDCCCC.* On the back of the casket is the following verse from the Book of Wisdom:—"Justorum animæ in manu Dei sunt, et non tanget illos tormentum mortis." The inside is lined with red velvet, on which are embroidered the letters "H. R." alternately with marguerites. The casket is surmounted by the cross of Savoy, with a garland of flowers and ribbons.

THE two premiums of 25 guineas for the somewhat extensive additions and alterations to the workhouse of the Hereford Union have been awarded to Mr. E. H. LINGEN BARKER, of Hereford, and to Messrs. WILLS & ANDERSON, of Swansea. The other competitors were Mr. ARTHUR MARSHALL, of Nottingham; Mr. R. I. McBEATH, of Manchester; and Mr. S. H. EACHUS, of Wolverhampton. The schemes embraced a new administrative block and an infirmary for 100 patients.

THERE can be no question about the age of Langres, a town near Chaumont, in the east of France, for it has been mentioned by JULIUS CÆSAR. In the time of LOUIS PHILIPPE it was believed to have strategic importance, and large sums were expended on fortifying it. It is now proposed to remove some of the defensive works. One effect will be that the great gate erected by the Romans in A.D. 301 as a memorial of a victory over German tribes will be once more brought into prominence. In character it resembles the gates at Rheims and Autun. There are two arches which are flanked by Corinthian pilasters. The gateway is situated in the east of the city, and as ramparts are not remarkable for their beauty this important structure is generally neglected by visitors to the town, for it seems to be no more than a part of the fortifications. The preservation of the gate will be the work of officials, and will add new interest to the town which was the birthplace of DIDEROT.

ONE of those American educational expeditions that in pursuit of knowledge visit remote regions has been fortunate in discovering a remarkable example of mosaic at Serdjilla, in the district Djebel-Ritra of Syria. It formed part of the Roman baths which, according to an inscription, were erected by JULIANUS and his wife DOMNA in 473 A.D. The mosaic measures about 50 feet by 26 feet. The inscription is in the centre, and is arranged in a circular form. Around it are several animal scenes, and as the colours have been preserved by the sand of the desert they are still unusually brilliant. The landscape is symbolised by a pomegranate tree, of which the branches are spread out. The trunk and branches are formed of black tesserae. The fruit is red, with a white light on each to increase the effect. Among the animals introduced are a tiger with a gazelle upon its back, a lion that tears a wild ass, a bear that follows his prey, a leopard, &c. All are skilfully represented. Here and there water-birds are introduced in the intermediary spaces. Photographs have been taken of the mosaic.

AMERICANS have shown so much intrepidity in competing in this country with English products, we cannot be surprised when we hear of arrangements for the exportation of granite from Maine in order to supplant the supplies which have been so long derived from Aberdeen. But the Americans calculate there is a chance to make money by underselling the Scottish stone, which has upheld its reputation during a vast number of years, and that prospect is enough to inspire their enterprise. It is not asserted that American granite is stronger or of a better colour; all that is proposed to be demonstrated is that it can be supplied at a lower price. A voyage across the Atlantic is less expensive than a railway journey from the North of Scotland or a coasting trip from the inexhaustible quarries in the West of Ireland. It is assumed that Aberdeen blocks under 40 cubic feet in size sell for 1 dol. 15 cents to 1 dol. 25 cents a foot, while sizes above this command 2 dols. 25 cents a cubic foot. The American projectors calculate that they can deliver the large-size blocks in Glasgow, Aberdeen or Liverpool at 1 dol. per foot. The margin for contingencies might still be wide and yet leave a handsome profit on every transaction. American stone has been already used in various parts of Great Britain, as well as Swedish and Russian and other foreign granites, and having gained a footing it is allowable for the Americans to indulge in visions of success in the stone trade. Not only is the exportation of granite contemplated, but other building stones are prepared to be also despatched.

DUALITY OF EGYPTIAN ART.

SO much is known about ancient Egypt and the life of its inhabitants, we may be supposed to stand in need of no further information. Every year, however, there are surprises for those who consider they are acquainted with the former condition of the country. More desirable than many material discoveries would be a few statistics about the people. If we could ascertain the number of artists who lived in Egypt at particular times we should then have a clue to circumstances which are not sufficiently illuminated.

The myriad examples of Egyptian art, using that word to express everything from a temple to a tablet, and from a statue to a spoon, have become so familiar of late, we do not sufficiently realise the reasons through which productiveness became so general. The discoveries of recent years are sufficient to give the impression that as a treasury of remains Egypt is inexhaustible. On the other hand, we should bear in mind that collectors in the form of thieves have been at work from a remote age. There is evidence that the ancient Egyptians were not more deterred by the sanctity of tombs than any of the Greek dealers we encounter, but abstracted what was most precious and most portable in them soon after their closure. Indeed, the robbery of tombs has never ceased. If we compare Egypt with any other country, its peculiar wealth will then be more clearly understood. No eastern nation, such as Assyria, Persia, Phœnicia, has yielded so much, nor can we believe that in spite of their natural ability the Greek artists were ever as busy as those of Egypt. For it must be understood that the relics of the life of the old Egyptians are mainly works of art.

What were the causes which made Egypt distinguished by its demand for those works, and in that way gained for its dusky people an immortality of a kind which never entered into their thoughts? A continuous series of existences, and sometimes under different conditions, was generally believed in by the Egyptians, but so far as can be discovered from any of their inscriptions or from their literary compositions, it was not imagined that a time would come when people in remote regions of the earth would regard the subjects of the PHARAOKS with almost as much interest as if they were living contemporaries. Visions of that kind never passed before the minds of Egyptian scribes, and if the artists sought to conquer time it was for a different purpose.

It is evident from the character of many of the objects which have come down to us that wealthy Egyptians endeavoured to surround themselves with things of beauty, and which truly were to be joys for ever. When we find a box to hold perfumes taking the form of a water nymph holding a duck or a water plant, all being made of gold or some precious metal, it is safe to conclude that the toilet services of Egyptian ladies could not always have been composed of articles which were purchased cheaply. The jewellery, of which there are so many examples, will sustain the scrutiny of modern experts. The enamelling was delicate in outline and charming in colour. The forms of the furniture were graceful. The locks and bolts appear to have been made symbolic by the introduction of figures of lions. The diadems, bracelets, chains and rings could hardly be surpassed by Parisian jewellers. A battle-axe or hatchet which is now in the Gizeh Museum would be sufficient if no other work had survived to reveal to us the elevation which was reached by the metalworkers. The handle, which is of cedar and gold, is covered with hieroglyphics, and adorned with precious stones such as turquoises, cornelians, lapis-lazuli, &c. The blade, made of bronze, but crusted with gold, has a different adornment on each face. On one bouquets of lotus appear, the colours being heightened by stones which are beautiful and of extreme hardness. On the other an enamel is used which is so close in grain it appears to be part of a large mineral; on it is a figure of a king, who is represented in the familiar attitude of seizing his enemies by the hair prior to decapitating them. Below him is a symbolical figure of a griffin with an eagle's head, which typifies the impetuous courage of the warrior. Many arms are to be found which are equally serviceable and gorgeous. When we see so much artistic grandeur introduced in weapons for the

slaughter of barbarians, we can infer to what extent beauty was sought after in Egypt.

It must, however, be allowed that if the remains of Egyptian art were restricted to objects which were intended for everyday use in this world, archaeological collections would be reduced to a remarkable extent. They would only reveal to us one aspect as it were of ancient life. But there was a duality among the Egyptians which was carried out more comprehensively than by people who adopted similar views of a future life. With the Egyptians not only the immortality of the soul was accepted as a doctrine, but the immortality of the body as well. Different races in different times have endeavoured to make provision for futurity, but the Egyptians alone appear to have believed and to have acted on the belief that the patronage of artists was essential for all who wished to enjoy felicity after they quitted the land of Egypt. The multiplicity of Egyptian works of art was therefore indispensable, because they ministered not only to a visible state of existence, but also to one which was veiled to most eyes. "The undiscovered country from whose bourne no traveller returns" was not recognised by any orthodox Egyptian. The travellers he was assured came back. Affection might in some cases dictate that provision should be made for their relatives' needs when revisiting the Nile Valley, but every prudent Egyptian took care to be independent of the memories of his children and friends. He made preparations for the reappearances to which he was destined. Thus we sometimes see representations of model men engaged in arrangements for the approaching stages of their mutable condition, or they display their satisfaction when receiving the offerings of their relatives or look upon the memorials which had been prepared out of gratitude for former kindness. Many of the things that were prized by an Egyptian were carried to his or her tomb. In that way death lost some of its terror. There is a pathetic story about Cardinal MAZARIN rising painfully from his death-bed to gaze on his pictures and lamenting his impending separation from them. An Egyptian functionary under like circumstances would be able to feel that his treasures were to remain as his companions, and there was a long time before him during which he could enjoy them.

The priests were quite willing to enter into contracts, by which in return for lands or other property they arranged to offer sacrifices to a man in his new state of existence. It used to be imagined that the priests dominated the artists when executing their works, that the original draft of every work of art, whether painting or sculpture, was prepared by them, and that artists were not allowed to depart from the proportions and treatment. That view is not now taken as universal, for there are enough signs of liberty in the labours of the painters and sculptors. But as auxiliaries in making the future life agreeable to wealthy or influential persons, it is likely the artists were in subjection to the priests.

The kings were, of course, able to erect temples which they believed would help to insure their happiness hereafter. The mighty RAMESES II., when in a state of dejection, made an appeal to the god AMEN on that account. "Have I not," he exclaimed, "made for thee many and great buildings of stone, have I not filled thy temples with my spoils, building for thee a temple to last myriads of years? I have built thee a house of great stones, erecting for thee eternal groves; I have brought for thee obelisks from Abou, I have caused the everlasting stones to be fetched, launching for thee boats upon the sea, importing for thee the manufactures of the lands. When was it ever before said that such a thing was done?" It is remarkable how conscious the Egyptians were of the prevailing character of their architecture. It was not merely the custom of the country to make temples on a massive scale, they wished to make them irresistible to time. Thus a king, according to one of the papyri, says:—"I built a house adorned with gold, its roof and walls with lapis-lazuli, the floors were made of stone and metal, the hinges were of bronze, its structure made for eternity, everlasting are its exhortations."

It was not possible for inferior people to offer temples, but they wished to reveal their good-will by having models of parts of temples in their tombs. It is believed that in connection with every large temple there was a monolithic chapel, wherein the god to whom the building was dedicated

resided, but in which human eyes could at least see either a symbol of the god or the animal that was especially dedicated to him. It is not uncommon to find models of such shrines in tombs. Sometimes a chapel of the kind was formed in the tomb, and in it was placed a statue of the deceased person, for curiously in Egypt mortals were not afraid to assume the privileges conferred by religion on the gods. Statues exercised an important function in the ritual of the dead. A statue became a double, as it were, of the occupant of the tomb; it was subjected to hieratic dedication, and then it was fancied to be transformed and became representative in another sense. It therefore ceased to be an image of stone. The images were credited with being able to respond in some way for the man or woman they resembled whenever called upon. On that account the words of a prayer were often engraved upon them which they were supposed to express. As it was considered that a figure might for one reason or another be sometimes unable to answer promptly to the call of a god, several supplementary statuettes were introduced, according to the wealth of the occupant of the tomb. The earliest examples are in wood, granite, limestone or alabaster, but at a later time terra-cotta figures covered with a blue enamel were adopted. These figurines either represented the deceased man or woman, or suggested them, in altered conditions of life; for example, a man who in this life was not a labourer is sometimes shown carrying a spade or a bag with seed. Those who cast statuettes into the cemetery at Tanagra were, as often happened with the Greeks, merely following Egyptian precedents.

In a more remote period, say 6,000 years ago, the memorials of the dead were fashioned so as to resemble an ordinary Egyptian house. The principal feature in such cases was the door. It was imagined that the tenant of the tomb could pass out in that way, and consequently the offerings which were needed for his sustenance were placed before it. Probably in deference to sceptics the offerings were afterwards represented upon the door. It was, however, accepted that in their new form they were equally nourishing to the dead. Then instead of a doorway a table was introduced bearing an inscription in the form of a prayer to the guardian deity, that the food should be allowed to reach the being for whom it was brought. The extraordinary spectacle was thus presented of stone figures which at times were supposed to become animated and were able to enjoy and digest provisions made of similar stone. Instead of full-sized figures, in course of time statuettes, as we have said, were substituted. So much credulity may now appear pitiful, but in everything relating to symbolism it is easy to misinterpret what we see. KINGLAKE warns travellers to refrain from mocking the Sphinx, and the advice should be accepted by all who visit an archaeological collection which is representative of Egypt.

The ritual of the dead not only enabled an army of artists to be constantly engaged, but afforded opportunities for the utmost variety in their works. The examples which were introduced in museums in the eighteenth and nineteenth centuries were at first principally figures in rigid attitudes. It was only natural the conclusion should be drawn that the art was limited in its range, and the treatment must be as stiff as if only basalt or porphyry were to be used. It is now found that the Egyptians did not differ in their mental organisation from other varieties of human kind. The fragments which we possess have revealed that they were endowed with a marvellous imagination. There is nothing in the "Arabian Nights" to surpass in unrestrained wildness the "Tale of the Two Brothers," ANEPOU and SATOU, which is the subject of the Orbiney Papyrus in the British Museum. Once allow that such power existed and was tolerated, we may expect variety in all the arts; and an Egyptian museum which professes to be representative cannot fail to be marked by the diversity of its contents. We find puppets as well as colossi, and with the stupendous examples of architecture before their eyes the Egyptian craftsmen were courageous enough to create small models of houses which in execution are equal to any of those imported from the Black Forest, while their interest is immeasurable. Outlying farm-buildings are to be seen in museums which are worth volumes from the light they cast on the life of the people. The necessity of filling some of the

tombs with objects compelled the craftsmen to become most dexterous in manipulation, and, indeed, there are toys in the form of animals and little figures of men and women that might be taken to be the work of Japanese fingers. Life in an Egyptian house must have been very different from the sepulchral coldness which the Egyptian Room in the British Museum suggests. In fact, recent discoveries compel us to believe that TH. GAUTIER, when he wrote his "Romance of a Mummy," with the aid of ERNEST FEYDEAU'S lore, was only painting a picture in monochrome instead of using startling colours as was supposed.

The prehistoric period in Egypt, according to Professor FLINDERS PETRIE, began about 7,000 years ago. At that time vase-painting was known. Then followed the carving of animals on slabs of slate, and the representation of them on the heads of combs. As well as can be ascertained, through all the dynasties down to the Roman invasion art was prized by the people, but it does not appear that any artist rose to power in Egypt. The caste system was recognised, although it may not have been a part of the constitution of the country. In the remarkable letters from and to a scribe, known as the Sallier Papyri, which are also in the British Museum, we find that the scribe's position is proved to be superior to that of the artist's. He could be sent upon important commissions, or employed in political affairs. The metalworker, on the contrary, was compelled to stand at the mouth of a furnace, his fingers being like the claws of a crocodile when he hunted after the eggs of fishes. The builder was not released from work at night, but had to continue it by the light of a candle. The sculptor and other "sons of stone" had to labour until they were weary, and when they sat down to a meal their knees and backs were fatigued. It cannot be said that ancient Egypt was an exception, and that sculptors, builders and metalworkers have always received the rewards to which they believed themselves entitled. The status of the Egyptian artist would, however, be too vast a subject to be dealt with incidentally. All that we have wished to show is that there was a wider field for artistic labour in Egypt than in any other country, and that the demand for the services of artists arose because, unlike the custom in most other countries, ancient or modern, they had to gratify not only the living, but, as was supposed, the departed Egyptians also.

POOR-LAW BUILDINGS.*

AMONG the reforms which are credited to CHARLES DICKENS as the initiator is that of the Poor-Law System. The abuses of the Poor Laws were recognised before the appearance of "Oliver Twist," but that novel revealed some of the evils which were practised prior to the passing of the Amendment Act of 1834. A parochial basis had been adopted throughout England, and it was represented not only by Mr. BUMBLE and the lady to whom he sold himself so cheaply, but by dangers to society, of which probably the worst was the bringing up of young rascals like NOAH CLAYPOLE. But DICKENS'S workhouse was only one of many expedients to abate an evil without having a proper diagnosis of its character. There is the highest authority for the belief that the poor are to be always with us, but for some centuries in England beggary was treated after the manner of sewage, or, in other words, so long as it was kept out of sight it mattered little what were the consequences. For the crowds of sturdy beggars that arose in England after the dissolution of the monasteries, whipping, ear-cropping and finally hanging were the only remedies which could be devised by the Tudor Parliament. But disagreeable as was the sight of the wandering wretches, the English people had not the heart to carry out the Act of HENRY VIII. In the next reign slavery was adopted as a less severe remedy, but that experiment was also looked upon as a failure. There was

* *Hints and Suggestions as to the Planning of Poor-Law Buildings*, including some recommendations as to the arrangement and construction of separate accommodation for the children of the indoor poor, and some remarks upon the accommodation that may have to be provided for the imbecile and idiot poor, as well as for the epileptics at present in the extra-metropolitan workhouses. By Percival Gordon Smith, late Architect to the Local Government Board. (London: Knight & Co.)

a revival of the punishments of whipping, burning the gristle of the ear, and hanging without benefit of clergy for beggars in the time of ELIZABETH. But by a subsequent Act the penalties were not to be inflicted on any man until he refused to work for ordinary wages. Whatever might be done with fathers and mothers, the children remained as a difficulty, and it could not be ignored that people existed who were too old to work and were not strong enough to endure the legal tortures. To provide for such cases the parish was adopted as a unit of collection, simply because there were local authorities in existence, and it was not necessary to create new officials. Churchwardens and overseers were therefore authorised to build poor-houses at the charge of the parish. They could also bind as apprentices any children brought up in them in order to lighten the parishioners' burdens. The arrangement continued until 1834, and its last development was described in the pages of "Oliver Twist." That unhappy hero of the novel was, in fact, bound as a parish apprentice.

By the Poor Law Amendment Act of 1834 commissioners were appointed with authority over all England. As the parochial system was a failure the commissioners were empowered to unite several parishes in order to form an union, which was to be administered by guardians instead of churchwardens and overseers. One effect of the change was the promotion of economy. In 1832 a sum of over seven millions had been expended in the relief of the poor, while in 1837 the cost had fallen to four millions. Among the reasons given for the decrease was that farm labourers used to be chargeable to the parishes when out of work, and the farmers could therefore dismiss them whenever they liked, and compel their neighbours to aid in supporting the men. Under the new Act assistance was not to be obtained unless applicants entered the workhouse as paupers, and as the labourers rebelled against the degradation farmers were obliged to find employment for the men throughout the year. In that way the new workhouses insured economy.

In Ireland there was no legal provision for the relief of the poor prior to 1838. There was a more crying demand for organisation in that country than in England. It became necessary to divide the country into unions, and in each of them to erect a large workhouse. An official architect, the late GEORGE WILKINSON, an Englishman, was appointed, and in the buildings which he designed we see the first systematic attempt to erect a workhouse which would correspond with a theory. The buildings, which are of an Elizabethan type, are known to all tourists, and in many districts they were so superior to the hovels of the peasantry, they became known as "Paupers' Palaces." The order and comfort were so novel to the inmates, the buildings were demoralising, for they became permanent residences for strong men and women; but the expenses were in course of time found to be out of proportion to the resources of many of the unions. After the failure of the potato crop, the elected guardians were unable to cope with the increased destitution on account of its expense, and the Government found it necessary to supplant them by paid guardians, who had no concern about the additional expenses. Never were buildings so tested, for in some of them were as many as 600 patients stricken by famine-fever.

It is not possible to plan buildings rightly, whatever may be their character, unless there is a definite idea of the purposes they are to subserve. Even in 1834 terror was recognised as a necessity when dealing with poverty, and a tradition of the old floggings, burnings and hangings was not without effect on poor-law officials and their architects. This is suggested by a passage in Mr. P. G. SMITH'S Introduction. He says:—

The workhouses were purposely made as deterrent as possible, in order that every poor person should be relieved with the bare necessities of life, while at the same time discouraged from resorting to these institutions as a means of living an idle existence at the cost of the ratepayers. It was one of the main objects of the system to discourage dependence upon the rates and to promote self-support and independence. That the new Poor Laws have been a complete success is now beyond doubt, though the same class of able-bodied paupers that existed in those days may perhaps be said to still exist in vastly diminished numbers in the shape of the tramp; but even these might still be further diminished, if not actually exterminated, if the regulations relating to them were uniformly and rigorously enforced, and if beggary were discouraged or

dealt with energetically by the police. It is astonishing how the number of vagrants applying for admission at the workhouses has been diminished where the regulations entrusted to Boards of Guardians have been judiciously and energetically applied, where separate cells are used and detention for at least two nights, with a suitable task of work, have been rigidly enforced.

Mr. SMITH, whose experience must be unequalled, thinks that the workhouse is becoming a mere refuge for the aged, the infirm and the sick, and with this change there is corresponding diminution of reluctance on their part to enter it, while at the same time the public desire a more liberal and humane treatment of the inmates. This statement is enough to vouch for the fact that the old workhouses, with their deterring characteristics, are obsolete. In spite of all that occurs in present-day business to harden the hearts of men, it is manifest that pity is not yet extinct, and consequently we find the exterior of the modern workhouse presents an agreeable appearance, unlike its predecessor, which was so gloomy there was no need to inscribe on it DANTE'S words, "All hope abandon ye who enter here." The buildings we lately illustrated, which were erected by the Guardians of the Greenwich and the Steyning Unions, exemplify the newest system, and we have no doubt they answer their purpose as well as if they suggested that the pauper and the criminal were alike in the eyes of ratepayers and of officials. Exceptions are generally made between the accommodation provided for those who are compelled to remain in the workhouse wards for an indefinite period and the casuals who wish to regain their liberty out of doors after a short detention. For the latter the separate cell system has been advocated by Mr. SMITH, and indeed Mr. J. GREENWOOD'S narrative of his heroic captivity for a whole night in a casual ward should have accomplished long ago a transformation in the parts assigned to vagrants. But the greatest change is seen in the arrangements for children. Mr. SMITH tells us that, "In the case of new workhouses erected during the last few years, provision for children above the age of nurture has practically been wholly dispensed with, and the necessary accommodation for them has had to be found elsewhere than in connection with the workhouse. Even some of the large barrack schools which were provided thirty to fifty years ago have been abolished, and other accommodation has had to be provided for the children thus displaced." These remarks are additional proof of the necessity to provide buildings according to a new standard that will greatly differ from the one adopted some years ago.

In 1883 the Local Government Board issued a series of instructions about the arrangements of workhouses, entitled "Points to be attended to in the Construction of Workhouse Buildings." But in the course of eighteen years public as well as expert opinion has grown in favour of requirements which were then not anticipated. About one-third of Mr. SMITH'S book is occupied with an annotated edition of the points. In his notes we have the expression of the latest ideas on the subject of workhouses, and they form the most useful guide to architects which is obtainable. Mr. SMITH, it may be remarked, is not in favour of the competition system as a means of obtaining plans for workhouses. He advises that the first step should be the appointment of a qualified architect, whose reputation for integrity in the interests of his clients is recognised. He should be allowed to consult with the committee and such officers as can give him assistance. But whatever system is adopted for obtaining plans, Mr. SMITH'S volume cannot be overlooked, for in every page of it there is something suggestive as well as explanatory of official tendencies.

BEXLEY AND CRAYFORD, KENT.*

BEXLEY, in the hundred of Ruxley, is a place of remote antiquity; in this district are found many Celtic caves, which are described by Hasted as being on the heaths near Crayford, as in the fields and woods hereabout, some of which are ten, some fifteen and others twenty fathoms deep. They are described by Tacitus and other writers. The Roman Watling Street passes through Bexley Heath to Crayford.

* A paper read at Dartford on August 17, by Mr. William Frederick Potter, architect, before the members of the Upper Norwood Athenæum.

Camden says:—"In the year 457, Hengist, the first king of Kent, meeting with the Britons at Crecanford (now called Crayford), gave them battle, slew four of their chief commanders and 4,000 men, and gave them such a defeat that they entirely abandoned this county and fled with great fear towards London." Cenulph, King of Mercia, having made the kingdom of Kent tributary to him (according to Hasted) gave to Wilfrid, Archbishop of Canterbury, for the use of Christ Church in Canterbury, ten plough lands, viz. Bexley, A.D. 803. This continued in the possession of that see at the time of the Domesday Survey, and is therein described:—"The archbishop himself holds Bix (Bexley). It was taxed at three sulings

made over his right to the University of Oxford, and died November 11, 1623, on which the fee of this manor became vested in the University of Oxford by virtue of the deed of gift above mentioned.

The church mentioned in Domesday stands at the east end of the village, and is dedicated to St. Mary. It has a spire covered with shingles at the west end, in which hang five bells. This church was very anciently appropriated to the Priory of the Holy Trinity, London. In the second year of King Stephen, A.D., 1137, a bull was granted to this priory by Pope Innocent for its protection and the confirmation of all its possessions, among which Bexley is mentioned. This priory was dissolved



at the time of King Edward the Confessor, and now for two. There is a church and three mills. In the whole it was worth in the time of King Edward the Confessor, as well as afterwards, 12 pounds, and now 20 pounds, and yet it pays 30 pounds and 8 shillings."

Archbishop Walter Reynolds in the 9th of King Edward II., 1315, procured to himself and successors the grant of a market to be held weekly at Bexley. The manor remained part of the possession of the see of Canterbury till Archbishop Thomas Cranmer granted it in 1537 to Henry VIII. and his heirs and successors for ever. It continued vested in the Crown till it was granted by James I. in fee to Sir John Spilman, the king's jeweller, who soon afterwards conveyed it to Sir William Camden, Knt., the great antiquary. He

in the twenty-third year of King Henry VIII. and its revenues surrendered to that king. The church is a venerable fabric, and consists of a nave, chancel, side aisles and tower at west end. This church was restored in 1882 at a cost of nearly 4,000/. On the north side of chancel is a mural monument of Sir John Champneis, Lord Mayor of London, who died in 1556. On the south side is a mural monument to John Styleman, of London, who died in 1734, aged 82; he was the founder of the Bexley almshouses. There are also memorials to the Austin and other families, with several ancient brasses.

One brass records the family of At-hall, of Hall Place, and another is of Thomas Sparrow, 1513. In the churchyard is the tomb of Francis Moore the elder, the founder of "Old Moore's Almanac," with the curious error cut on the gravestone that

he died "March 31th, 1684," instead of 31st. This church was visited by the members of the Upper Norwood Athenæum, under the leadership of our late friend, Mr. E. S. Johnson, in 1886, and the account of our visit appears in our volume for that year. The river Cray flows northward through the middle of this village. It passes through the Crays, or the five villages of that name, viz. St. Mary's Cray, Paul's Cray, Foot's Cray, North Cray and Crayford. All these ancient villages are described in Domesday Book. North Cray Church has been recently rebuilt, and the old stained glass has been inserted in the north porch, and two old stone coffins have been placed externally on the south side. These seem to require protection.

Ruxley, in this parish, is a small hamlet, and was formerly a separate parish, the church being still in existence and now is used as a barn. This place gives name to the Hundred in which it is situated. Hasted says:—In the reign of King Richard I. North Cray was become part of the possession of a family who were seated in the adjoining parish of Rokesle, now called Ruxley, and assumed their surname from it. Malgerius de Rokesle was seated there at the time of the Domesday. His descendant, Sir John de Rokesle, accompanied King Richard I. to Palestine, and was present at the siege of Acon (or Acre) there with many others of the Kentish gentry. He died possessed of these estates, and from him

into the river Darent, near Dartford, when both continue their course and fall into the Thames near Greenhithe and Stone, opposite to Purfleet.

Hall Place.

Hall Place is an ancient mansion which stands in the northern part of the parish of Bexley, next Crayford. It was anciently the inheritance of a family who assumed their name from it, being called At-hall, the last of whom was Thomas At-hall, who in the reign of King Edward III., 1366, conveyed it to Thomas Shelle (or Shelley), of Gaysum, in Westerham, in whose family it continued down to John Shelley, who resided here and died possessed of it, November 22, 1441. His son, William Shelley, passed away this seat in 1537 to Sir John Champneis, Knt., who had among others his possessions in this county disengaged by the Act of 31st King Henry VIII. He resided at Hall Place, died in 1556, and lies buried in Bexley Church. It was afterwards long in the family of Austin; the last, Sir Robert Austin, Bart., died in 1772, when the title became extinct. A tile fixed in the garden wall has the date of 1313 moulded on it. The front of the mansion was rebuilt in the reign of Queen Elizabeth. Such are the meagre extracts from Hasted. This property has recently changed hands, and by the kindness of the lessee, Mrs. Pugh Cook, we are permitted to visit



they afterwards descended to his grandson, Gregory de Rokesle, a person of no small account in his time, having been Lord Mayor of London several times. As before stated, the Manor of Ruxley was formerly a distinct parish from North Cray till it was united to it by Cardinal Pole in 1557.

A curious custom used to prevail in this district of selling beer by the yard; some of these yard measures are still in existence, and are exhibited as curiosities, but cannot be used legally under the Weights and Measures Act. Crayford is mentioned in Domesday, which says, "There is a church." It is dedicated to Saint Paulinus, and has a nave, chancel, side aisles, a square tower and five bells. There are several fine monuments, and there was formerly an altar-piece, given by Sir Cloudesley Shovel, of May Place. This parish is situated in Lesness Hundred. May Place, a mansion about half a mile from the church, appears to have been erected about the time of James I., but it has been modernised. Shortly after 1694 this mansion and estate were purchased by Sir Cloudesley Shovel, the eminent naval commander, who was unfortunately shipwrecked in his voyage from Toulon in 1707, his body being buried with others on the sands of Scilly, but was soon after taken up and interred in Westminster Abbey. The river Cray here crosses the Roman Watling Street, and soon after falls

it this day. From the particulars of the auctioneer, Mr. D. J. Chattell, I gather the following information. On the ground floor there is a smaller outer hall, leading to a larger inner hall 55 feet by 11 feet 6 inches. The lofty library, about 32 feet by 18 feet, besides bay window. Banqueting hall, 40 feet by 22 feet, and 22 feet 6 inches high; this room is partly lined with fine oak panelling, and has a panelled ceiling and parquet floor. The billiard and smoking-room, 58 feet by 18 feet 6 inches. A massive oak Jacobean staircase leads to the first floor; here there is a drawing-room 30 feet by 19 feet (exclusive of bay) and 15 feet high, and has a coved ceiling with medallions and mouldings said to be designed by Inigo Jones. The picture gallery is 45 feet by 12 feet, with coved ceiling 13 feet high. The mansion stands in park-like grounds of 16 acres. The handsome wrought-iron gates in the front are believed to be of the time of Charles II. This mansion has historical interest, having, it is said, once been occupied by Edward the Black Prince, although Hasted and the older historians make no mention of it. He was married to Joan Plantagenet, his cousin, the Fair Maid of Kent, and was buried in Canterbury Cathedral. He died 1376, and his body is said to have lain in state at Hall Place before removal to Canterbury. The helmet, crest, shield, gauntlets and other relics hanging over the top

have recently been exhibited and described at the Society of Antiquaries at Burlington House. These relics must have formed part of the lying in state at Hall Place.

The illustrations of Hall Place are from photographs kindly lent by Mr. David J. Chattell, of Chislehurst.

THE NEW PUBLIC OFFICES.

A CORRESPONDENT of the *Times*, who is evidently under official inspiration, writes:—

It is an easy matter to criticise the action of a public department. Of all public departments the easiest to criticise is His Majesty's Office of Works, for the simple reason that every man, from the most eminent failure in public life downwards, is an authority upon matters of taste. So simple is the pastime of finding fault that it must have often occurred to those responsible for the administration of the country that no very apparent reason exists for entrusting the work of government to a specially selected class, and that any casually enlisted group of critics would fulfil all the functions of State in a more satisfactory manner than those entrusted at present with these arduous and unappreciated duties.

No Minister in recent times has done more for the improvement of the Metropolis, for the good administration of his office and for the gratification of the public than Mr. Akers-Douglas; yet, if Lord Wemyss is to be believed, no one is less qualified for the office he holds than the present First Commissioner of Works.

The President of the Academy led an attack upon the scheme, carefully considered as it had been by all the authorities concerned, for a great street improvement, and, although that eminent critic did not summon up courage to attend and argue the point with Mr. Akers-Douglas when invited to do so, his polite description of the plan as "idiotic" was endorsed by many, who, after hearing the First Commissioner's explanations, must have regretted their hasty acceptance of Sir Edward Poynter's views.

Now Lord Wemyss returns to the charge upon another controversial point, upon which the First Commissioner has had no opportunity of explaining the grounds of his action.

By an extraordinary fatality the two eminent architects entrusted with the designs of the great public buildings in course of erection in Whitehall died within the space of a few months. Their designs had been completed and had been exhibited for the information of Parliament. They had met with very general approval, the contracts for the foundations had been accepted, and the work was in course of being carried out.

On the death of Mr. Young the First Commissioner decided to complete the work under the joint supervision of Mr. Clyde Young and of Sir John Taylor. To this no objection was apparently taken.

On the death of Mr. Brydon a precisely similar question arose, and the First Commissioner decided that the work should be carried out by Mr. Henry Tanner, under the supervision of Sir John Taylor. It seems to be assumed that this decision was taken for financial reasons. This is not a fact. The main motive which actuated Mr. Akers-Douglas was regard for the comfort of the great body of public servants who will be called upon hereafter to occupy the building in question.

The chief concern of the public with both the new War Office and the buildings at the corner of Parliament Street is their outward form. This has been decided by the employment of the deceased architects, whose names will always be associated with the buildings in question. The internal arrangement of these offices is a matter of deep concern to the men who will have to spend long and arduous days within their walls.

In former times very little attention was paid to this not unimportant matter. The externally beautiful building which contains the Treasury is one of the most hopelessly unsatisfactory public offices which could be well imagined. Badly-designed rooms, incommodious passages, inferior ventilation and lighting and waste of space comprise a conglomeration of every fault, from the point of view of the transaction of public business.

The building erected in Chancery Lane (one of the most beautiful in London) for the Record Office is internally perfect for the purpose for which it was designed by Sir John Taylor. The General Post Office North, designed by Mr. Henry Tanner, is as satisfactory a building for official purposes as could well be constructed. The Admiralty, for the internal planning of which the architects responsible for the building would readily admit their great debt of gratitude to Sir John Taylor, is, from an official point of view, almost without a fault.

It is not surprising that, with these experiences to guide him, Mr. Akers-Douglas should have hesitated to deprive himself of the services of those architects connected with his

office whose knowledge of official requirements are unrivalled in the profession. Sir John Taylor's name stands high among living architects. It is true that Mr. Henry Tanner is less well known; but when Sir John Taylor was entrusted with the building of the Record Office he was not well known to the public, but the choice was amply justified. Time will in like manner justify the decision which Mr. Akers-Douglas has taken.

There is a further reason which weighed strongly with the First Commissioner. It has been too readily assumed that an eminent outside architect could be found to carry out Mr. Brydon's fine plan. Inquiries made with some care did not bear out this assumption. Eminent architects are men of strong individuality, deeply committed to their own ideas of art, imbued with their own notions of style, and, as a rule, absorbed by works of their own design, with very little time and less desire to bestow upon the work of others. It became speedily clear that, if an outside architect was to be employed, it would have to be a man of the second or third rank in his profession—assuming that the plan and elevation designed by Mr. Brydon were to remain unaltered. The First Commissioner not only considered that it was due to the memory of Mr. Brydon that his building should be erected according to his design, but he determined, for the sake of the intrinsic merit of the design itself, that this should be done.

These, then, were the reasons which actuated Mr. Akers-Douglas in recommending to his colleagues that the new building should be carried out under the superintendence of the architects of the Office of Works. Financially, it is highly improbable that any saving will be effected. The design has been paid for, and the executors of the late Mr. Brydon have received the money. The remainder of the sum set aside for "commission" will be employed—as it would have been by Mr. Brydon had he lived—in remunerating the subordinates who have to carry out from day to day, over five or six years, the work of variation and superintendence.

If, when the War Office and the great group of public offices at the corner of Parliament Street are erected, they prove worthy of their magnificent site, the credit will be due to Mr. Young and Mr. Brydon, who designed them, and if they prove satisfactory as official buildings, fulfilling the requirements and adding to the comfort of the public servants who will occupy them, the credit will be due to Mr. Akers-Douglas, for bestowing his confidence upon two of his own officers who have not hitherto abused it.

THE CHATEAU DE CHAMBORD.

THIS mansion was built in the year 1523 by Francis I. Henry II. continued the works, and it is said that these two kings had 1,800 workmen employed upon them for thirty years. It was altered by Louis XIV., and disfigured by his architect Mansard, who divided the noble internal galleries into two storeys by wooden floors, and also materially altered the low building at the back in order that it might accommodate the numerous retinue of the Grand Monarque. The building measures in front 80 toises and is 60 toises deep. The four corners are flanked by four great towers; those at the back are now low, but in Du Cerceau's view they are as lofty as the principal elevation, and thus materially add to the beauty and effect of the whole design. In 1749 they were low as they now are. The outer buildings enclosed an inner building, also flanked by four towers; the centre building is called the donjon. Each of these towers is 60 French feet in diameter. The central staircase is 30 feet in diameter, and from it radiate in the form of a Greek cross four Salles de Gardes, each 50 feet long and 30 feet wide. These Salles de Garde are vaulted in stone and have flat roofs. The panelling of the vaulting is ornamented with an alternate F and the Salamander; the roofs are ornamented by "quantité de cheminées très ornées, quantité de tourelles et croisées qui semblent récréer la vue de ceux qui se promènent sur ces terrasses." The central tower, about 100 feet high, is very much praised. There are thirteen staircases and 440 rooms in the château. The design is attributed to Primaticcio, but that it is really his appears very doubtful. In 1793 it was despoiled internally and greatly defaced externally, and the domain being about to be sold and the castle broken up, in 1821 it was purchased by the people in the reign of Charles X. and presented to the Comte de Chambord. Its situation is the very reverse of picturesque. It stands in a flat country three or four miles from the banks of the Loire, and in just such a monotonous position as Wolsey at about the same epoch chose for his palace of Hampton Court. The fosses which anciently surrounded it are now filled up, but can be easily traced.

The New Edzell United Free Church has been dedicated. The plans were prepared by Mr. P. H. Thoms, of Dundee.

NOTES AND COMMENTS.

If the houseowners of Paris were not detested as the worst specimens of the bourgeoisie, there would have been a revolution in Paris when it was decreed that the domestic drainage was to be united with the sewers of the city. But as they were without political influence over the mass of Parisians the formula "tout à l'égout" did not inspire the erection of barricades. The proprietors took their revenge by allowing the law to be inoperative. It is supposed that at the present time there are 20,000 proprietors in Paris who have allowed the drainage, if that word can be used, to remain in its former dangerous state. The authorities have tolerated the abuse for seven years, but at length they have been compelled to take action, and several test cases have been brought before the Tribunal de Simple Police. Various technical objections were raised by the landlords, but the magistrate decided against them. Such, however, is the state of the law that instead of the large sums which were claimed in some cases, damages to the extent of one franc only could be awarded, and in addition a fine of one franc was inflicted. But while the court was powerless in one way, it was able to make an order that the works required should be executed within ten days, and if the proprietors continued to be contumacious, then they could be pursued in other and more costly ways. Paris plumbers can now do an ill turn to their landlords by entering on a strike.

A PART of all the money collected in the Indian Provinces for a memorial of the late Empress will be allocated towards the erection of a great hall in Calcutta, which is to be the representative memorial of the whole of India. For example, in the North-West Provinces a sum of 41,823/ has been collected or promised. Ten per cent. will be given towards the cost of the hall. The towns of Cawnpore, Bulandshahr, Moradabad and Farakabad are entitled from the amounts of their subscriptions to local memorials, and the sum remaining after these have been allowed for is to be expended in the erection of memorials at the following great centres of pilgrimage:—Allahabad, Agra, Benares, Hardwar and Matra. The statues are to be canopied in the Hindoo or Mohammedan style, according to the local circumstances of each place. Prizes of 200/ and 100/ are being offered for the best designs, with estimates and plans, for these memorials. In the Province of Oude the contributions amount to about 17,000/; after deducting 10 per cent. as agreed on, two-thirds and one-third of the sum locally available are to be allotted respectively to memorials in Lucknow, the present, and Ajodhya, the ancient, capital, "to consist of a plinth, supporting a white marble statue of Her late Majesty enthroned on a chair of state and surmounted by a canopy." Should any surplus funds remain after the erection of the memorials they are to be invested, and the income accruing from them is to be devoted to distributing charity at the sites of the memorials on "Victoria Day." It is believed that they will form the nucleus of a fund which will be largely augmented hereafter by the gifts of wealthy citizens. The Oudh committee is sharing with the North-West Provinces committee the cost of offering prizes for the best designs and plans.

RED gum has unquestionably excellent qualities, but it does not follow that every tree is sound throughout and adapted for hard usage. At Brighton the tramway engineer and the borough engineer have been compelled to report that "the contractors are unable to obtain a sufficient supply of ALCOTT'S red-gum wood-paving blocks to enable them to proceed with proper expedition with the execution of the wood-paving works comprised in their contract, sections A and B, and that a large percentage of the wood-blocks delivered upon the works are not in accordance with the specification, and that unless the contractors are released from the obligation contained in the contract requiring them to use ALCOTT'S red-gum wood, great delay will be caused in the completion of the works." The tramways committee, having considered the report, passed a resolution permitting the use of "red-gum wood from any source, provided the same is of equal quality with that described in the specification." They have also

instructed the borough surveyor and tramways engineer to "exercise the powers conferred upon them by the contract and require the immediate removal from the works of the wood blocks considered by them to be unsound and improper for the work." In the battle between jarrah and red gum it should not be assumed that either variety of timber does not need scrutiny. In fact, at the present time the use of both timbers should be treated as only experimental, and for public as well as scientific reasons the examination should be as exact as possible.

THE Petit Palais of the International Exhibition of 1900 has greatly helped to extend the reputation of its architect, M. CHARLES GÉRAULT. He won the Prix de Rome in 1880, and during the last twenty years has received many medals and honours, but his Petit Palais has been his most serviceable friend. Among the admirers of the building has been the KING OF THE BELGIANS, who from time to time made sketches of various details and entered into consultation with the architect. It now appears that His Majesty is anxious to enlarge his palace of Laeken, and also is contemplating the erection of some buildings at Ostend, where the King has long possessed a residence on the Digue. M. GÉRAULT has been invited to Ostend in order to deliberate over the royal projects. The selection is a compliment to the architect, and shows the appreciation of French art, which is common beyond the boundaries of France. But Belgium possesses able architects, and it is only reasonable to conclude that they should have the first claim on the King's commissions.

It is only necessary to look into the shop window of a fashionable engraver or stationer in Paris to see menu-cartes which are evidently the work of trained painters. Many an artist in Paris, in the intervals of important commissions, is very glad to exercise his talent on such subjects. Acting on the spirit of this custom, the French Government has given commissions to painters for the cartes which are to be used at the banquets given to the EMPEROR and EMPRESS OF RUSSIA at Dunkirk, Rheims and Compiègne. For the first M. ANDRÉ DEVAMBEZ, a painter who was one of the winners of the Prix de Rome, has been engaged. His design shows France and Russia in the form of two women embracing in the air. They are enveloped in the French and Russian flags, and below them is the sea with a squadron of armed vessels. M. GUILLONNET in his design shows Peace and War seated together, while in the distance is a view of Rheims, its cathedral being prominent. Above, two children, one wearing the Russian crown, the other the Phrygian bonnet, are introduced under the flags of France and Russia, and the arms of the two countries form the central part of the design. M. EUGÈNE MORAND has been more decorative in the carte for Compiègne, for a view of the château appears in a framing of the style of the Empire; the arms of Russia complete the design. When so much importance is attached to cartes, as if they were diplomatic documents, we may be sure that French hosts will also be eager to purchase beautiful designs for their dinner-parties.

ILLUSTRATIONS.

DIXON HOUSE, FENCHURCH STREET, E.C.

COTTAGES TO BE ERECTED NEAR HORNDON-ON-THE-HILL, FOR SIR JOSEPH DIMSDALE.

THESE cottages have been erected for Sir JOSEPH DIMSDALE on his estate near Horndon-on-the-Hill Essex, from the designs of Messrs. ERNEST RÜNTZ & Co. They stand some 4 or 5 feet above the level of the road and are set well back. The bases are of red local bricks and the remainder of external walls are finished with rough cast. The roof is covered with strawberry colour Broseley tiles. An effort has been made to provide a model scheme for cottages on a country estate by giving a compact and economical plan, and by simple but pleasing external treatment.

THE IMPERIAL THEATRE, WESTMINSTER.

CATHEDRAL SERIES.—CHICHESTER: EAST END OF NORTH AISLE

WINDOWS IN HOUSES.

By the late W. White, F.S.A.

THE purposes for which windows are wanted are principally these:—(1) To let in light; (2) to look out of; (3) for ventilation; and (4) it may be for ingress and egress.

It will be well, perhaps, plainly to state at first starting that these uses are not all perfectly compatible with each other. For instance, a window which is the best suited for prospect is the worst for admission of light, and *vice versa*. It is impossible for one window to answer both these requirements in an equally good and satisfactory manner. Something must needs be sacrificed. This is an unpleasant truth, but its full force will appear presently, and students ought to bear it continually in mind.

And first let us take the purpose of a window for letting in light, for lighting an apartment, or rather for lighting the occupants of the apartment in the fulfilment of their daily occupations. In order to effect this in the most useful and agreeable manner the windows must be so arranged as that the light shall fall fully upon the handiwork, without subjecting the operator to the distractions of upward shadows or cross lights. The light must fall from above upon the hand, the table or the book; and in order effectually to secure this the height at which the light is admitted should be never less than 4 feet from the floor of the apartment. Church windows again should for obvious reasons be still higher, and I could almost wish that a stringent law might be made against the height of church windows generally being less than 5 feet 9 inches or 6 feet from the floor line, or that of the east window being less than 8 feet 6 inches. For all rooms devoted to exclusive purposes of work or study a minimum of 4 feet ought to be adopted; and herein I should include also dining-rooms, kitchens and domestic offices of every description. This height, however, must be modified in the case of dining-rooms and studies in ordinary houses, which are generally used for other purposes of domestic use also besides eating and study. Still the general rule will hold good in other cases. In servants' offices there can be no reason for making windows lower than this, whilst there are many reasons for making them even higher. And again in lobbies, entrance halls and apartments which are not used for sitting in the windows never should be lower than this. I could mention many instances of the cold and desolate effect given to the whole place merely by such apartments being lighted by windows with low sills. And indeed the effect of low windows in such position is not only cold and desolate, but gloomy too; the apartment is neither perfectly nor pleasantly lighted, and perhaps the patch of light falling upon the floor inside the window, which at once attracts and distracts the eye, throws the rest of the room into painful contrast with itself. In other rooms, such as drawing-rooms, the case is very different. The objection is not so strongly felt in a mere sitting-room: the room being evidently arranged in every respect for sitting in, the mind immediately makes the necessary allowance, and the unpleasant sensation of the window being made to light only one's legs and feet is not felt.

In an official or a public building the light can hardly be admitted too high. If it is let in at its proper height—that is to say, well above men's heads—one can hardly get into another's light, and the whole place is then pleasantly and equally lighted. Light naturally attracts the eye, and the eye always feels much more pleasure in being drawn upwards than downwards. It is just this which, so far as light is concerned, constitutes the difference between what is cheerful and what is depressing. It is nevertheless well worthy of observation that light should never be admitted directly from above through a horizontal aperture or skylight, but through a vertical opening in the wall or roof. If the light falls vertically one can hardly help getting into his own light. The best angle for light is perhaps one from between 45 deg. to 60 deg. with the horizon. This insures the having light directly from the sky, and that which does come directly from the sky is stronger and purer and pleasanter for all purposes of reading and work than reflected light, for unless the light is pure and free, and does fall upon the object at an angle from above, the side or the edge of that object will be unduly lighted whilst an upward baffling shadow is cast upon the work, the fingers or the book. And light which radiates from below one's work not only casts this unpleasant shadow upon the work, but is also distracting to the eye itself.

The unpleasant and distracting effect of light let in by windows reaching to the floor is made most manifest by the fact that even in a gloomy room actual advantage oftentimes is gained by closing the lower shutters of such a window, and I know of a house with windows so constructed whose occupant has requested me to advise him as to the most effective means of altering them on this account.

This baffling shadow cast upon the table, the fingers or the book, as well as the direct influence which it has in dissipating

the light and affecting the eyes, has also another injurious though indirect influence, which is seldom thought of. It seems to induce in sensitive persons and in those who have a great deal to do in the way of mental application a nervous restlessness or depression, of which at the moment they may be hardly conscious; but anyone who has felt the relief of the drawing up of a window-blind after he has been unconsciously or remissly working hard with an insufficient light, and this chiefly admitted below the blind, will at once know what I mean.

Some say that too much light is more detrimental to clearness and freshness of thought than too little, for that the reasoning powers are distracted by the noonday glare; that twilight is the most favourable to deep and close intellectual contemplation. This also is true; but if the powers of vision have to be exercised equally with thought, and in anything like a proportionate degree, then a good and properly falling light is needful to prevent distraction. The powers of the mind are in their fullest and freest strength when the bodily senses enjoy the greatest degree of repose and freedom from undue nervous excitement, and anything which tends to quiet the nervous system acts as a tonic to the mind.

Different persons, it is true, are differently constituted; one will need much light, whilst another is more than satisfied with a little; and hence it is impossible to legislate accurately for all. Still it may be undoubtedly laid down as a general rule that men of equal constitutions and of similar pursuits will need an equal amount of light, and of about the same description. Mapping and fine drawing require the best light; for reading a moderate light will be sufficient; whilst writing or rough drawing require the least; in fact, for writing one only needs enough light to see that the lines keep their proper parallels without running into each other; and since what would be light to one would be gloom to another, the only way correctly to judge upon the merits of the case is to take an average, or to compare equals with one another.

I said that, in order to be the most useful, light ought to fall so pleasantly as to induce the greatest composure of the nervous system.

Everything ought to be done which can be done to induce habits of composure and earnest application to that work which is in hand. Men, however, who are reading hard often say that excitement helps them on; but this is nothing to the purpose, for the excitement which does aid a man in his work is not the result of outward causes, but merely of close application to that work. And these same causes and effects extend also to concert-rooms, and to all such rooms as are used for lectures or public speaking. The mind is more braced to attention, and is in a much fitter state for listening when the light is admitted high than when it is admitted low. And there can be but little doubt that even in such a room as that at Willis's a morning concert would be listened to with much more composure and pleasure by the majority of the audience if the two lower panes of the windows were walled up, and that in a meeting there for any general purpose there would actually be less inclination and inducement to listless talking and inattention to the business in hand—the effort of listening being so greatly increased by the needless extra work forced upon the eye by the excess and distracting direction of the light.

We have only now to consider the windows of bedrooms. These are certainly more for letting in light than for looking out of. They may however be as low as 3 feet 8 inches from floor to glass line, and in some cases where there is no chance of being overlooked and where there is a sufficiently pleasant view this height may be reduced to 3 feet 4 inches. Some people talk of the pleasure of looking out of window as they lie in bed, but this is certainly not enough to justify the making windows otherwise uncomfortable or inconvenient, and the feeling of exposure which low windows give is quite sufficient cause for making them higher than would be otherwise necessary. Moreover, a bedroom need never be arranged for either sitting in or looking out of, although, as in the case of invalids, it might occasionally be of very great service to have them so. On the other hand, it is said that this objection to low windows is entirely obviated by the use of window blinds, which may be let down or drawn up at pleasure. But it is not so. For it is the lower part of the window which wants the blinds. Directly the blind is lowered below the level of the eye the room is rendered gloomy and depressing, excepting only when a blind is wanted to exclude the direct rays of the sun. If blinds drew up from below the case would be very different. And, for myself, I feel so strongly the unpleasantness of excluding the higher portion of the light that I would suffer almost any amount of other inconvenience rather than have a bar of shade across the window below the eye. In street houses, of course, more care must be taken to guard against the unpleasantness and inconvenience of being overlooked than in the country.

But though I advocate high windows, it must not be supposed that I therefore advise the exclusion of landscape from bedroom windows. I know too well the delights of look-

ing out upon a fair scene to advise or even to tolerate this; but what I do say is this, that if windows are 3 feet 8 inches from the floor they will be low enough to allow of looking out with ease, and 3 feet 4 inches will be low enough for anyone even when sitting (if near the window); and a less height than this can be in no wise needed for bedrooms except in the case of those built expressly for confirmed invalids, when they might be perhaps as low as 3 feet 2 inches. But then to allow for light thus diminished near the floor by the having high sills, the windows ought to be proportionately broad, by which means not only is a fuller light obtained, but the extent of prospect increased. As regards amount of light, bedrooms ought to have light sufficient to make them cheerful, although the need of much light in a bedroom is not felt as in an actual workroom, and if the windows are but broad they need not extend to any considerable height in the room; indeed, so that the lintel or window-head really is well above the eye, there is no need for carrying it up to the ceiling; 6 feet 1 inch is enough for cottages and for garrets, and 6 feet 4 inches for other ordinary purposes, and it ought not to be above 7 feet 6 inches except in large and lofty bedrooms. The air of quietude and repose imparted by having the upper part of the room thus slightly shaded is indeed very desirable in a bedroom, and that height is quite enough to dissipate the effect of gloom which is given by a low window with an insufficient light.

2. We now come to the uses of windows for the purposes of prospect. For purposes of prospect the very reverse of all this is the best. The windows should come nearer to the ground, so as to enable the eye easily to take in the foreground (if it be worth taking in) as well as the distant landscape. The head of the window, as just suggested for bedrooms, should be comparatively low, so that the eyes may be shaded from the full glare. Then the prospect looks the brighter, and the eyes see the clearer, and it is in every way the more agreeable to the person who is looking out. The shade of the room around him places him in a position of repose for seeing the bright scene without. The window-sill being low, he may enjoy to the full a foreground of lawn interspersed with flowers, and perhaps some woodland scene beyond. And this is the sort of window best suited for this purpose; broad and low, and withal opening upon a good rural view or a well furnished flower garden. This too is the sort of window for those who enjoy an idle, useless life, and spend more of their time in lounging than in labour. Still this is not the best sort for general use, at any rate in such a climate as ours, excepting only for such apartments as are used solely or chiefly for purposes of pastime or light occupation. Still, those who do wish, on any of these accounts, to have their windows low, may adopt a standard height of 2 feet 4 inches from the floor, but any height up to 2 feet 10 inches will be found far better.

A low window with a good prospect is pleasant and cheerful in summer, but in winter it is accompanied by several disadvantages, independently of those already named. It is cold and uncomfortable in appearance, and in reality too. So thin a partition as that formed by the glass, and so near the floor, admits more actual cold than is admitted elsewhere. Since cold air is the heaviest, the cold is always the greatest next to the ground; and in our climate houses ought to be built more with reference to winter than to summer use. The prevention of discomfort may surely be taken into account equally with the gain of an actual enjoyment; and who would deliberately and advisedly build for a few bright months, when the greater part of the year is comparatively stormy and cold, or at the best changeable and uncertain? And then again in winter, when days are short and evenings long, low windows waste the light; moreover, the room gets dark the sooner, nor does it derive so much benefit from the evening sun as a higher window would. In Southern Europe, where the sun is more powerful, and is more often shining, the air clearer and the light purer, low windows are not liable to the same objections. Indeed it is necessary there to have the lintels and heads of the windows low, in order to shut out the glare and heat of day, and to obtain the full benefit of the cool and refreshing evening air. Windows there may, or rather ought to, open fully to the floor. The summer sun is often almost unbearable, and well may pierced or palisaded balconies be profusely used to let in air, whilst they screen the apartment and afford a pleasant retreat for an evening lounge. But in England it is otherwise. In England those who have houses large enough to enable them to set apart rooms exclusively for summer and for winter use may have their summer rooms arranged with every regard to summer use and summer enjoyment; but those who have to content themselves all the year round with the same rooms will find their comfort increased and their discomfort greatly diminished by guarding rather against the storm of winter than the sun of summer, and by sacrificing (since sacrifice must be made) rather the ideal enjoyment than real convenience; and especially since this real convenience does also involve an air of comfort too.

It appears then that these two main uses of windows are not fully compatible with each other; and hence people have,

in some degree, to decide for themselves whether they do prefer light or prospect; whether they will have windows high or low; what they will give up and what accept.

Something must be given up in one way for the sake of gaining advantages of another sort. It is like a choice of roads to the same place. The traveller most accustomed to driving will often choose what seems the longest way, if it be but the best road and the most level; having due regard to his journey's end and the weariness of his beast for to-morrow's work, he gives up the beauty of a rugged and hilly road, which another less considerate might have chosen, regardless alike of his horse's knees and of his own neck. And however well the argument of a beaten road and well known track may be urged in favour of an application of the simile to the other side of the question from which it is meant to apply, most at least will agree that it is high time to lay out a new road to our destination other than that which our forefathers of the last generation have trodden; and if it is laid out at all, it may as well be such as can be travelled over with safety and with satisfaction.

3. We now come to the third branch of our subject—the use of windows for purposes of ventilation. For proper ventilation, the nearer to the floor and the nearer to the ceiling the apertures are the better; and hence perhaps long and narrow sash windows are the best. But seeing that proper ventilation is more effectually acquired by other means than by windows, and that the angles of rooms take the currents of air more speedily than the middle wall-space, there is no need to discuss very minutely whether windows long or broad are the most effectual. It will of course take some little time for us to get into the way of ventilating rooms otherwise than by windows, or to believe and feel that they are properly ventilated but by seeing the windows themselves stand open; but it will come sooner or later. However, sashes are the best for letting air in and out, at the top and bottom, while casements have the advantage of opening fairly and freely from top to bottom, which sashes never can, excepting by means of elaborate and costly and inconvenient contrivances.

4. Windows are so seldom wanted for ingress and egress that we need hardly waste words upon them. However, it will be well to observe that in such cases there should always be, for reasons before alluded to, a step which does not open with the casement or sash, of at least 12 inches high from the floor, which will at any rate just prevent the bitter draught to the feet from which so many suffer in consequence of this rule not being carefully adopted, as well as some of the danger of breaking a pane when it comes nearer to the ground than this.

Having now discussed the four main branches of our subject, we must turn for a little while to the proper disposition of windows in a room. Nothing need here be said about putting windows over fireplaces in a general way; excepting perhaps that for reading at the fire, the window is there in the worst possible position. The back of the book gets lighted, but not its pages. And again, for one standing and looking out of such a window it is very unpleasant, whilst for one sitting it must necessarily be out of reach. Nevertheless there are notable exceptions to this, but only when looking into a conservatory either so situated or so constructed as that no sky can be seen by any one looking out, and I have once seen a most fairy-like effect given by one so arranged, with mirrors on either side so placed as to reflect each other and the conservatory, and making it difficult to detect the manner or cause of the illusion. This, however, will hardly touch the generality of instances in common houses. Neither is it well to place a window exactly opposite the fire. There are reasons for this which we will not here enter into, for the objection itself is obviated by the simple alternative of having two windows, with a pier or space between them. This space, being immediately opposite the chimney-glass, is a most fitting place for the reception of another mirror, whereby a pleasing and cheerful effect is always easily attainable.

Neither is it well to place the window or windows in the end of a room when they can be possibly placed at the side, nor ever on two opposite sides or ends of a room, with the exception, perhaps, of a very small window; but this should never be directly opposite the other windows. Nor is it well to have too many windows at all, nor to have two windows at the side of a room in addition to one at the end, unless the room be at least 25 or 26 feet long. No proper unbroken wall-space can be in such a case left for furniture (when the doors and fireplace are taken out), and a sufficiency of wall-space is most essential in order to make a room even moderately convenient or comfortable.

Again, when windows are placed in two adjoining sides of a room one window should generally be higher from the floor than the other, for the avoidance of cross-lights and the feeling of being looked through, as well as for other minor considerations of aspect and prospect.

We come now to the height of window-heads and the proportionate size of windows. Rules can hardly be laid down for proportioning the size of a window, or superficial measurement of glass-space to the given size of an apartment to be

lighted, so very much must always depend upon various local and accidental circumstances of the case which have to be taken into the account. In a close and shaded situation there must be a larger quantity of window proportionate to the size of the room; in a bright and open situation, where the horizon is clear and distant and no near trees intercept the light, less will be required. So also if the house stands low, or looks out upon rising ground, rather more window is required, and it ought to be raised the higher from the floor; whilst if the house stands upon high ground, or is upon an elevated basement, the windows may be proportionately the smaller and nearer to the ground. And, again, if the immediate foreground forms the chief feature of the view, if the garden is closely bounded by hedges or houses which shut out the horizon from sight, one's only resource is to take the greatest pains in the laying-out of the garden, and to make the windows comparatively low for the full enjoyment of the garden view. But if the houses which bound the prospect are such as to overlook one's own windows too nearly they will be with more advantage treated as the windows of street houses ought to be treated, with higher sills, to save the feeling of exposure which a more open window gives.

Again, in order to obtain an equal amount of light the upstairs windows need not be so large as those below, and garret windows may be the least of all. Thus, if we say as a general rule supposing the windows to be rightly arranged, and the light tolerably uninterrupted by interposing objects, that common sitting-rooms require from one-fifth to one-eighth part of the wall in which the windows are placed to be of glass, then kitchens and domestic offices where the sills are higher from the ground will require from one-eighth to one-tenth, and bedrooms from one-tenth to one-twelfth, whilst from one-twelfth to one-fifteenth will be found ample for garrets. And, generally speaking, I believe these proportions will prove to be somewhere about the best.

Neither is it possible to lay down rules for proportioning the length of the window to its breadth, excepting that when the approximate dimensions are decided upon its actual size may be more accurately reduced by measure to some scale of just and harmonious proportion, for however much attention is paid to reasonable arrangement in regard of use and convenience, there is cause, not for disregarding the laws of beauty, but rather for working them out to their fullest extent, so far as the restriction and requirements of use and convenience will allow.

In setting out the sizes and proportions of windows the height of the sill from the floor is in almost all cases the first point to settle, and when this is determined the height of the window-head may be next proceeded with, and then the breadth. The height of the head must partly depend upon the amount of light required, and it will generally be at the least 18 or 20 inches below the ceiling, excepting in cases where an unusually strong light is needed, and a great deal of it, or when the windows are placed in the ends of a room. But ordinary window-heads should never be lower than 6 feet 4 inches from the floor, nor will it generally be needed so low as this, excepting in very small or very low rooms. But it is very desirable on almost every account to get breadth of window. By having windows broad light is the more pleasantly diffused; there is the less amount of unlighted space in the room, and should any one chance to cross the window or to stand before it he does not cause that tiresome obstruction of the light which is caused by any one standing before a narrow window of the common sort, and if there is a sufficient breadth there is the less cause for the window-head being carried so very high to the ceiling. The curtain "valance" then may be hung clear above the lintel, instead of its being hung, as it now so generally is, to cut off nearly all the upper pane of glass.

Then, as to the amount of light, it will universally be found that, so that there is sufficient light, the less window the better. People make so much confusion between window and light. The fact is that almost every one, myself included, likes light and prospect; but then so many seem to think that the largest aperture, the greatest possible amount of window, too, is desirable. This is not the case. For warmth in winter, for coolness in summer, for cheerfulness, for convenience, for comfort, the less window the better, so that it is but well arranged for the admission of light and command of prospect. The cheerlessness of a room all window, and the gloominess of a room with insufficient or ill-admitted light, are widely different in kind, but both are equally depressing and equally uncomfortable.

There is yet another very strongly controverted point; it is with reference to aspect and prospect, and as to whether of the two ought to be sacrificed when it is needful to sacrifice one. My own opinion and feeling are that, excepting in exceedingly rare instances, the house ought to be placed with the most regard to aspect. It can surely be but little less than madness to sacrifice the perpetual comfort of a house to the enjoyment of a landscape which may be better seen and better enjoyed out of doors. And yet there are houses so placed as to receive

the beat of the south-west storm of winter and the burning of the south-west sun of summer merely for the sake of the view, and this in the most exposed situations and when the occupants have no chance of the slightest change or the slightest relief. Whichever room they use it is all the same, and it is the same all the year round.

But I would go further than this. In selecting a site and arranging windows for prospect care rather ought to be taken not to choose the most prominent feature or the most extensive or striking view of the whole country, excepting perhaps for one out of three sitting-rooms. If such a view is selected for all, or for the greater number of rooms, it not only precludes the possibility of change by change of room, but in our daily walks, when, most of all, we require change of scene, a different phase of this same scene is almost ever to be seen. Still we have the great and exceedingly beautiful varieties which the scene itself presents all the day long by change of light and shade, and the other accidents of weather and of season, but these are not in themselves enough.

And now for aspect. The best of all possible aspects is the south-east; the worst possible is the south-west. As a general rule I would say that where choice can be had the range should be taken from south to north by the east, and that the range from south to north by the west should be avoided. All the merits of the different aspects are too numerous to be discussed in detail, but some of the most salient points ought not to be passed over. A southern aspect is one that commends itself to most people; it is congenial to the feelings of almost every Englishman. It is cheerful, without being glaring; it is warm, without being oppressive. In winter it has the full benefit of the sun and in summer it is in some measure protected from the full power of his rays; for in his meridian height he is then too high to reach far into the apartment, and by two or three o'clock, when he is in his full strength (the freshness of morning no longer counteracting his influence as it has done till mid-day, and in winter, when he has by the afternoon lost his power and can only shed a few sickly rays far across the room), he has gone round sufficiently far to prevent any unpleasantness arising either from his power in summer or from his lowness and weakness in winter. But west is bad. A summer sunset, it is true, next to a sunrise, is one of the greatest glories of nature, but then it is seen to far greater advantage and with much more pleasure out of doors than from within; and in winter the sunset may be seen equally well from a southern window. There is, however, no objection to the southern side of a house having eight or ten degrees of westing in it. It will add to the pleasantness, without involving any accompanying disadvantage.

Then, again, no one ought to be satisfied without some windows to the east. A morning room ought always to have the full benefit of the morning sun. To those who suffer from depression of spirits, to all young people and to all who are in the least invalided, I believe the benefits of the morning sun, whether in summer or in winter, are incalculable, whilst they feel the faintness of his evening rays. In schools, again, this consideration is of still greater consequence. A clergyman, now for many years engaged in tuition, has told me the result of his own observation and experience in this respect. He says that the cheerfulness of the morning sun sets up scholars as well as master for the rest of the day. They begin in good spirits, and they go on in the strength of them for hours; whereas, if they have only western or south-western windows the schoolroom is cheerless and dull for the morning, and when the sun has got round sufficiently to gain admission they are fagged and jaded and unable to bear the glare and faintness of the light, which in the early morning would have been to them such a gracious boon.

A north-eastern aspect is now the only one requiring consideration. At first sight its opposite, the south-western, would perhaps find the greatest favour, excepting with those who have had an equal experience of both. But the north-east really does not deserve all the bad words used against it. Its equableness of light makes the room pleasant for the eyes, and useful for work; for many occupations and for many persons, it is on this account the best of all aspects. And again, even for purposes of prospect it has many and great advantages; for example, the eye is in repose, and in looking out of window one sees, not the gloomy, but the sunny side of the landscape; one sees the bright side of things, whilst the eye itself is not offended by the light. In the after part of the day, on the contrary, if you look towards the south-west you see the shaded side of everything. Everything looks sombre and grey. People often forget that in looking towards the source of light they only see shadows; and yet I find that practically they often break out into admiration of an evening view towards the north-east, when the lights are falling prettily upon the trees or fields, even when they have just been saying that there can never be anything bright to be seen in the north-east. It is from the name that they take their impressions, saying to themselves that surely nothing can be cheerful in that direction from whence come all the bitter winds of early spring, and

know how many years I laboured under the same delusion, till my eyes were opened by an artist, who taught me many valuable and interesting lessons of effects in nature. But what I wish to convey will be much better and more easily understood by calling to mind how many times in an evening walk one has turned away from the sun in order to enjoy more fully all the beauties of the landscape. We may also call to mind how universally it is the practice to pull down the blinds to shut out the western and south-western sun. And those who have lived much in London will at once testify how entirely this extends to town life, excepting that they will be far more of one mind in preferring east and north to south and west. I do not, however, pretend to say that the gentle warmth of the winter sun is not deserving of some allowance being made even here in favour of windows looking out to south or south by west.

There has been so much to say upon the form and disposition of windows that there is hardly time to touch upon their construction; it must, however, be noticed that windows which are narrow and high almost naturally suggest the use of sashes, whilst those that are broad and comparatively low almost necessarily involve the adoption of casements, for the window must be divided into a number of compartments by monials of some sort or other, and if sashes are hung in them they are of necessity too small to be properly useful. So then it is not just a mere matter, as is generally supposed, of simple choice between sashes and casements, but of essential principle in the general form and proportion of the windows themselves. The question is one of great controversy, but this will help to solve it. And since casements have several advantages over sashes, as in other respects sashes have the advantage over casements, it will not be needful to discuss this point here, and I will therefore close this part of our subject by answering one general objection to the use of casements, viz. that they will not keep out the weather. Unhappily many casements do not keep out weather. But why? It is simply and solely because the rebate is made $\frac{1}{2}$ inch or $\frac{3}{4}$ inch wide, instead of three times that width. The love of uniformity and desire of hiding construction has induced the method of having the casements which are hung to come within the same line of muntin with the lights that are fixed, but if a casement is properly made and hung it will not only keep out wet but it will keep out more wind also than sashes will, and be more free from noise and rattle, as well as being less costly and more easily renewed when decayed.

We now come to one more point of general dispute, viz. the respective merits of large panes and of lattice-lights. Much of the difficulty disappears, however, when we come to throw the two into their respective positions. Large panes are good for prospect and for clear unbroken light, and hence they will naturally be adopted for general living rooms in ordinary houses. Lattice-lights again are useful and pleasant for softening and subduing the light. Separating the rays instead of breaking them, they act in some sort as blinds without being open to the objections which blinds and ground glass are subject to, of destroying the quality of light by preventing the admission of a single clear and perfect ray, and hence they will be used for churches and schools, and all institutions where windows are wanted not so much for prospect as for application and work. And again for domestic offices and for cottages they will be used as being the cheapest and as being the least susceptible of breaking, and the easiest to mend when broken, and causing the least inconvenience till mended. Then again with lattice-lights we necessarily have saddle-bars and stanchions. These save shutters and afford far greater security. The feeling of quietude and repose too which they give renders them especially fitted for churches, wherein not only are separation from the world and exclusion of its full glare symbolised, but thoughts and feelings appropriate to the place are suggested and imparted—not that such thoughts and feelings will be forced upon all that enter, but if the building be otherwise good, those who wish to entertain them will be aided in their endeavours by means of the external assistance which such treatment gives.

LORD CRAWFORD'S MANUSCRIPTS.

WE are enabled to-day, says the *Times* of Tuesday, to make the interesting announcement that the celebrated collection of illuminated and other manuscripts belonging to the Earl of Crawford has been sold *en bloc*, through the agency of Messrs. Henry Sotheran & Co., to Mrs. Rylands, the founder of the John Rylands Library at Manchester.

What distinguishes the Crawford collection from other like collections, such as the Ashburnham—dispersed in various ways and directions during the last twenty years—is, first, the early date of the principal MSS., and, secondly, the number of marvellous bindings in metal and ivory, dating from the twelfth and thirteenth centuries, which gleam from the show-cases. To these we may first direct attention. They are familiar to

bibliographers and specialists, for Lord Crawford has often lent the whole or part to exhibitions in London; but to the world at large they are as yet unknown. Their extraordinary rarity may be gauged by the fact that the Crawford collection, which contains only thirty of these bindings, yet ranks third among the collections of the world. By far the richest is the National Library in Paris, which contains a large number of the books of this class, seized and saved from dispersion at the Revolution. Next comes the Royal Library at Munich; and then comes Haigh Hall. The British Museum contains but half a dozen, the South Kensington Museum one, the Vatican one or two, the collection formed by Sir Thomas Phillipps four or five. One example, perhaps the finest in the world, remained till the other day in English hands; it was the famous "Lindau Gospels," in cover of pure gold and gems, which Lord Ashburnham lately sold to an unknown private purchaser for 10,000*l*. There is nothing of quite the same importance here, but many of the covers are of great beauty and interest, none the less so for the process of building up which they have undergone in long-past centuries. The normal course of things seems to have been as follows:—A monastery owned a precious tenth-century textus of the Gospels; it also owned an ivory pax, or tablet carved with a sacred subject, perhaps of a century later. Then, a century later still, it occurred to some rich abbot to have the second made into a cover for the first, and he would call in some jeweller or metalworker from Cologne or Liège who would encase the ivory tablet in a richly-jewelled metal frame and make the whole into a cover to preserve the MS. Often in the instances before us the MS., the ivory or enamel centre and the jewelled or chased border are of different centuries. But in nearly all cases the result of the joint work of the carver and the goldsmith is of singular richness and beauty. One of the finest (No. 253 in the hand list of the Bibliographical Society's Exhibition, 1898) has for its centres two plaques of twelfth-century Limoges; its background is of silver stamped from dies of the thirteenth. Round these are figures of saints in ivory, and the whole is enclosed in a border of exquisitely carved and gilt wood, not much later. Another (246 in the same list) is a book of the Gospels, the MS. of German work of the early twelfth century, and the case of the same date, evidently made for the book, a fact which ought to settle the controverted question whether books of this date had as a rule a thick embossed cover on both sides or only on one. Here the central ornament has disappeared, but there remain the heavy borders of gilt copper, enriched with Limoges enamels representing the Apostles, the Virtues, &c. A third, the double cover alone remaining, is the celebrated one which belonged to Samuel Rogers and then to the late Mr. Bateman, at whose sale Lord Crawford bought it a few years ago. The ivory carvings are of the tenth or eleventh century; the metalwork, of the twelfth, is probably from Trèves, which was for a long period the great rival of Cologne in the realm of German ecclesiastical art and culture. Many of the books in this collection bear indications of having been made, or kept, in "the stately town of Trier," while Cologne and Liège can claim an equal share. But in only one instance is the enamel certainly German, or accepted as such—though we suspect that further research will succeed in stripping Limoges of a good deal of early work in many collections which is at present attributed to it. The German piece (264) is a figure of St. Andrew on a plain background of gilt metal, an admirable specimen of twelfth-century work. It is interesting to compare such work as this with an exquisite example of French art of two centuries later, the two leaves of an ivory diptych which enclose a manuscript *Horæ* (250). In this small and delicate example the rudeness of archaic art no longer appears; the craftsman is a master of his tools, and, whether he carves a Crucifixion or a *Via dolorosa*, he has left far behind the grotesqueness of the earlier art beyond the Rhine.

As to the manuscripts themselves, our difficulty is to choose among the large number of finely-written and finely-illuminated examples; but we may call attention to a few, especially to the early books, for it is these which chiefly distinguish the Crawford Library from all others that remain in private hands. Of the Latin manuscripts, whether produced in Italy, Spain, France, Germany, Flanders or England, there are some hundreds; let us indicate a few of the finest. One of the most important texts, though quite unadorned, is a manuscript of the letters and opuscula of St. Cyprian, written in a bold, clear hand in what are known as Merovingian characters of the seventh or early eighth century. This has been traced by the ingenious researches of Dr. Traube, of Munich, to the Abbey of Murbach, in Alsace; it ends with a prayer, "Orate pro dño bartolomeo Abbate," the abbot by whose order the precious volume was transcribed. About a century and a half later is one of Lord Crawford's most recent acquisitions, a magnificent Psalter of the ninth century, which till lately was in the library of the Bollandists at Brussels. Historical students will appreciate the long and important necrology at the end—a list of the death-days of many monks and abbots—while to the student of

art history there is a great interest in the remarkable letters with interlaced patterns of the type commonly called Celtic—the type which seems to have spread all over Europe from the Irish monasteries about this time. Of the tenth century is the book of the Gospels (19) written and illuminated for the Emperor Otto the Great, with his portrait; while from about 1150 date two remarkable manuscripts made in Spain, the “St. Beatus” (30) and the explanation of the Psalms by Cassiodorus (31). The Spanish art of this date is singularly coarse, and in one of these books there is assuredly the oddest map of the world, the strangest jumble of fantastic geography that ever came even from a monkish hand. To the thirteenth century belongs a missal of great interest, for it is of English origin; it is “ad usum Sarum,” and is inscribed “Memoriale Henrici de Cicesteria Canonici”—a very early record of a canon of Chichester, and probably the most venerable Sarum missal in existence. A little later comes the very beautiful small Horæ from the Bollandists’ Library, remarkable as being in its original wooden boards and quite perfect and untouched. Perhaps a little earlier is a very important Psalter written in Paris, almost certainly by the same person who executed the manuscripts given by St. Louis to the Sainte-Chapelle; a beautiful book, valuable both for its five pages of miniatures and its illuminated capitals, and also for its historical associations, for on a blank leaf we read, in very delicate handwriting, the words “Royne Jehanne.” In other words, this book belonged, a century and a half after its production, to Jean of Navarre, Queen of Henry IV. of England.

But, if these early manuscripts give its special note to the library, it must not be supposed that it is poor in later works, brilliant examples of the twin arts of calligraphy and miniature painting at their best; arts which reached their high flowering time at the moment when printing came in to supersede them for ever. There are many very first-rate examples of fifteenth-century work in the collection of Italian, Flemish and English *provenance*; and there is that little masterpiece of French art, the “Genouillac Horæ,” with many full-page miniatures (especially one of the Adoration of the Magi, where everyone is dressed in white) of the most enchanting beauty. The finest of the Italian works is dated 1402; it is in three large volumes, full of truly marvellous miniatures, and made historically interesting by the portraits of the Malatesta family, to which it belonged. A book like this, perfect in condition and certain in date and origin, is naturally a most important monument of Italian art at the end of Trecento; and, doubtless, when it has been made easily accessible to scholars and to all the world it will soon be taken as a text for many a learned and fruitful treatise. More splendid, but belonging to an epoch when art had become too self-conscious and conventional, is the celebrated Colonna Missal in six large volumes, made about 1517 for the Cardinal Colonna, and adorned with a multitude of Raphaelesque illustrations. The late Lord Crawford used to attribute many of these to a certain Phillipus de Corbizis, by whom there is a signed illustration in a missal at Siena; but it is safer to group them generally under the title “School of Raphael”; for the miniatures have the want of individuality, together with the accomplishment, the grace of outline, the brilliancy of colour and the frankly pagan sentiment which we find in the works of the Roman artists under Leo X., who worked under Raphael’s name and guidance. The missal is incomplete; one other volume is known and others may be in existence, but it is perfect as far as it goes, and is in its original binding. All the volumes are in richly-tooled red morocco, except that containing the Office for the Dead, which is in black. The last of the European manuscripts which we need mention are three English works. The finest (60) is the celebrated copy of Lydgate’s “Siege of Troy,” which sold for a very high price in the Perkins sale many years ago; it is not later than 1420, and the borders and illustrations are of extraordinary richness and beauty. Another volume is Lydgate’s translation of Boccaccio’s “Falls of Princes,” a plainer, but still important, volume from the Osterley Park library; and a third English book of great value is the copy of Wycliffe’s “Gospel,” which was presented to Queen Elizabeth on her accession by Francis Newport, who had narrowly escaped martyrdom under Queen Mary.

We cannot pretend even to indicate the wealth of the library in the matter of Oriental manuscripts of all ages and languages—Armenian, Singalese, Tamil, Canarese, Tibetan, Burmese, Siamese and Malay manuscripts are here in abundance; here, too, are many examples of those curious and rare productions, the medicine books in the Batak language. These things are, of course, curious; but of more general interest are the vast number of very precious Persian and Arabic manuscripts, the Egyptian papyri, the Coptic manuscripts ranging from the sixth to the fifteenth century, with which for the moment we may class one of Messrs. Grenfell and Hunt’s greatest discoveries, the earliest vellum book in the world, containing ten or twelve pages of the “Odyssey,” probably in a handwriting of the third century. Unluckily, this is not so well preserved as are the papyri, of which the library contains

a great many; even in the dry Egyptian climate time has wrought grave injury, and only a small part of the fragment is quite decipherable. As to the Persian and Arabic manuscripts, they form one of the richest departments of the library. The examples of the Koran, portions or the whole, are extremely remarkable; we may note some pieces in the Cufic character, dating from the eighth and ninth centuries A.D., which are of extraordinary beauty and value. One book of 467 leaves, written on thick Bombycine paper, and of the date 1500 A.D., must be one of the largest volumes in the world; it measures 34 inches by 21 inches, and each of the huge pages contains only ten lines in bold and noble handwriting. Altogether the Persian, Arabic and Turkish manuscripts were 1,851 in number when Lord Crawford compiled his hand-list in 1898, and the importance of such a collection, if it is to be made accessible to Oriental scholars all over the world, cannot easily be over-estimated.

RUSKIN MEMORIAL MUSEUM.

ON Saturday the Ruskin Memorial Museum at Coniston was opened by Canon Rawnsley. The museum is a plain room 30 feet square, at the rear of the Coniston Institute, and will contain the paintings, sketches and other works of John Ruskin. The north side of the room is devoted to the exhibition of natural history relics, and to engravings and views of his homes. The south wall is hung with pictures of local interest, and others illustrating Mr. Ruskin’s writings. The east portion contains drawings by him, Greek relics dug up in Cyprus, MSS. in chronological order (lent by Mr. and Mrs. Severn), whilst the opposite wall is completely covered with pictures, very large lecture diagrams, and details for the “Stones of Venice.”

Mr. W. G. Collingwood, as chairman of the building committee of the museum, asked Canon Rawnsley to publicly open the museum. Since they had lost John Ruskin he was sure that Canon Rawnsley was undoubtedly the most distinguished literary man of the Lake District. He hoped that in time to come they would have a much larger memorial than the present little Ruskin Museum.

Canon Rawnsley said:—We meet to-day to set the crown of completion on a work dear to the heart of John Ruskin and his friends, the Severns, Mr. W. G. Collingwood, and to the people of Coniston, and to all who believe we are bound to make the rural life of Britons higher and happier. This Institute is the result of a seven years’ effort to make the club-house of Coniston as perfect as may be. It has all the conveniences of a first-rate village club, billiard-room, classroom, news-room, concert hall, smoking-room, bath and caretaker’s house. Now, to-day has to be added what may be called a village study, a room where talk will give way to thought and work, and where any members of the club may find objects of interest to look at, books to read and ponder over, and facilities for drawing with pen and pencil; and all this in perfect quietness. It is true that students must run the risk of being disturbed a little in the summer holiday season. Then, I am told, by the fashionable penny-in-the-slot arrangement, an inquisitive public will be able to pass a turnstile and either examine the library, collection of minerals, Ruskin relics, engravings, pictures and portraits, and such objects of local archæological interest as may from time to time be collected. The committee will wish me, I am sure, to especially thank Mr. Collingwood, for he has never slackened his efforts to help the Coniston Institute from the day of its inception till now. This is the crown of his labour and rejoicing. But Mr. and Mrs. Arthur Severn and the president, Dr. Kendall, and the local committee had another reason for rejoicing with him. They have obtained their object to-day without leaving any liability upon the premises, and the Coniston village study, or as it will be better known in future, the Ruskin Museum, is open to-day to the public without a penny of debt to cast a shadow on the undertaking. Yet there is a shadow upon us all. He who knew this valley off and on for more than seventy years, as a little lad of thirteen could not think of the foaming of the White Lady Ghyll or the loneliness of Coniston Crags without breaking into boyish verse, and telling us how he wearied to see them again. He who, when he was ill at Matlock in 1871, was heard to say, as Mrs. Severn has told me, “If only I could be down beneath the crags of Coniston,” is laid—or so much of him as is mortal is laid—now for ever at rest beneath the hills of the valley he so loved and so honoured by his love. Even as I speak I see in thought the beautiful memorial cross that tells us of his labour and his rest from labour in the quiet God’s acre of this village of his care. For friends John Ruskin did care intensely; for the well-being of this village community, he took great interest in this Institute; backed up loyally by Mr. and Mrs. A. Severn, and by the willing hands and heart of Mr. Collingwood, he assured the success of the Institute in its infancy, and foreshadowed its educational value

by presenting it with a fine collection of mineralogical specimens, and by commissioning Mr. Collingwood to make a model to scale of Coniston Old Man and the adjacent hills. Then, in 1896, when the committee of the Institute determined to lengthen their cords and widen the bounds of their habitation, he contributed to a sale of work many sketches and signed drawings which materially added to the proceeds. May we not speak of him almost as the father of the Institute? Can we doubt but that to-day, if his spirit is with us, he is in sincere sympathy with the undertaking? This kind, just and true man was ever, as he told us, a lover of order, labour and peace, and anyone who saw him, as I used to see him, in the museum and drawing school at Oxford, or as others have seen him in the St. George's Museum at Sheffield, knows well how much he felt that in a true order of things the labourer in the fields or city workshops ought to be able to come to such king's treasure as a library and museum, and there, out of those treasures, bring forth peace—peace of a mind that comes of communing with the kings who are at peace—the mighty minds of old. How much he believed in the opening of the mind to higher things that such museums and libraries, rightfully used, would insure we know who have read his book "Sesame and Lilies." Nothing could be more consummate with his wishes than that here, in the valley of his labour and his rest, residents and villagers alike should have access to such a library and museum as the founders of this memorial to his name have designed for posterity. There could be no fitter monument to the master's memory than this Ruskin Museum. It is true that no one had greater scorn than Ruskin for the way in which we slay the prophets and then build their sepulchres. None desired more sincerely only to leave his memorial in the hearts of his followers. "Careless of monument by the grave," he once wrote, "the desire of men should be to build it in the world—monument by which men may be brought to remember not where we die but where we live." All his life was an attempt to build such a living memorial. He ever practised the truth he taught, and amongst others he taught the great reciprocal duties between the living and the dead. He believed in the to-morrow as he worked for the to-day. "We, as we live and work," he said, "are to be always thinking of those who are to come afterwards, and what we do may be serviceable as far as we can make it for them, as well as for ourselves." Then when we die it is the duty of those who come after us to accept this work of ours with thanks and remembrance, and not thrusting it aside and tearing it down the moment they think they have no use for it. Then," he added, "each generation will only be happy and powerful to the pitch it ought to be in fulfilling these duties to the past and future." To-day we are acting in the spirit of the man who so taught us. It is with sincere thanks and heartfelt labour of love for the people, not of Coniston only, but of Great Britain and the world, that here in Ruskin's name we are gathered to-day—whilst it is called to-day—to open this museum, which will help those who come after us, and shall keep his name in sweet and constant remembrance. We gladly accept the invitation of your committee to come over to you and to declare, as I do, this Ruskin Museum open.

NORHAM CASTLE.

THE fourth annual meeting of the present season of the Architectural and Archaeological Society of Northumberland and Durham was held at Norham. Sir Hubert Jerminham, K.C.M.G., in his excellent account of the castle, says that "few places in England can boast of more historical importance than Norham, for actually and incidentally it was the means of producing events, the benefits of which are felt to the present day. Christianity's first introduction into the North of England took place in Northumberland."

An invigorating drive from Berwick through undulating country and pretty scenery brought the visitors to Ladykirk, where the journey was broken, says the *Durham Advertiser*, with the object of giving the visitors an opportunity of inspecting the church, the interesting features of which were described by the minister, the Rev. W. Dobie. The first feature to which he directed the visitors' attention was an antique chest, upon which is carved "Liverpoole." Attached to it is a most peculiar history. It seems to have been originally in the parish church of St. Nicholas, Liverpool. It was bought at a public sale in Edinburgh, paid for and subsequently placed here. It was computed that it was 450 years old. How it got out of St. Nicholas's Church was quite a mystery to the churchwardens. It is, nevertheless, a very remarkable work, and a unique example of art. Some people, remarked the minister, thought that it was originally intended to be used as an alms chest, and force is lent to this suggestion by the scriptural quotation carved upon it, "It is more blessed to give than to receive." In regard to the church itself, continued the minister, there could be no hesitation in accepting the belief given expression

to in the Exchequer rolls of Edinburgh that James IV. contributed largely to the building of that church. At that time the state of the country was such that many buildings were begun and not completed. That church shared that fate. It stood till 1743, and having endured for so many years without any attention being devoted to its repair, it fell practically into a state of ruin. In 1742 or 1743, however, the property of Ladykirk changed hands. William Robertson, who was a well-known man in Edinburgh—a lawyer—purchased the property of Ladykirk, and, with an adjoining proprietor, put their heads and purses together and put it into a certain state of repair, although not into the state which it now enjoyed. The tower, they would notice, was comparatively modern. That was done in 1743. The population was then small and the church much too large. Therefore, instead of building a new parish school, as they were bound to do, they cut off a portion of the church by two partitions and made a Sunday school. He (the speaker) went there in 1859, and one evening he was sitting talking to the late David Robertson. The latter said, "I understand, Mr. Dobie, your manse is in very bad order." "Yes," the speaker replied, "it is." "Very well, we will have that put right." "But," retorted Mr. Dobie, "I don't mind the manse so much; I want my church." "What do you mean?" said Mr. Robertson. "Well," he said, "you have the parish school in it, and you have no right to have it there." There was, explained Mr. Dobie, an old law in Scotland that did not allow the two to be together. "After that I got my church," said Mr. Dobie triumphantly. They cleared out the seats and everything else, and it was done at no little expense, but without the slightest murmur or grumble from any human being. And now there they were; but, he added regretfully, with a decreasing population, for it is little more than one-half of what it was when he came there. By James IV. having contributed to the building of it they claimed that it had a large element of Royalty about it, but they were all sorry he had not the presence of mind to endow it. Referring to a bust of James IV., the minister remarked that it was made by Hanson Ritchie, a well-known sculptor. He executed a great many similar things both in England and Scotland. There were three cherubs upon the bust, which were, it was thought by many, representatives of Faith, Hope and Charity.

The party then inspected the old and interesting edifice. The unique stone roof of the church was duly remarked upon. It is said that the church of Ladykirk was built by James IV. in fulfilment of a vow made when in imminent danger of being drowned in the Tweed.

The brakes were now re-entered, and a pleasant drive was taken to Norham, at which place the twelfth-century church dedicated to St. Cuthbert, which contains some very fine pre-Conquest stones, was inspected. Here Canon Greenwell mounted the pulpit and discoursed racyly about the history of the building, and related many interesting stories regarding ancient charters. The church was built by Bishop Flambard, probably about the same time as the castle. Much of the Norman work, however, was destroyed during the restorations which took place in 1617, 1846 and 1852. Still, there are sufficient remains of the fine old building to indicate its architectural character. These are:—The round-headed arches between the nave and the south aisle with their tall cylindrical columns, the stately chancel arch with its three shafted piers, and the five round-headed and deeply-splayed arches in the south wall of the chancel, connected by the continuous label carved with zigzag. The aisles, vestry and tower are modern. The church contains two beautiful recessed and canopied tombs, one on the south and the other on the north side of the chancel. The former is of exquisite fourteenth-century workmanship, and supports on its slab the cross-legged effigy of a knight clad in mail. The bell in the tower is inscribed, "Anthony Bartlet made me 1670." The black oak fittings and reredos are from Durham Cathedral. Apart from its connection with the introduction of Christianity into England, the church is a magnificent specimen of early architecture. Mr. C. C. Hodges succeeded Canon Greenwell, and gave a long account of the architecture and other features of interest.

The party then walked to the castle, where they were received by Sir Hubert Jerminham. On behalf of Lady Jerminham and himself, he said, he extended to them all a most cordial welcome. He had no doubt they would be interested in all that had been said about that really historical place. It was, he continued, hardly finished in 1601. As they all knew, the marriage of Henry VII.'s daughter with James IV. of Scotland brought about virtually the union of Scotland and England, although that union, it was true, was not ratified until 100 years later. It was the affray at the gates of that castle that brought about that particular and most providential union between the fighting Scots on the one hand and the fighting Englishmen on the other. Then, between 1124—when that castle was nearly finished, namely, the Norman portion of it—and the year 1557, and later when Flodden finished the power of the Scots, it was there on his way to Berwick that King James

rested awhile. Those facts, and many more, made that place of peculiar historical interest. It was nothing else but a fortress, a fortress conceived by Bishop Flambard, continued by Bishop Pudsey, and finished by Anthony Bek. It was, therefore, very fitting that another Bishop of Durham should go to Melrose later and promulgate peace instead of war. Perhaps the most interesting feature of that place was that it was at that particular spot where the introduction of Christianity into the north part of England took place. After dealing further with the history of the castle, Sir Hubert said he thought they would find that a tour round would not make that an uninteresting excursion. He was glad to see Canon Greenwell present.

Sir Hubert then personally conducted the party round the castle, explaining its wonderful and remarkable history. Through his kindness and generosity each of the party was made the possessor of an abbreviated account of his history of Norham Castle.

TESSERÆ.

Roman Architecture.

IN the entablature of the portico of the Pantheon and in the upper cornice on the cylinder of masonry there is a feature which is new, though not of Roman origin. To enable the cornice to project further and obtain the effect of a great overhanging mass, and yet let it appear supported from below, brackets are placed under the projecting part. They are horizontal stones formed like fascias and twisted in opposite directions at the two ends; an acanthus leaf turning outwards runs along the under side. But in some cases, as in the Temple of the Dioscuri, the architect was not satisfied with this additional ornament as it is found on the cornice of the Pantheon, and has added Ionic dentils and a peculiar leaf ornamentation. There was an incessant effort to pile on ornaments in order to heighten the impression of wealth and magnificence, and the Composite capital which arose in Rome bears witness to this. The Roman architects were not content with the light volutes of stems and tendrils of the Corinthian column, but imposed upon the light foliage the heavy volutes of the Ionic order, placing them at all four sides in the direction of the diagonals. The entablature matched the Composite order in magnificence; all possible forms of ornament, beadings, moulding, dentils, &c., were piled on. The frieze was covered with a fantastic design of twisting branches and winged cupids, and the lower side of the projecting cornice was ornamented with brackets, cassettes and floral ornaments. There was often a superabundance of ornament, but the remains show that very fine effects were produced.

Historical Painting.

The illustration of history has ever been justly regarded as one of the loftiest objects of the art of painting, inasmuch as the records of nations are capable of arousing a wider interest than the habits of individuals. Though in the power of explaining, as it were, simultaneously the cause that led to the event and its subsequent results, the author has a great advantage over the painter; yet in the strength of its expression and in the clearness and perfect intelligibility of its language the art of painting far surpasses every other art. It may be said that a spectator standing before a picture which illustrates some event of history should be acquainted with the subject depicted, and though it would undoubtedly produce a greater interest if he could know not only the names of the actors, but also the cause and effect of the event depicted, yet such knowledge is not absolutely essential to arrive at a complete understanding of the character of the subject portrayed, provided it be one fit for pictorial illustration. Moreover, though in its highest flights art addresses itself to a more refined but naturally a smaller audience, it is surely not too much to expect that all classes, except the utterly ignorant, should be acquainted not only with the history of their country, but also to a certain extent with its poetry. Again, when literature has expended all its powers, there is a further eloquence which painting alone can utter, for it gives form and colour to the idea, and makes that a reality which before was only a vague dream.

The Peutingerian Road Map.

The map on parchment, showing the roads of the ancient Roman empire, which is in the Imperial Library, Vienna, is 21 feet in length and about 1 foot wide. The author, whoever he was, did not intend to draw a proper geographical map, with the relative position of countries, but merely to collect all the great roads of the empire into a long narrow strip, marking the stations upon each, and the distances between the stations, for the information of travellers and chiefly of military and civil officers. In consequence of this arrangement the great lines of roads are represented as nearly parallel, and most of the great rivers are also made to run in the same direction, from west to east or east to west, which was that of the greatest

length of the Roman empire. But the northern and southern boundaries of the empire are brought into close approximation to each other, without any regard to the latitude. For the same reason the Mediterranean, Adriatic, Ægean and Euxine seas are all compressed in breadth into the shape of long channels, the peninsula of Italy appears to run straight from west to east, and the islands, such as Sicily, have undergone a like compression of form. The towns on the roads are marked by small houses; some, being worthy of particular notice, are designated by square buildings, like barracks, and some more important towns and military stations, such as Aquileia, Ravenna, &c., are distinguished by walls and towers. Rome is distinguished by a circle with a crowned figure seated in the middle, and the port of Trajan is conspicuously sketched near the right bank of the Tiber, at the mouth of the river. Constantinople is marked by a circle and a figure, which, however, is not crowned. Antioch is the only other city which is also distinguished by a circle and a figure, in which last Mannert thinks that he recognises the Virgin Mary, which he believes to be an interpolation of some copyist of the Middle Ages, who had before him an older map of the time of the Pagan emperors. That the original map was drawn while the old religion of the empire was still dominant seems proved by the heathen temples which are marked upon it, whilst there is no Christian name, with the exception of St. Peter's at Rome, which is probably also an interpolation of the copyist, who has taken care to notice the desert between the Red Sea and Palestine as being that "in which the children of Israel wandered for forty years," as well as Mount Sinai, where "they received the law." Several other particulars on the map seem to fix the date of its original construction to about the time of Alexander Severus, after the Persians had overthrown the Parthian dominion A.D. 226.

Colour in Architecture.

Remains of colour have been found by travellers upon ornamental work in most of the architectural ruins of Greece. Many traces were discovered by Dodwell, Stuart, Chandler, Brøndsted, Semper and others upon the principal Athenian monuments, upon the Temple of Theseus, the Parthenon, the Propylæa, the Erechtheum, the temple on the Ilissus, the monument of Lysicrates, the outer propylæa of the Temple of Ceres at Eleusis, and the greater temple at Rhamnus; also upon the Temple of Apollo at Bassæ in Arcadia, the Doric ruins at Corinth, and the Temple of Minerva in Ægina, upon the temples of Selinus in Sicily, and upon the basilica at Pæstum. Upon all these temples, except the Doric ruins at Corinth and the Temple of Minerva in Ægina (commonly called the Temple of Zeus Panhellenius), which were not of marble, the colouring was confined to the mouldings and other ornaments, the friezes, the metopes and the tympana of the pediments. The exterior of the wall of the cella of the Temple of Ægina and the columns of the Corinthian temple were covered with a stucco and coloured red. In a ruder age, when most temples were constructed of wood, before the use of marble or other stone, the application of colours was undoubtedly more general and much less systematic not only among the Greeks, but with most of the nations of antiquity. In Egypt it was at all times a universal custom to have recourse to colours in the decoration of architecture. In later times amongst the Romans in the times of Vitruvius and Pliny, the practice seems to have degenerated into a mere taste for gaudy colours, and to have been very general, as we see in the ruins of Pompeii, where, however, occasionally the arabesque decorations upon the walls of the courts in the larger houses are very elegant. With regard to the system of decorating the mouldings it appears, from the traces found upon ancient monuments, that they were painted in various ways and in a great variety of colours, whether carved or plain, and a tasteful combination of colours must have greatly heightened the effect of even the richest mouldings. These decorations were not confined to the mouldings of the entablature; the ovolo, echinus and abacus of the capital, and the toruses of the base were also sometimes coloured. Foliage, ova and beads were the ordinary decorations, but on the Doric tænia a fret was generally painted, and the cymatia of the pediment cornices were frequently ornamented with gilded metalwork; the acroteria were also surmounted with gilded figures. Upon the larger mouldings, on which foliage was painted, the outlines of the leaves were engraved in the stone. The mutules, dentils, modillions and the soffits were also variously coloured, but the Doric guttæ were apparently generally gilded. The fasciæ of the architraves and the coronæ of the cornices were left plain, but the Doric architrave was sometimes ornamented with gilded shields, as in the Parthenon at Athens, which were placed immediately beneath the metopes. It appears that all friezes which were decorated with sculpture were coloured, which was absolutely necessary to give the sculpture a proper relief; for the same reason the tympana of the pediments would also require colour. In the Doric order the tympanum would necessarily be of the same

colour as the metopes; in the Parthenon they were of a pale blue, and in some of the Sicilian monuments red has been found. The metopes require colour, with or without sculpture, to throw the weight of the pediment upon the triglyphs, its natural supporters, which, being left plain, united the cornice with the architrave and gave the whole building an elegant lightness of effect which it otherwise could not have.

Imagination and Taste.

Imagination seems to be a power to which instruction can scarcely reach, and if in any degree amenable to direction it can only be so through taste, a faculty that is admitted to be capable of much improvement by cultivation. By taste, in its most perfect condition, is understood a result from the union of the best sense with the most perfect senses and the truest sensibility. It includes a knowledge and love of the good as well as of the beautiful, for material beauty can never be truly felt but by him who knows also what is moral beauty. Imagination may be considered as the active power of genius, taste as the controlling and directing power. It is the temperance which Shakespeare recommended to the actors in their bursts of passion, but, as he also told them, it is not tameness, neither is it mere fastidiousness, much less timidity. It will dare everything for a great end, but it never seeks merely to astonish, nor is it ever presumptuous. It is a power that estimates all things, relatively as well as singly, and therefore it is not exclusive; it objects not to ugliness nor deformity, but it assigns to them their proper places. It objects only to falsehood, and this it detects as readily under the most magnificent disguises as when it affects the most childlike simplicity.

Edington Church, Wilts.

The date at which the Perpendicular style came into general use was the year 1377, or perhaps a little earlier. But as was the case with the previous styles, the sign of transition—in this case the Perpendicular line—had appeared some years before. The earliest instance known of a Transitional church is the very remarkable church of Edington, in Wilts, which was consecrated in 1361. It was built by William de Edington, Bishop of Winchester, and some have supposed that his successor in that see, the famous William of Wykeham, taking the idea from Edington's innovations, invented the Perpendicular style. Whether this theory be true or not, of this much at least we are certain, that Wykeham was the greatest architect of his day, and that his own foundation of New College is the earliest pure building of the style. It was begun in 1380 and finished in 1386. But to return to the church of Edington. It is Transitional throughout—not merely showing signs of a change here and there, but begun and finished within the period of transition—in general design and effect Decorated—in detail a remarkable mixture of the two styles between which it stands midway. For instance, the west window, which is large and of eight lights, appears at a distance to contain Decorated tracery, and the Perpendicular lines are scarcely noticed though they occur at every opening. This is probably accounted for partly by the fact that not one of the mullions is carried up into the head of the window, and thus the Perpendicular lines being broken and scattered the idea of perpendicularity is only imperfectly expressed. The doorway beneath exhibits a still more singular mixture of styles. The arch is segmental as in ordinary Decorated work, but the upper part, forming a kind of tympanum over two doors, is filled with Perpendicular panelling, and the whole is surmounted by a square hood moulding, which is of very unusual occurrence in Decorated work, though a similar example occurs in the north aisle of Dorchester Abbey Church. William de Edington began and Wykeham continued the alteration of Winchester Cathedral, and although the new works are, of course, in the Perpendicular style, at least those of the former prelate are not wholly free from traces of the preceding style. In 1380, however, we find the new style thoroughly established and the flowing line of the Decorated period utterly abandoned.

GENERAL.

The Rev. E. Lewes Cutts died on Tuesday in his seventy-eighth year. He was an ardent archaeologist and was the author of several books, including "Manual of Sepulchral Slabs and Crosses," "Scenes and Characters of the Middle Ages," "Early Christian Art," "Parish Priests and their People in the Middle Ages," &c. He also contributed the volume on Colchester to the "Historic Towns" series.

The Spanish Exhibition at the Guildhall was visited by 305,000 people during the four months it was open.

A Cross 60 feet high was unveiled last week on the summit of Monte Capreo, near Carpineto, the birthplace of Pope Leo XIII.

M. Loubet will present to the Empress of Russia as a souvenir of her visit to France a splendid Sèvres table-service, consisting of thirty articles representing dancing-girls in various attitudes.

Two Austrian Travellers who were sent to explore the ancient castles of Northern Arabia declare that the castle of Amra, 140 miles to the east of Jerusalem, contains the treasures of antiquity rumoured to be within its walls. The castle was erected before the Christian era, and has been uninhabited during the last 1,300 years.

The New Premises facing the St. Helens Town Hall which are in progress from the designs of Messrs. Briggs & Wolstenholme, who have arranged for the new buildings, will be in harmony with the front of the Gamble Institute. The walling will be of Ruabon brick, with terra-cotta dressings.

A New Theatre, to be called the Gaiety, is about to be erected in Tavistock Road, Plymouth, from the designs of Mr. H. J. Snell. Plans have been approved by the special works committee of the Corporation. It is expected the building will shortly be commenced. It will accommodate about 1,800 people.

The Manchester Corporation have decided to seek powers next year for the widening of Cross Street, in order that a double line of tramway may be laid for the whole of the street. At present there is a single line between King Street and Albert Square, and traffic is sometimes impeded in consequence.

The Old Benedictine Abbey at Luxeuil, which served as a seminary for priests, is to be sold by the French Government, the building and grounds being put up at 164,000 francs.

Bench Marks on Trees change very slightly, according to some notes by Mr. Geo. W. Cooley in the "Annual" of the Minnesota Surveyors and Engineers' Society. His experiments have lasted many years and were made with benches established in the usual way on linden, hickory, maple and elm trees. The changes are not cumulative. The greatest in sixteen years was about 0.02 foot, while an equal or perhaps greater variation occurs frequently in one year.

A New Organ is to be erected at the expense of the Chinese Government in the chapel at St. Augustine's College, Canterbury. The instrument is to be a memorial of the Rev. Sydney M. W. Brooks, formerly a student at St. Augustine's, who was killed in China last year.

Workmen's Compensation Cases, which have not been tried by the Court of Appeal since March last, will be reinstated in the list for the ensuing Michaelmas sittings, and it is expected that they will be heard by that tribunal at an early date after the reassembling of the courts on October 24.

The Bexhill Urban Council are to submit to competition the preparation of plans for the proposed isolation hospital. The successful competitor is to be rewarded with a paltry 25*l*.

A Deputation from Dover has gone to Berlin and has laid before the Kaiser a plan of the improvements which are being carried out at that port, with the object of having it made the place of call for the German Atlantic liners.

M. Léon J. B. Grandin, the French sculptor, whose works were often admired in the Salon, has expired at Versailles after the amputation of his right leg.

Mr. James Cowle, Government architect and surveyor, has died very suddenly at Douglas, Isle of Man. He designed most of the modern public buildings in the island, including the Tynwald Court and the Rolls Office. He held the office of diocesan surveyor ever since its establishment by the Dilapidations Act of 1879.

The Committee appointed to adjudicate on the designs sent in for the new offices for the engineering staff of the railway at Maritzburg have placed three in the following order of merit, and the prizes will be awarded accordingly:—First, Mr. Ernest J. Wellman ("Rocket"); second, Mr. William Lucas ("Forward"); third, Mr. Herbert Salomon ("Utility"). Nine designs were sent in.

The Local Government Board have after more than three months' delay sanctioned the application of the Cheltenham Town Council to raise 35,000*l*. for the erection of a town hall and assembly rooms.

A Church is to be erected for the new parish of Dethick, Lea and Holloway, from the designs of Mr. P. H. Currey, of Derby.

It is Proposed to build a church in Birmingham in connection with the Oratory as a memorial of Cardinal Newman. Plans have been prepared and the estimated cost is 23,000*l*.

An Inquiry has been held at Hayward's Heath into the application of the Rural District Council for sanction to borrow 6,500*l*. for the erection of a board-room and offices.

The Architect. Sept 6th 1901.





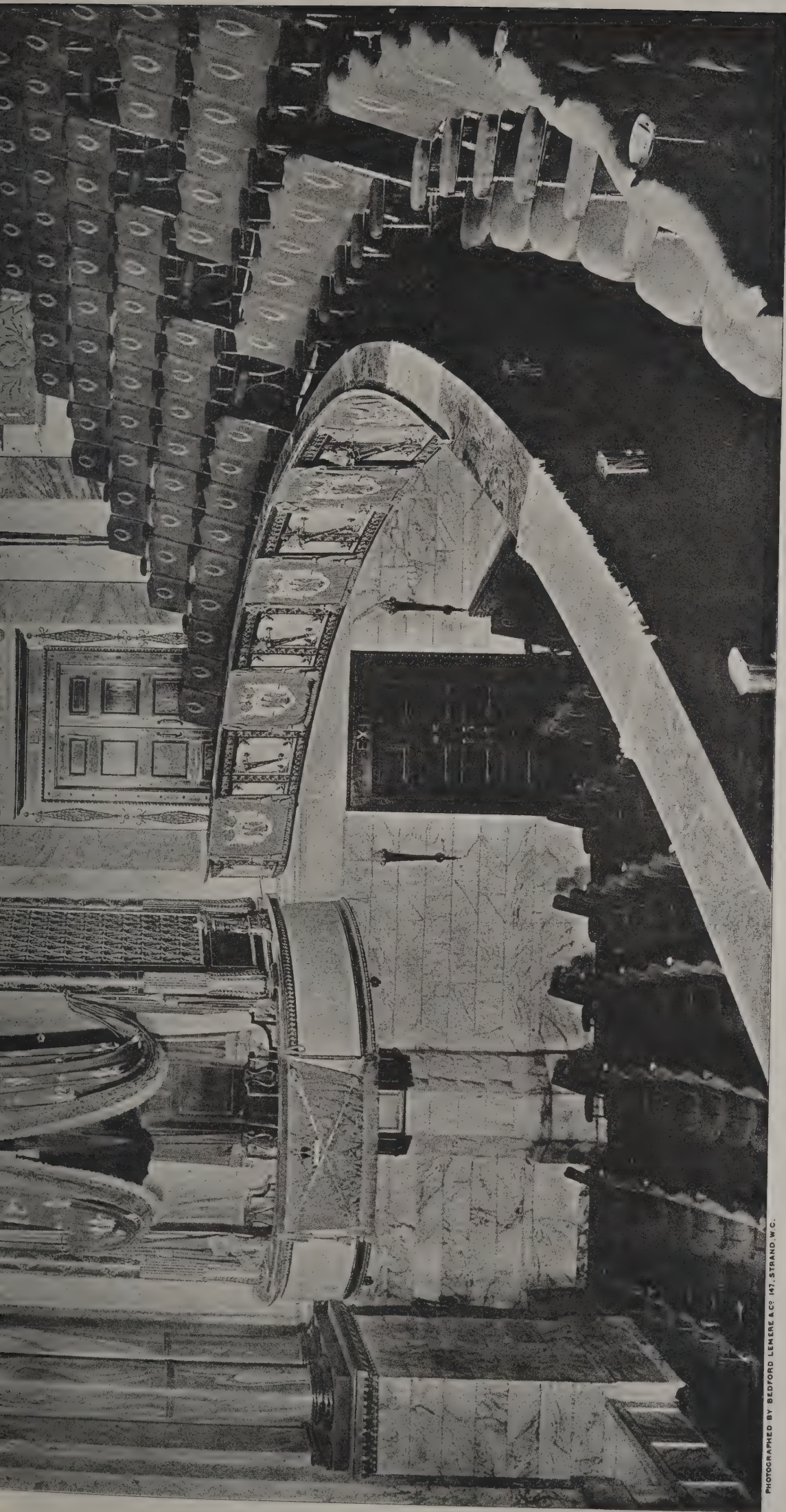
PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.

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CATHEDRAL SERIES, No. 352.—CHICHESTER: EAST END OF NORTH AISLE.

The Architect, Sept 6th 1901.





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THE IMPERIAL THEATRE, WESTMINSTER.
FRANK VERITY, Architect.

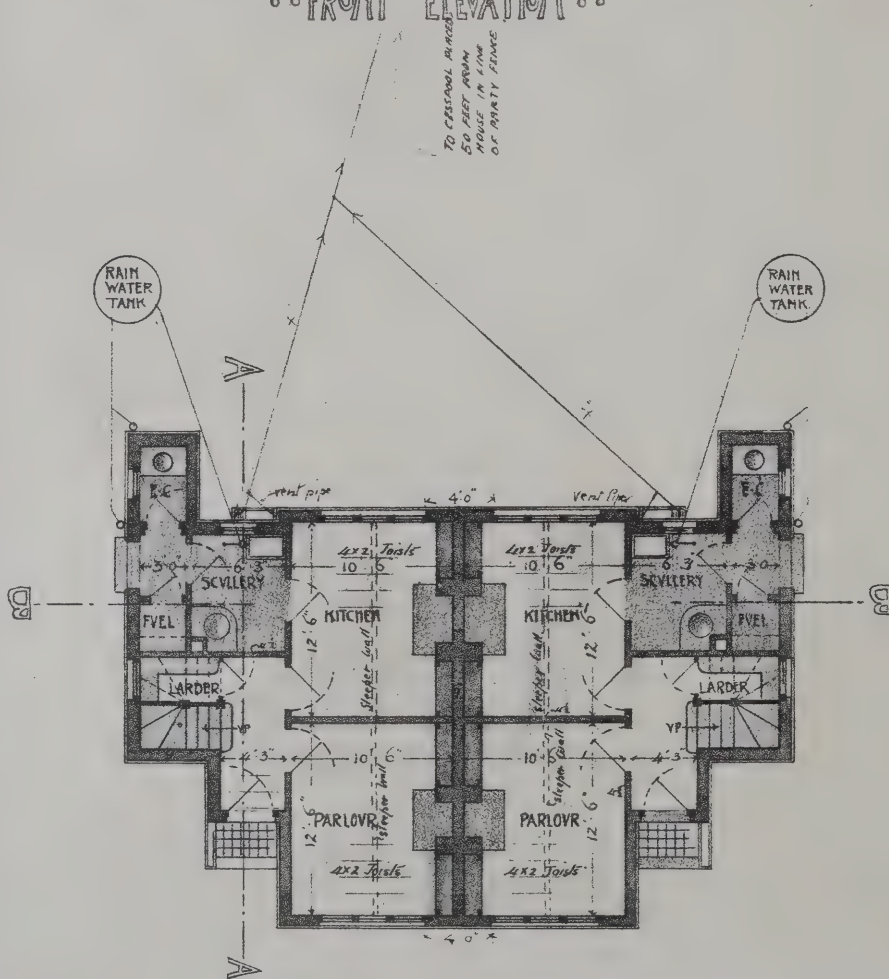
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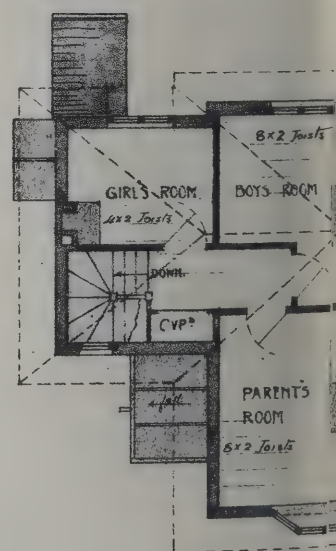
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• • BACK ELEVATION



•• GROUND FLOOR PLAN ••



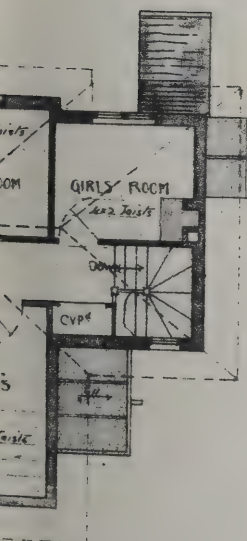
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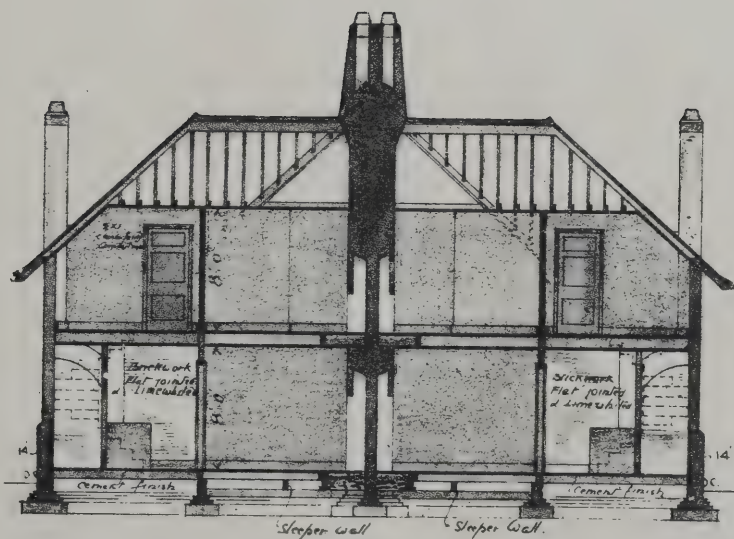
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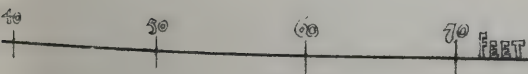


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The Architect, Sept 6th 1901.





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DIXON HOUSE, FENCHURCH STREET, E.C.

Messrs. DAVIS & EMANUEL, Architects.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

LONDON.—Nov. 15.—Designs are invited for new offices for the Hearts of Oak Benefit Society in Euston Road. Premiums of 100*l.*, 75*l.*, 50*l.* respectively are offered. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ANDOVER.—Sept. 12.—For erecting a timber footbridge over the river Anton. Mr. J. Wormald, South Cottage, Andover.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

AYLESBURY.—Sept. 12.—For extensions and additions to the county asylum buildings at Stone, near Aylesbury, comprising new blocks for 226 additional patients, assistant medical officer's quarters, extensions to chapel, &c. Mr. R. J. Thomas, surveyor, County Hall, Aylesbury.

BINGLEY.—Sept. 9.—For erection of a covered market, Bingley, Yorks. Mr. H. Bottomley, surveyor, Town Hall, Bingley.

BIRMINGHAM.—Sept. 16.—For building two cottages and extension of farm buildings. Messrs. Whitwell & Sons, architects, 23 Temple Row, Birmingham.

BLACKBURN.—Sept. 12.—For building homes for inebriates at Langho. Mr. Henry Littler, architect, County Offices, Preston.

BLAYDON-ON-TYNE.—Sept. 12.—For levelling playground, building retaining and boundary walls, and making additions to conveniences at the Blaydon Board schools. Mr. William Scott, 28 Mary Street, Blaydon.

BRADFORD-ON-AVON.—Sept. 13.—For renewing the tiles, rafters, &c., of the roofs of cottages, 56 to 61 Trowbridge Road, Mr. J. Rubie, Castle Hotel, Bath.

BRIGHTON.—Sept. 12.—For erection of 30 four-roomed artisans' dwellings in Dewe Road, Lewes Road. Mr. Francis J. C. May, borough engineer and surveyor, Town Hall, Brighton.

BRISTOL.—Sept. 10.—For building a stable for the Great Western Railway Company. Mr. G. K. Mills, Paddington Station, London.

BROMLEY.—Sept. 24.—For alterations and additions to the mortuary buildings at the sick asylum at Devons Road, Bromley, Middlesex, E. Messrs. J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

CALAIS.—Sept. 20.—For works in connection with a lock-gate and aqueduct at Calais, including the construction of the coffer dam, the masonry of the lock and the aqueduct. M. Thanneur, ingénieur-in-chef, à Boulogne-sur-Mer.

CASTLEFORD.—For erection of two semi-detached villas, Barnes Road. Messrs. Garside & Pennington, architects, Wesley Street, Castleford.

CATCHGATE.—Sept. 9.—For erection of a stable at Blackett Street, Catchgate, Durham. Mr. T. S. Longstaff, surveyor, Leadgate.

COLCHESTER.—Sept. 13.—For erection of a school in Canterbury Road. Messrs. Goodey & Cressall, architects, Victoria Chambers, Colchester.

COTGRAVE.—For erection of new Wesleyan church, Cotgrave, Notts. Mr. A. E. Lambert, architect, 22 Park Row, Nottingham.

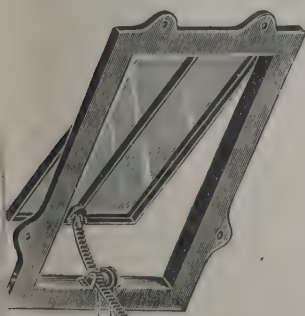


Fig. 9.

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[3]

DARLINGTON.—Sept. 9.—For erection of a residence, conservatory, &c., in Grange Avenue. Mr. Frank Martin, architect, South End Chambers, Darlington.

DUNSTABLE.—Sept. 16.—For additions to the Upper Houghton Regis Board school. Messrs. J. R. Brown & Son, architects, Castle Street Chambers, Luton.

DURHAM.—Sept. 11.—For erection of house and shop at Tantobie. Mr. Geo. Thos. Wilson, architect, 121 Durham Road, Blackhill.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FLOOKBURGH.—Sept. 14.—For rebuilding farm premises Mr. C. P. Chambers, 34 Cornwallis Street, Barrow-in-Furness.

HALIFAX.—Sept. 12.—For erection of two shops and work-rooms at West Vale. Messrs. Joseph F. Walsh & Graham Nicholas, architects, Museum Chambers, Harrison Road, Halifax.

HALWELL.—Sept. 9.—For reroofing and other work at Bickley Farm, Halwell, near Totnes, Devon. Mr. Saml. Seager, architect, Union Street, Newton Abbot.

HARROGATE.—For additions to house at Pannal. Messrs. Bland & Bown, architects, Harrogate.

HETTON DOWNS.—Sept. 14.—For erection of new premises, Hetton Downs, Sunderland. Messrs. Wm. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland.

HUDDERSFIELD.—Sept. 16.—For erection of laundry, boiler-house, electric-light engine and power-rooms, pump-rooms, laundry residence, &c., in connection with the new asylum now in course of erection at Storther Hall, Kirkburton, near Huddersfield. Mr. J. Vickers Edwards, county surveyor, County Hall, Wakefield.

ILKLEY.—Sept. 12.—For erection of a billiard-room, &c., at Ilkley. Messrs. T. C. Hope & Son, architects, 23 Bank Street, Bradford.

INCE.—Sept. 21.—For building public offices for the Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

IRELAND.—Sept. 9.—For erecting a fence and supplying all the materials required to protect the reservoir in connection with the Aughrim waterworks, Rathdrum. Mr. S. G. Gallagher, engineer, Corballis Castle, Rathdrum.

IRELAND.—Sept. 10.—For building a coastguard station at Kilkeel. Mr. A. Ferguson, Insurance Buildings, Donegall Square West, Belfast.

IRELAND.—Sept. 19.—For completion of the St. Patrick's parish church, Ballymacarrett. Mr. Samuel P. Close, architect, Donegall Square Buildings, Belfast.

IRELAND.—Oct. 1.—For cementing walls, flooring rooms, painting and general repair at Shiels's Institution, Carrickfergus. Particulars from the Superintendent.

LEEDS.—Sept. 10.—For erection of greenhouse, potting house, &c., at New Wortley cemetery. Mr. H. Williams, superintendent.

LEEDS.—Sept. 11.—For supplying and fixing a bookcase in the public reference library, Municipal Buildings. Apply for particulars at the City Engineer's Office, Leeds.

LEWISHAM.—Sept. 12.—For constructing brick and concrete sewer. Surveyor, Town Hall, Catford.

LINCOLN.—Sept. 10.—For erection of public abattoirs in the cattle market. Mr. R. A. Macbrair, city surveyor, Corporation Offices, Lincoln.

LINCOLN.—Sept. 28.—For erection of a boiler shop about 435 feet long and 222 feet wide, and erection of about 960 tons in steel stanchions, girders, roof principals, &c. Messrs. Ruston, Proctor & Co., Ltd., Sheaf Ironworks, Lincoln.

LONDON.—Sept. 9.—For erection of water-closets and urinals at the Deptford Borough Council's cemetery at Brockley. Mr. Vivian Orchard, town clerk, 20 Tanner's Hill, Deptford, S.E.

LONDON.—Sept. 12.—For building a cottage at the Home Park open space, Lower Sydenham, and for building a shed (brick and slated roof), for the Lewisham Borough Council. Surveyor, Town Hall, Catford.

LONDON.—Sept. 17.—For alterations at the underground convenience in Lothbury. The Town Clerk, Public Health Department, Guildhall.

LONDON.—Sept. 18.—For erection of casual wards in Little Gray's Inn Lane, Gray's Inn Road, W.C. Mr. J. Allan Battersby, clerk, Holborn Union Offices, Clerkenwell Road, E.C.

LUTON.—For erection of van-sheds, stabling and work-shops at rear of 8 and 10 Manchester Street, Luton. Mr. A. Wilkinson, architect, 84 Inkerman Street, Luton.

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MALDON.—Sept. 14.—For constructing new sewer and building filter tanks. Mr. H. G. Keywood, Public Hall Chambers, Maldon, Essex.

MANCHESTER.—Sept. 9.—For constructing retaining walls and an arched covering over the river Medlock, and paving the river bed at Clayton Vale. City Surveyor, Town Hall, Manchester.

MANCHESTER.—Sept. 10.—For erection of two chimneys, 250 feet and 200 feet high respectively, at the Stuart Street electricity station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANSFIELD.—Sept. 16.—For erection of schools in Littleworth, Mansfield, to accommodate 800 children. Messrs. Vallance & Westwick, architects, Mansfield.

MELTON MOWBRAY.—For alterations and additions to the Red Lion inn, Nether Broughton. Messrs. Sands & Walker, architects, Angel Row, Nottingham.

NEWBURY.—Sept. 11.—For erection of a new classroom at Inkpen Board school. Mr. Walter Henry Bell, architect, the Market Place, Newbury.

NEWCASTLE-ON-TYNE.—For alterations and additions to Co-operative Stores, St. Anthony's. Mr. T. E. Davidson, architect, 14 Neville Street, Newcastle.

NEWCASTLE-UNDER-LYME.—Sept. 23.—For iron staircases and building alterations at the union workhouse. Messrs. Chapman & Snape, architects, Newcastle-under-Lyme, Staffs.

NEWCASTLE-UPON-TYNE.—Sept. 16.—For erection of a school of cookery and domestic economy at Northumberland Road. Mr. John W. Dyson, architect, 67 Grey Street.

NOTTINGHAM.—For erection of two pairs of villas off Park Avenue, Mapperley Road. Mr. Hedley J. Price, architect, 24 Low Pavement, Nottingham.

OVENDEN.—Sept. 13.—For erection of shed, warehouse and offices at Ovenden, Yorks. Messrs. Walsh & Nicholas, architects, Museum Chambers, Harrison Road, Halifax.

OXCLIFFE MARSH.—Sept. 10.—For taking-down of a portion of the arch, the construction of a new arch in lieu thereof and the general repair of the structure of Oxcliffe Marsh No. 3 bridge, situate on the road leading from Lancaster to Overton-on-the-Marsh. The Chairman of the Main Roads and Bridges Committee, County Bridgmaster's Office, Preston.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Surveyor, Town Hall, Paddington.

PATTERDALE.—Sept. 14.—For building police station. Mr. Joseph Bintley, 7 Lowther Street, Kendal.

PENZANCE.—Sept. 12.—For erection of a church and school in Alexandra Road, Penzance. The Rev. M. May, Finland House.

PLUMSTEAD.—Sept. 11.—For enlargement of the present iron building, for the extension committee of the Plumstead Congregational church, Viewland Road, Riverdale Road, East Plumstead. Mr. H. Wheeler, 23 Heavitree Road, Plumstead.

SCOTLAND.—Sept. 9.—For erection of forty-six houses proposed in Auchterderran Road, Lochgelly. Mr. John Houston, architect, Dunfermline.

SCOTLAND.—Sept. 10.—For erection of warehouses and shops in King Street, Parnie Street and Osborne Street, Glasgow. Messrs. John M'Kissack & Sons, architects, 68 West Regent Street.

SCOTLAND.—Sept. 14.—For erection of houses for the working-classes at the Shore, Perth. Mr. R. M'Killop, burgh surveyor, 12 Tay Street, Perth.

SCOTLAND.—Sept. 19.—For rebuilding Kirkmichael Hotel. Mr. John Sim, architect, Montrose.

SEDFIELD.—Sept. 9.—For erection of a new stores and office block at the asylum, Sedgfield, Durham. Mr. William Crozier, county surveyor, Shire Hall, Durham.

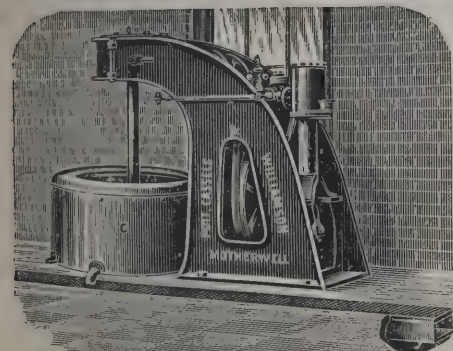
SHREWSBURY.—For enlargement of premises in Castle Foregate. Messrs. A. B. & W. Scott Deakin, architects, 12A Pride Hill, Shrewsbury.

SOUTHBOROUGH.—Sept. 9.—For erection of a chapel and cottage in connection with the proposed new cemetery at Southborough, Kent. Mr. William Harmer, surveyor, 137 London Road, Southborough.

ST. ALBANS.—Sept. 9.—For erection of lavatory buildings to the court house, St. Albans. Mr. Urban A. Smith, county surveyor, 41 Parliament Street, Westminster, S.W.

STOKE-UPON-TRENT.—Sept. 11.—For raising chimney stack to boiler-house at the workhouse, laying guide rails on approach road at the workhouse, and erecting iron gates with wickets at the entrance to cottage homes. Mr. Lynam, architect, Stoke-upon-Trent.

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ULVERSTON.—Sept. 10.—For improvement works at High Bridge, on the main road from Ulverston to Dalton-in-Furness. The Chairman of the Main Roads and Bridges Committee, County Bridgemaster's Office, Preston.

WALES.—Sept. 9.—For building two vestries at Cwmavon. Mr. G. E. Prosser, Cwmavon.

WALES.—Sept. 9.—For erection of swimming-baths at the public park, Aberdare. Mr. Thos. Phillips, town clerk, Town Hall, Aberdare.

WALES.—Sept. 13.—For building a school at Llanedy. Messrs. J. Davies & Son, architects, Cowell House, Llanedy.

WALES.—Sept. 14.—For erection of business premises and residence at Llanfairfechan. Mr. Richard Davies, architect, 125 High Street, Bangor.

WALES.—Sept. 16.—For alterations and additions to Hafodyrnyys inn, near Crumlin, Mon. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Sept. 16.—For building 200 houses at Dowlais. Mr. W. Dowdeswell, architect, John Street, Treharris.

WALES.—Sept. 18.—For building new harbour offices. Mr. T. Strick, Harbour Offices, Swansea.

WALES.—Sept. 21.—For erection of a schoolroom and master's house at Mynachlogddu, Clynderwen, R.S.O., Pembrokeshire. Mr. William J. Williams, clerk, 1 High Street, Cardigan.

WALES.—Sept. 24.—For erection of some twenty to thirty cottages at Treallaw. Mr. Arthur O. Evans, architect, Pontypridd.

WALES.—Sept. 26.—For erection of new schools and offices at Burry Port. Mr. Richard Williams, architect, Burry Port.

WEYMOUTH.—Sept. 12.—For extension of the cast-iron outfall sewer. Mr. W. B. Morgan, Municipal Offices, East Street, Weymouth.

WIMBLEDON.—Sept. 10.—For construction and erection of a movable timber-trussed floor to the pond of the swimming bath, and also a raised platform to be used for adapting the baths hall to the requirements of a place of public entertainment, for the Urban District Council. Mr. R. J. Thomson, architect, 47 Hill Road, Wimbledon.

WOOLWICH.—Sept. 11.—For erection of wrought-iron fencing, gates, brick piers and boundary walls, &c., at Lodge

Lane, Bostall Heath, Plumstead. Messrs. Church, Quick & Whincop, William Street, Woolwich.

WOOLWICH.—Oct. 3.—For erection of reception-house for dead bodies upon a site adjoining St. John's Church, Eltham. Mr. Frank Sumner, borough surveyor, Maxey Road, Plumstead.

WREXHAM.—Sept. 16.—For erection of a division wall and lights at the end new shed in the vegetable market. Mr. J. Oswald Bury, clerk to the markets committee, 9 Temple Row, Wrexham.

YORK.—For erection of a Primitive Methodist church and Sunday schools in Monkgate, York. Mr. Fredk. W. Dixon, architect, Trevelyan Buildings, Manchester.

YORKS.—Sept. 10.—For erection of two new footbridges over Ashfield Beck, for the Normanton and Altofts Urban District Council. Mr. C. B. L. Fernandes, clerk, Council Offices, Normanton.

YORKS.—Sept. 11.—For construction of an open-air swimming-bath at Norton. Mr. William Botterill, clerk, Council Buildings, Norton, Malton.

A HANDSOME addition to the public school buildings has just been completed at Burntisland at a cost of 5,000*l.* The new building, which is erected on the playground of the old school, is in Gothic style, about 60 feet square, two storeys in height, and is designed to give simple, impressive dignity by the solid character of its masonry. On the ground floor are two large classrooms, manual instruction-room, furnished with carpenter's benches, cloak-rooms and lavatories. A mezzanine floor is utilised for head-master's private room, staff-room and store-room, and on the upper floor are three classrooms, lecture room and chemical laboratory, fully fitted and equipped. The classrooms are all for the higher standards and are well lighted. Heating and ventilation have had careful attention, and are on modern principles, the former by low-pressure hot water pipes, and the impure air is drawn upward by a flue and evaporates through an ornamental tower which surmounts the building. In lieu of the ground appropriated for the site, playgrounds for both schools have been excavated out of the hill at the rear. Though the building is already being used, the formal opening, which will be of a ceremonial character, will take place a month hence.

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For painting inside work at the Barrow Island and Rawlinson Street schools.

Rawlinson Street.

W. RAMSAY, Duke Street (accepted) . £92 15 0

Barrow Island.

W. RAMSAY, Duke Street (accepted) . 115 0 0

BECCLES.

For erection of infant schools.

GRIMWOOD & SONS, Ipswich (accepted) . £3,197 10 0

BRENTWOOD.

For laying about 3,760 feet run of York stone kerbing in the district and near to Brentwood railway station, and also for taking-up from Victoria Road and removing to and fixing in Sussex and St. Peter's Roads respectively 446 feet and 414 feet of kerbstones.

J. JACKSON, Clova Road, Forest Gate (accepted) . £250 0 0

BRENTWOOD—continued.

For making and laying 5,946 square yards of blue limestone tar paving upon certain footpaths in the parishes of South Weald and Shenfield.

J. Jackson, Clova Road, Forest Gate	£750	0	0
Bradford & Co., 52 Queen Victoria Street, E.C.			
(per yard super)	2	4	
Constable & Co., Kentish Town	2	3	
Asphaltic Limestone Co., Birmingham	2	0	
Shepherd & Co., Southend	2	3	
North of England Asphaltic Co., Manchester	1	11	

BRIGHTON.

For painting the exterior of the workhouse in Elm Grove.

G. Chesswas	£646	0	0
H. Batchelor, jun.	626	10	0
W. Brown & Sons	479	0	0
Worsley & Co.	445	12	0
T. F. Holland	440	4	4
A. Brown	403	0	0
GATES & SONS, Brighton (accepted)	385	0	0

For installing the electric light in the workhouse.

Electric & Gas Co.	£2,327	10	0
Warner & Co.	2,125	14	3
F. A. Glover & Co.	991	13	0
Page & Miles	898	10	0
Lighting Corporation, Ltd.	805	0	0
G. Weston & Co.	887	0	0
R. Alger & Son	854	0	0
G. Hignett & Co.	835	15	6
E. G. Reed, Ltd.	827	10	0
M. A. Fileman	786	0	0
H. J. GALLIERS, Brighton (accepted)	688	16	0
G. W. Clarke	678	5	0

BURNLEY.

For supply and erection of five injectors, capable of dealing with 700 gallons per hour, and one feed pump, capable of dealing with 3,500 gallons per hour.

Accepted tenders.

Koerting Bros., 53 Victoria Street, London, S.W., injectors.
G. & J. Weir, Ltd, Cathcart, Glasgow, feed pump.

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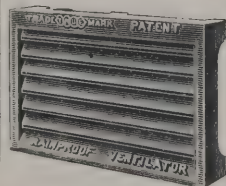
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BRISTOL.

For erection of sanitary annexe at Stapleton Workhouse, Bristol, for the Guardians of the Poor of the City and County of Bristol. Mr. F. W. BROCK, architect, St. Peter's Hospital, Bristol. Quantities by the architect.

F. Wall	£980	0	0
Foster	945	0	0
Daltry	930	0	0
Gorvett	882	0	0
A. Dowling	863	0	0
M. Durnford	847	0	0
J. Browning	845	0	0
E. CLARK, Fishponds, Bristol (accepted)	795	0	0
I. Hatherly	763	0	0
Architect's estimate	806	0	0

CORNWALL.

For erection of school premises at Burraton, St. Stephen's-by-Saltash.

J. Marshall	£645	11	0
Allen & Tozer	430	0	0
Taylor & Mutton	400	0	0
W. Burt	399	0	0
W. H. Rothery	395	0	0
J. D. Hobbs & Son	366	0	0
W. V. Halford	348	0	0
OUGH & BOUNDY, Saltash (accepted)	305	0	0

EASTBOURNE.

For construction of the low-level drive to Willingdon, and of the roads through the Decoy.

W. L. WALLIS & CO. (accepted)	£8,592	9	10
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For widening, &c., of the Old Tollgate Bridge.

A. HUDSON (accepted)	£476	0	0
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IRELAND.

For piling and repairing with concrete 138 feet of the south breakwater quay wall, Arklow Harbour. Mr. JOHN PANSING, engineer, Wicklow.

Mills & Co.	£1,058	0	0
Roche	989	0	0
M'GOWAN, Arklow (accepted)	943	0	0

For new ceiling, &c., of Termon chapel, Londonderry. Mr. M. O'CALLAGHAN, architect, Letterkenny.

W. J. MOONEY, Londonderry (accepted)	£137	15	0
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IRELAND—continued.

For erection of suitable bath and lavatory accommodation in the male and female school children's dormitories, and for keeping in repair the doors, windows, furniture, flooring, vans, carts, barrows, implements, poles in the bleach yard, wooden troughs and horses in the washhouse at Callan workhouse, at per year.

Baths, &c.

Power & Son	£32	0	0
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J. P. SHERIN, Kilkenny (accepted)	27	10	0
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Repairs, &c.

P. Kelly	27	0	0
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W. Holden	24	10	0
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R. CUDDITY, Callan (accepted)	24	0	0
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KETTERING.

For painting the exterior of the workhouse.

F. Arnold	£94	0	0
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W. Waters	94	0	0
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C. Brown	85	0	0
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W. H. HENSON, Burton Latimer (accepted)	59	10	0
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For erection of a sick ward at Burton Latimer.

O. P. Drever	£405	17	6
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C. Lewis	387	0	0
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Goodman & Murkett	375	0	0
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A. J. Ball	336	0	0
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Smith, Edmunds & Co.	310	0	0
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A. Lewis	299	10	0
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Johnson & Phillips	299	10	0
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C. ANDREWS (accepted)	260	0	0
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LONGTON.

For street works in the upper portion of Gomms Mill Road.

Mr. J. W. WARDLE, borough surveyor.			
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Smith & Taylor	£274	18	6
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W. Blurton	255	13	0
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A. T. Brown	239	14	4
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F. Barke	234	18	9
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J. Bassett	229	8	3
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H. P. EMBREY & Co., Fenton (accepted)	221	0	0
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LUTON.

For erection of fire station and other buildings in Church Street and St. Mary's Road.

G. Smart	£1,898	0	0
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T. & E. Neville	1,797	0	0
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W. G. Dunham	1,767	0	0
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NORTHUMBERLAND.

For street works, &c., at Walker. Mr. T. W. LAYCOCK, surveyor.
G. Simpson £7,047 11 11
R. Laycock 6,927 2 0
J. Thompson 6,907 3 0
EDGAR BROS., Heaton, Newcastle-on-Tyne
(accepted) 6,851 0 0

PLYMOUTH.

For erection of six blocks of workmen's dwellings at Prince Rock. Messrs. HINE & ODGERS, architects.
Blackell & Son £13,373 0 0
Laphorn & Co. 11,800 0 0
Blake 11,333 0 0
Trevena 11,257 0 0
Andrews 10,955 0 0
Lethbridge & Son 10,820 0 0
Skinner 10,749 0 0
May 10,558 0 0
Wakeham Bros. 10,215 0 0
Coles 9,780 0 0
MATCHAM & Co, Plymouth (accepted) 9,445 0 0

ROCHDALE.

For sewerage and draining works.
MOORE, 23 Entwistle Road (accepted).

RUSTINGTON.

For erection of four seaside homes for children at Rustington, near Littlehampton, Sussex. Mr. ROWLAND PLUMBE, architect, 13 Fitzroy Square, W. Quantities by Messrs. FOWLER & HUGMAN.
James Longley £19,844 0 0
Thomas Turner 18,850 0 0
Patinson 18,343 0 0
Denis 18,229 0 0
Norman & Burt 18,223 0 0
H. M. Patrick 18,190 0 0
J. Parsons & Sons 17,228 0 0

SILVERTON.

For carrying a sewer through Dogclose Orchard at Silvertown, Devon.
NICKS BROS., Bradninch (accepted) £57 14 0

SCOTLAND.

For erection of four shops in Woodside, Aberdeen.
Accepted tenders.
J. Shirras, 127 Clifton Road, mason.
Leslie & Hay, Fraser Road, carpenter.
Adam & Co., 4 Hutcheon Street, slater.
Sellar & Co., 116 John Street, plasterer.
Gordon & Watt, 37 Woolman Hill, painter.
J. Cowie, 132 Causewayend, plumber.
Total, £1,922 17s. 6d.

SEAHAM.

For erection of offices, dwelling-house, workshop, &c., at Seaham Harbour. Messrs. WM. & T. R. MILBURN, architects, 20 Fawcett Street, Sunderland.
J. ELRICK, Whickham Street, Monkwearmouth, Sunderland (accepted) £596 0 0

SOMERSET.

For erection of main steam laundry buildings, boiler-house and chimney-stack, Clevedon. Mr. T. J. MOSS-FLOWER, engineer, 2 Victoria Mansions, Westminster, S.W.
W. A. GREEN, Clevedon (accepted) £1,845 0 0

SOUTHALL.

For erection of mission buildings. Mr. CHAS. G. MILLER, architect, Southall, and 65 Chancery Lane, W.C.
G. H. LOUGH, Southall (accepted) £1,260 0 0
For erection of factory. Mr. CHAS. G. MILLER, architect, Southall.
RICHARDS & Co. (accepted) £3,995 0 0

STOCKTON-ON-TEES.

For repainting greenhouses, shelters, iron railing and gates, &c., at Ropner Park.
M. B. BALDWIN, High Street, Norton, Stockton-on-Tees (accepted).

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For arc and incandescent electric lighting and mains at the Albert Edward and Northumbrian docks. Messrs. HANDCOCK & DYKES, engineers, 3 St. Nicholas Buildings, Newcastle-on-Tyne.
CROMPTON & Co., Chelmsford (accepted) £6,128 0 0

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THORPE.

For extensions and alterations to the Norfolk County Asylum, Thorpe, near Norwich. Mr. A. J. WOOD, architect, 22 Surrey Street, Victoria Embankment, W.C. Quantities by Messrs. WIDNELL & TROLLOPE, 20 Tothill Street, Westminster, S.W.

Cornish & Gaymer	£67,157	0	0
Rudd & Son	63,900	0	0
Johnson & Co, Ltd.	60,127	0	0
C. Wall	59,527	0	0
Foster & Dicksee	59,300	0	0
Patman & Fotheringham, Ltd.	59,250	0	0
Pattinson & Sons	59,243	0	0
Kerridge & Shaw	59,237	0	0
Youngs & Son	58,997	0	0
Downing & Son	58,839	0	0
G. Riches	58,497	0	0
J. S. Smith	57,497	0	0
H. Lovatt	56,800	0	0
WM. KING & SON (accepted).	52,353	0	0

Electric Plant.

Scott & Mountain, Ltd.	2,858	0	0
Royce & Co., Ltd.	2,762	10	0
Crampton & Co., Ltd.	2,657	0	0
J. H. Holmes & Co.	2,638	0	0
Alliance Electrical Co.	2,612	9	8
Siemens Bros & Co., Ltd.	2,595	10	6
Reavell & Co., Ltd.	2,500	0	0
LAURENCE, SCOTT & Co., LTD. ¹ (accepted).	2,456	6	0

Wiring and Fittings.

Hemingway & Pritt	6,654	1	2
Crampton & Co.	4,750	0	0
Alliance Electrical Co.	4,224	14	9
Hall & Hackblock	4,081	9	7
Furse & Co.	3,964	6	6
S. H. Heywood	3,749	2	10
G. N. C. MANN & Co. (accepted).	3,484	11	7

UGBOROUGH.

For painting the external wood and ironwork of the Board schools and schoolhouse, Ugborough, Devon.
J. MARTIN, Western Road, Ivybridge (accepted) £8 10 0

WALES.

For erection of lecture and billiard-room and other extensions to the Wyndham Constitutional Club, Porth.

J. MORGAN, Danyrallt, Porth, Glam (accepted) £1,140 0 0

For erection of works and buildings at Port Talbot. Mr. FRANK B. SMITH, architect, Port Talbot.

Scott Bros.	£24,639	8	4
Clarke & Co.	19,762	13	7
Barnes & Chaplin	19,497	12	5
T. W. Davies	18,993	15	1
J. Davies & Sons	18,942	12	1
Bennet Bros.	18,676	10	0
Lattey & Co.	18,537	10	0
W. Thomas & Co.	18,203	0	0
C. & F. GAEN, Station Road, Port Talbot (accepted).	16,987	0	0
D. Thomas & Co.	16,500	9	6

WALTON-ON-THAMES.

For erection of a depôt, for the Urban District Council.

J. Lea	£2,894	0	0
Marsland & Higgs	2,799	0	0
W. Greenfield	2,606	0	0
Simpson & Co.	2,571	0	0
Shelbourne & Co.	2,563	0	0
Roberts & Co.	2,550	0	0
Hawkins & Co.	2,493	0	0
R. Atkinson	2,480	0	0
Merridew & Co.	2,450	0	0
Gaze & Son	2,359	0	0
C. H. Horsall	2,147	0	0

WATFORD.

For sanitary alterations at the London Orphan Asylum. Mr. WALTER J. EBBETTS, architect, Savoy House, 115 Strand, W.C.

J. Darvill	£147	10	0
G. Jennings	140	0	0
Davis & Bennett	106	0	0

WELBECK.

For rebuilding the Oxford wing of Welbeck Abbey after destruction by fire.

TROLLOPE & Co., London (accepted).

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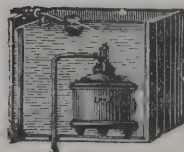
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WEST DEREHAM.

For partial restoration of West Dereham Church, Norfolk.
Mr H. J GREEN, architect, 31 Castle Meadow, Norwich.
Bardell Bros. £790 0 0
J. Boddy 585 0 0
W. H. Brown 540 0 0
J. W. Collins 493 0 0
TASH, LANGLEY & CO., King's Lynn (accepted). 492 7 9
C. Fryer 475 10 0

WINSFORD.

For sewerage works in Delamere Street, Winsford, Cheshire.
Mr. WILKINSON, surveyor.
SAYCE & RANDLE, Widnes (accepted) . . . £1,125 0 0

WOOTTON BASSETT.

For additions and alterations to the Crown hotel, Wilts, for
Mr. Howard Horsell, Beaufort Brewery. Messrs. WILLIAM
DREW & SONS, architects, Regent Circus, Swindon.
W. Blackwell £214 0 0
J. Williams 210 0 0
C. Wilkins 172 16 0
A. J. COLBORNE, Swindon (accepted) . . . 167 13 0

WROUGHTON.

For rebuilding the Three Horseshoes inn, for Mr. Howard
Horsell, Beaufort Brewery, Wootton Bassett, Wilts.
Messrs. WILLIAM DREW & SONS, architects, Regent
Circus, Swindon.
C. Wilkins £978 0 0
W. Cowdrey 775 0 0
A. J. Colborne 619 15 6
JOSEPH WILLIAMS, Swindon (accepted) . . . 614 7 0

YARMOUTH.

For painting the exterior of the workhouse.
G. PLATTEN & SONS, Yarmouth (accepted) . . £77 10 0

Received too late for Classification.

LECHLADE (GLOUCESTERSHIRE).

For alterations and additions to the Swan hotel, for Messrs.
R. B Bowly & Co., Ltd., Swindon. Messrs. WILLIAM
DREW & SONS, architects, Regent Circus, Swindon.
JOSEPH WILLIAMS, Swindon (accepted) . . . £384 10 6

THE OXFORD.

MESSRS. WYLSON & LONG, theatre architects, have effected a great and pleasing change in the appearance of the Oxford Music Hall, which has been entirely redecorated without suspending the performances. Ivory and gold, with occasional touches of a delicate green, are the colours which predominate, with a liberal and discriminating use of artistically worked copper which is applied to dadoes, panels, columns, &c., with admirable results. These, together with the new upholstery of rich crimson velvet, handsome tableau curtains of brocaded satin of a similar shade, a shade which is also seen in the thick carpets, combine to produce an effect at once rich, cheerful and cosy. In addition to the decoration of the auditorium some important structural works have also been carried out. These include the enlargement of the stage, the construction of an additional exit into Hanway Street, a new stage entrance, new and very comfortable dressing-rooms admirably fitted, and a handsome new crush-room in the balcony.

ST. PETER'S CHURCH, Rock Ferry, was opened on Sunday, after having been closed for the past five weeks for interior decorations, which have been carried out by Messrs. G. H. Morton & Son, Liverpool. The church formerly presented a very dark and dreary appearance, and the decorators' aim has been to produce a much lighter scheme of decoration. The roof panels of the body of the church have been treated a cream colour, with a decorative moulding, chevron design, in blue and brown, and the whole of the woodwork has been treated as unpolished oak. The walls have been coloured an apricot hue, surmounted by a wide band or frieze of greenish vellum, ornamented by a symbolical powdering, and divided from the wall space by an ornamental border in chocolate and cream. The chancel has been richly decorated in warm apricot and green tones, the upper portion of the walls being enriched by elaborate diaper design in blended red tones, introducing symbolical ornaments based on the chalice and wheat ears. The lower portion of the wall is richly treated with powdered ornamentation in gold and olive green tones on a paler green ground. The ceiling panels have been treated a pale turquoise blue, and all mouldings are done in vellum tones enriched with gold. The whole of the works have been done under the supervision of Mr. G. H. Morton, M.S.A.

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A NEW KITCHENER.

THE "ONE" kitchener, which has recently been put upon the market, possesses several new features which render it worthy of more than a passing glance.

The range is constructed with a firebrick dome and damper over the fire, which enables the heat to be concentrated either on the hot-plate or on the boiler, as may be required, the waste heat of either passing under the other, thereby utilising what is usually lost.

Hot water is, of course, wanted long after the hot-plate is done with for the day, and instead of unduly heating the atmosphere of the kitchen by keeping the hot-plate at a high temperature, the heat can be diverted and concentrated upon the circulating boiler.

Fig. 1 shows the kitchener standing independent. It is also made with covings, and is a self-setting range when placed up to the walls of an opening.

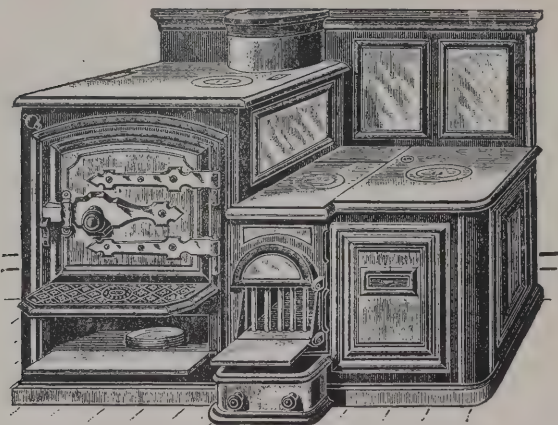


FIG. 1.

Fig. 2 shows the firebrick damper over the fire closed; also the damper into the main flue behind and under the

boiler, the heat passing under the boiler and over it, into the main flue through the damper shown opened.

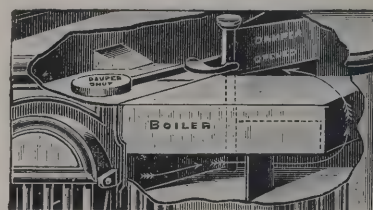


FIG. 2.

Fig. 3 shows the firebrick damper open, and the concentrated heat of the fire playing upon the hot-plate; the waste heat then passing down and under the boiler, and then through the open damper into the main flue behind the boiler.

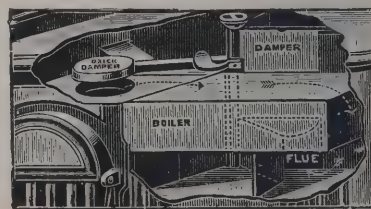


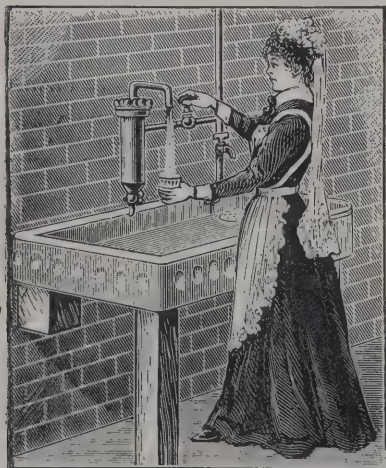
FIG. 3.

All the dampers are fixed to and revolve from the vertical spindle which engages with a small plug in the hot-plate, and is operated by means of a handle or poker provided for the purpose.

The large oven is constructed so that the heat of the fire passes directly under the bottom of it, and then up the side and over the top, and its position, raised a little above the ground floor, will, we think, be found convenient. The shallow oven below can also be used for roasting. The outside casing and oven door are lined with slag-wool, and the entire workmanship is of the best description.

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TRADE NOTES.

THE additions to the grammar school, Pontefract, are being warmed and ventilated by means of Shorlands' patent Manchester grates and patent extract ventilators.

THE Borough Technical school, Shrewsbury, has been fitted with the latest improved low-pressure hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, including their Rahnee radiators.

THE Cherry Tree Machine Co., Ltd., of Cherry Tree, near Blackburn, inform us that they have secured the contract for the new laundry machinery at the Ashton-under-Lyne workhouse, and have also received intimation that their tender for the laundry machinery for the Bromsgrove isolation hospital, Birmingham, has been accepted.

THE Pulsometer Engineering Company, Ltd., announce the removal of their works and offices from Nine Elms, S.W., to Nine Elms Ironworks, Reading, Berks, where all business communications should be addressed. They are, however, retaining their offices and showroom at 63 Queen Victoria Street, E.C.

A PREACHING CROSS has been erected in the churchyard of St. Mary's, Haggerston, in memory of the late Rev. George Wingate, a former vicar of the church. The cross, which is 15 feet in height, has four panels on the base, containing representations of the Nativity, the Crucifixion, the Good Shepherd and the Virgin and Child.

THE promoters of the Shields Bridge Bill, which was rejected by the House of Commons, have now under consideration a project to unite North and South Shields by means of a tunnel beneath the Tyne and an electric tram service.

ELECTRIC NOTES.

ELECTRIC street cars are in use in Kyoto and are constantly filled. They are, in fact, so well patronised by the working-classes that the wealthier people still employ the jinriksha to avoid the crowding. An electric line has been projected at Tokio and at Yokohama, but work has not yet begun.

It is anticipated that two additional electric-light generating stations will be required to supply electricity for the whole of the borough of Stepney. The main roads, which are to be supplied with the current next year, include the Mile End, Burdett and Commercial Roads, and Cable Street, St. George's.

THE inauguration of an extensive scheme of electric tramways in South Staffordshire, Worcestershire, and the Kinver district took place last Saturday. The British Electric Traction Company have now in the Black Country and adjacent districts upwards of 60 miles of tramways, the cost of which has been 1,500,000*l.*

FOR some considerable time past Crieff Town Council have had under consideration the advisability of lighting the town by electric light. At a recent committee meeting of the whole Board the convener of the lighting committee reported that a provisional order had now been obtained for the lighting of the town. After some discussion, the matter was delayed, in the meantime to consider whether the Council should undertake the work or if a company be advertised for to do so.

A SPECIAL meeting of Kilmarnock Town Council was held last week to consider a report in regard to the proposed scheme for electric lighting. Provost Mackay presided. The committee recommended the acceptance of offers amounting to 29,062*l.* 12*s.* for the erecting and fitting up of an electric station at Riccarton. Mr. Wilson moved the adoption of the report, which was seconded by Mr. Morton. Mr. Smith moved, as an amendment, that the matter be delayed until the engineer furnished a written statement of his reasons for recommending the adoption of the offers of certain firms. Mr. Burnett seconded. On a division the amendment was adopted by 12 votes to 10.

A COMPANY has been formed at Carrara for the purpose of constructing and operating an electric traction system between that town and Carrara di Marina, also for providing the town and community of Carrara with electric light and power for industrial purposes. The concession granted to the company

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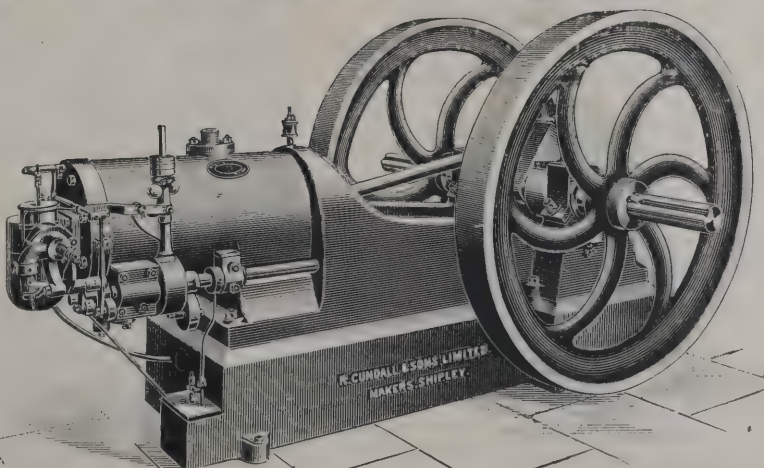
OBAN: October 29, 1900.

DEAR SIRS,—I have very great pleasure in testifying to the efficiency of the 20 B.H.P. Oil Engine which you supplied for driving the Dynamo, which gives current of equal H.P. for lighting and Motors in the Hotel. The Engine has now been in use almost daily for over three months, without the slightest hitch. It gives the utmost satisfaction and the most favourable results.

Practical men who have seen the Engine working pronounce it to be the best and smoothest working they have seen.

What I think is one of the features of your Engine is that my man can start it without any assistance. Most Oil Engines I have seen were difficult to start, taking three, four, and sometimes six men to start them.—I am, yours faithfully,

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is for a term of fifty-two years. Carrara has a population of about 25,000, and is the centre of the Italian marble industry. The road at the outset will be some 3 miles in length.

At a meeting of the Inverness Town Council on the 2nd inst. a report on the electric lighting of the town was submitted by Mr. Jas. Fraser, C.E., Inverness. A scheme to have steam-power fell through last year. Mr. Fraser recommended a water-power scheme, with the Caledonian Canal as the source of supply, at a point immediately above the Muirton Wharf, where the Glasgow steamers are berthed. There is here a head of 40 feet. It is proposed to establish 600-horse power, with a tail race to the river Ness, through land mostly agricultural, and the cost, exclusive of electric plant, is estimated at about 15,000/. The engineer states that little or no current will be caused on the canal by drawing off the water, not more, at any rate, than a mile in eleven hours. An expert electric engineer is to be consulted.

VARIETIES.

THE dedication festival in connection with St. Barnabas's Roman Catholic Cathedral, Nottingham, was celebrated on the 25th ult.

By the King's orders the old stands at Ascot have been sold, and new ones are being erected at a cost of not less than 40,000/. A probability is hinted at there will be in future two Ascot meetings a year.

QUARNFORD CHURCH, in the Moorlands, six miles from Buxton, has been opened by the Bishop of Lichfield. The church, which replaces the old one, has cost 2,200/. The architect is Mr. W. R. Bryden, of Buxton.

A SMALL church was opened on the 31st ult. for public worship in the village of Calderbank, near Airdrie, in connection with the United Free Church Presbytery of Hamilton. The church is seated for 300 worshippers.

ST. THOMAS'S parish church, Marlborough Street, Dublin, was reopened on Sunday last for public worship, having been closed for the last two months for painting and general renovation.

THE Eccles Congregational church, which has been closed several weeks during an installation of the electric light and the redecoration of the building, has been reopened for public worship.

A NEW elementary school in connection with St. Ignatius Roman Catholic church, Wishaw, was formally opened on the 30th ult. The building, which is fitted with all modern appliances, provides accommodation for 500 scholars, and has been erected at a cost of 4,000/.

A NEW infants' school, which has been erected by the managers of the Hales Owen British schools upon land adjoining the old school, in order to meet the requirements of the Education Department, was opened by the Lord Mayor of Birmingham (Alderman S. Edwards) on the 4th inst. The cost of the extension is between 1,400/ and 1,500/, and additional accommodation will be found for 250 infants, bringing the total accommodation up to about 600 children, which it is expected will be sufficient for several years to come.

A NEW Congregational church was opened at Swinton, Yorks, on the 29th ult., having been built to seat about 500 persons, at a cost of 2,200/. It is of Early English style of architecture, and is constructed of Mexborough stone. The architects were Messrs. Hemsall & Patterson, of Sheffield, and the contractor Mr. M. N. Brown, of Mexborough. The building is situated in the centre of a township numbering 11,000 people, chiefly miners. A commodious Sunday school has existed for thirteen years, and the congregations have had services there. The first chapel was erected in 1823, but the accommodation for 150 was soon found to be inadequate.

THE members of the Wesleyan church, Lower Road, Deptford, have for a long time been anxious to see their building redecoration and renovated, but they are not a wealthy congregation, and funds therefore have not been forthcoming. A few weeks ago they resolved to overcome the difficulty by doing the work themselves, and so they have been busily engaged early in the morning, and sometimes up to midnight, in painting, whitewashing and colouring the interior of their meeting-house, at the same time not neglecting the work by which they earn their daily bread. The task is now practically accomplished and the chapel has been reopened. The sole expense was about 25/ for materials, even the scaffolding having been lent and erected free of cost.

THE Governors of the Worcester Dispensary and Provident Medical Institution have voted a sum of 600/ out of the funded property for the erection of a branch dispensary at Barbourne, the total cost of which will be 1,200/. This is the second branch dispensary started in the city, necessitated by the growth of the outlying suburbs. Further branches will be established in the near future as the funds are obtained.

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A TERRIBLE tragedy occurred last week at the limeworks of Messrs. Greaves, Bull & Lakin, Warwick. Thomas Edward Taylor, aged nine years, visited the limeworks at night, when he accidentally fell into the crushing mill. His piteous cries attracted the attention of a workman, but before he could be rescued he was frightfully mangled and crushed by the machinery, the body being pressed through a space of about 2 inches and ground to a pulp. Much sympathy is felt for the parents of the unfortunate lad.

THE Bridgegate new parish church, Glasgow, which was formally dedicated on the 10th ult., has been built of red sandstone from Locharbriggs Quarry, Dumfriesshire, from designs by Messrs. John Baird & James Thomson, architects, 88 Bath Street, Glasgow, and is in the Italian style of architecture. There are back and side galleries, and altogether it is seated for 700 people. One feature is the large choir platform, which will accommodate twenty-six people. Beneath the church there is a hall to hold about 400 people, and there are retiring-rooms and other necessary accommodation. The cost of the church, including site, will be about 6,000*l*.

THE first of a series of schools to educate the cripples of the Metropolis was opened at Essendine Road, Paddington, on the 2nd inst. Shortly after eight o'clock a well-made ambulance left the schools with a list of parents to call on who have crippled children, and they were conveyed to the school in company of a trained nurse, and by nine o'clock forty children were received. The cripples will not be taken home at mid-day, it being arranged that dinner will be provided them at the school, which will consist of two courses—soup, followed by meat, pudding and potatoes. After four o'clock the ambulance will again be ready to carry them home, and the driver will finish about 5.30. Another school on similar terms will be opened on Monday next at Mansford Street, Bethnal Green, and in the space of a few weeks others will be opened in the East, North and South of London.

MR. W. H. BAMBER offered for sale at the North Stafford Hotel, Stoke-on-Trent, on Tuesday, as a going concern the business, goodwill, trade marks, designs, fixtures, plant and raw material and other property connected with the china, earthenware and tileworks known as Minton's, Ltd, together with the lease of their three manufactories at Stoke-on-Trent and their London showrooms, offices and warehouses. The offer included the right to use the name of Minton's. The business was established in the year 1798, and the productions

of the firm have, of course, a reputation of the first order throughout the world. The concern is in full work, and, as Mr. Bamber told the company, it is seldom that a property such as this comes under the hammer of the auctioneers. One condition of the sale was that the business should not be removed from the present premises of the landlord without his written consent, but it was stated that arrangement might be made for acquiring the fee simple of the premises at Stoke. Another condition was that the purchaser should also purchase at valuation the stock-in-trade, &c., and this, in reply to a question, it was stated was at the last stock-taking returned at about 54,000*l*. The latter condition created some comment, and no offer being forthcoming a gentleman present stated that he would be prepared to make one if the condition referred to were withdrawn. Mr. Bamber, however, replied that they could not alter the condition, and the company dispersed without any bid having been made.

BUILDING AND BUILDERS.

THE Wandsworth Guardians have accepted a tender for 3,600*l*. for the erection of cottage homes for aged and deserving couples, on land adjoining the Tooting Homes.

THE Southend Corporation have decided to spend some 40,000*l*. on the improvement of the west front and the acquisition of a park in west ward.

THE memorial-stone of the new permanent Board school which is being erected in Lander Road, Sutherland, was laid on the 2nd inst. The new school will be a common brick building, with red stone facing.

THE foundation-stone of St. Peter's day schools, Wolverhampton, will be laid on Saturday, October 5. It is expected that the ceremony will be performed by the Earl of Dartmouth.

A SQUARE tower is being built on the south frontage of the Nicolson Institute, Stornoway. It shows a large moulded entrance doorway, which forms a vestibule to the building; also a number of triple and double moulded lancet openings on the four sides of the tower, the whole surmounted by a large public clock, which is placed nearly 60 feet from the ground level. When finished the tower will form quite a landmark for the district.

THAT Whitby is badly in want of a new bridge is abundantly proved by the fact, if it be as alleged, that orders to the

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amount of 100,000/ have been refused during the last few days by Whitby shipbuilders (Messrs. Thomas Turnbull & Son), this regrettable state of things being due to the narrowness of the present bridge.

WHILE engaged in assisting to take down the house No. 68 Broad Street, Aberdeen, which stands on part of the site required for University extension purposes, a labourer named John Jamieson (23) was struck by a flag pole, which fell upon him from a height of 22 feet. His head was badly injured, and he was removed in an unconscious condition to the Royal Infirmary.

THE foundation-stones of the first batch of cottage homes to be provided for Northumberland miners over sixty years of age who are unable to follow their employment have been laid at Broomhill Colliery, near Blyth. Earl Grey of Howick has given the site, and other landowners have also offered ground for sites for more cottages in other parts.

THE Rural District Council of Erpingham, Norfolk, having applied to the Local Government Board for sanction to borrow 4,200/ for works of sewage for the parish of Mundesley, an inquiry was held on the 28th ult. at the Board school there by Colonel A. J. Hepper, D.S.O., R.E., one of the Board's inspectors, into the subject-matter of the application. Evidence in support of the application having been given by Mr. T. Inglis Goldie, the District Council's engineer, and no opposition being offered, a vote of thanks to the inspector was proposed and carried. The latter then proceeded to visit the site of the works, and the inquiry ended.

ARRANGEMENTS have been completed for proceeding with the scheme for restoring Barton Church. Messrs. Oliver & Dodgshun, Carlisle, have advised the reroofing of the edifice, removing the ceiling and forming an open oak roof raised to the original pitch, removing colouring and plastering from pillars and walls and cementing the latter, removing the gallery, reglazing the windows, and altering the tower roof. For several years past the churchwardens have had to spend considerable sums annually on the repair of the roof. The estimated cost is 1,500/.

A MEETING of the governors of the Yardley Charity estates was held on Monday, the 2nd inst., at the offices of the clerk, Temple Row, Birmingham, Mr. W. H. Bulpitt presiding. The clerk (Mr. W. Fowler) reported that the Charity Commissioners had finally approved of the new scheme promoted by the governors for the erection of almshouses for women in the parish of Yardley, and it had been embodied in a provisional

order which had received the sanction of Parliament. The scheme provides for the erection of six almshouses for six alms-women and a residence for a nurse for the women, and the governors are empowered to expend 380/ a year on the administration and maintenance of the buildings, the pensions of the women and the salary of the nurse, as well as providing for medical attendance and appliances and the funeral expenses of the women.

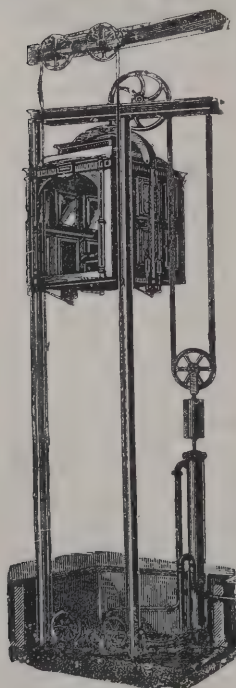
THE new Chester Baths, which will be one of the most attractive features of the city, are nearing completion, and the formal opening by the mayor (Alderman H. T. Brown) will take place very shortly. The new building has a handsome exterior, and its construction has made a distinct improvement to the previously somewhat dingy neighbourhood of Union Street. There will be a new street communicating with the baths from Foregate Street, which will make them easily accessible from the most densely populated portion of the city. The gables of the building are becomingly constructed in the old black and white style so characteristic of Chester architecture. The large plunge bath is 75 feet long and 35 feet wide. The tank is lined with white glazed brick, the depth is graduated, and running above the dressing-rooms is a commodious gallery to accommodate the spectators of water polo and swimming matches. The first-class bath is not quite on the same big scale, but is still large enough, and the water for both will be taken from a main connected with the supply of the city. Both baths will be maintained at a tepid heat, and they will be kept open all winter if the number of patrons is found enough to justify the expense. There are a large number of slipper baths, which will be open all the year round. The architects are Messrs. Douglas & Minshull, of Chester.

THE CENTURY THEATRE.

THE Century Theatre, which under the auspices and supervision of Messrs. Ernest Rüntz & Co. has arisen on the site of that venerable home of melodrama, the Adelphi, may certainly claim to rank among the most elegant, commodious and comfortable theatres of the Metropolis.

The work of reconstruction is practically confined to the "front" of the house, the stage, which is considered to be one of the finest in the United Kingdom, having been to all intents and purposes left severely alone. In the auditorium, however,

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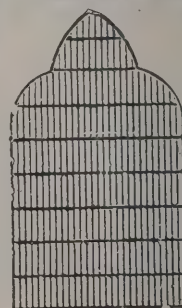
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a surprising change has been wrought, and certainly none of its old patrons will recognise the theatre in its new guise. Roominess and a perfect sight line in all parts of the house have been the chief desiderata sought for, and most satisfactorily achieved.

The exterior has but little to show to indicate the change which has been effected within; the façade has, however, been extended westwards, and a handsome glazed shelter has been provided to protect "carriage folk" from the elements. This westward extension has enabled the architects to materially improve the entrance and the approaches to the various parts of the theatre, especially to the stalls, which are now gained by means of a wide and handsome subway, which leads from the main entrance to both sides of this portion of the house, in which seats are provided for 200 persons. The crush-room is a spacious, lofty and elegantly decorated hall, 33 feet long by 20 feet wide, from which the main staircase leads to the foyer and dress-circle (where are 170 seats), with its lounge and saloons. There are eight private boxes on the stalls and dress-circle level only, the seats in the upper circle, which accommodate 250, being continued right round to the proscenium opening, which is 30 feet by 31 feet, and the bold sweeping arch of which forms a striking feature. The pit is one of the largest in London, is lofty, well fitted and upholstered, and has a most comfortable refreshment saloon and excellent emergency exits; in fact, the arrangement of the entrances, and more especially the exits in case of panic, are a very special feature of the new building.

The patrons of the gallery are well looked after. Here, as in every part of the house, every seat commands an uninterrupted view of the stage.

The decoration is carried out in the Adams style, and the prevailing colour scheme is ivory white, yellow, old gold and electric blue, developed in silk, velvet and mural coverings and paintings, giving a sense of harmony and restfulness not only welcome, but unusual in so large a theatre. A beautiful Florentine frieze, of which the subject is "Love and Pleasure," surmounts the proscenium, and an elegant coved mosaic ceiling extends over the boxes, and every detail of the decorative work seems to blend and lend an air of brightness and yet repose, rather than garishness and glitter.

The furnishing, too, is of a luxurious description. Wilton carpets of electric blue cover the floors, and roomy seats, upholstered in yellow silk rep and velvet, are conspicuous in the best parts of the house. The upper circle is equal to most dress circles

so far as comfort is concerned, and the occupants of the pit and gallery are handsomely provided for.

The draperies to the boxes, which are most artistic and uncommon, were specially embroidered in Paris.

Fire appliances have been installed with liberality, and these include an asbestos curtain by Messrs. Merryweather & Sons. Heating is on the low-pressure system, radiators being placed throughout the building to warm the incoming air and so prevent draughts. The ventilation has also been carefully attended to by means of inlets and exhausts. There is a complete installation of electric light, with gas as a stand-by.

INTERNATIONAL ENGINEERING CONGRESS.

ON Tuesday the International Engineering Congress was opened in the University Buildings, Glasgow. There was a large attendance, including 200 delegates from abroad.

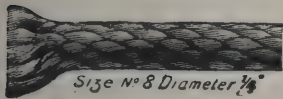
Mr. James Mansergh, who is acting-president, said that engineers constituted more than a profession—they amounted to a "race." There had been framed many definitions of engineering and of the engineer, but none adequate, and at the same time sufficiently exact and exclusive. An engineer might hold a diploma or he might not. He might be entitled to append a string of letters to his name, or he might not possess a single title to nominal distinction. That was because engineering did not consist in being, but in doing; for engineering was the only high art which depended as much on its cheapness for its excellence as upon any other item in the sum of achievement. There was an American definition of an engineer which stated that "he is a man who can do well for one dollar things that anybody could do somehow for double the money." A good deal of wasted ingenuity would be saved if those who engaged in every kind of engineering work would remember to use the money standard as well as the foot-rule and the higher mathematics. Real engineering must be mastered as it was realised on works in progress. It had no authoritative text-book. The engineer must cherish his ideals or he would sink into the routineer. He left as little as possible to chance, and, if wise, he would not rely upon his best mathematics any further than he could see them. An alarm had been sounded in their ears of late, warning them that the inhabitants of the United Kingdom had touched their high-water mark in respect to the prosperity derivable from the prosecution of those manufacturing industries which were based

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upon engineering, or served by it with the means of transport and communication. This might be so. Our nation had no royal secret for arresting the revolution of fortune's wheel. The question of moment to Britishers was, Should we maintain our ground, to say nothing of increasing our lead? He could not tell. Brains were no peculiar possession of our nationality. Would the engineer in future flourish best in Britain or abroad? One heard much talk nowadays about the British need for technical education for workers, and of better instruction in the art of living for the people generally, and he was not disposed to disparage this desire for more light. He feared that only too good a case could be made out for the allegation that a mistaken statutory system had discouraged in this country upon the time being at least—the naturalisation and development of electrical engineering on the largest scale. Instead of the electrical and mechanical development of lighting and power plant being undertaken in this country upon a scale proportional to its early promise, the work had to be done by "sample," every small specimen differing from the others. Long years passed before any English engineer was in a position to give out an electrical power contract amounting to 100,000/. Meanwhile our friends in America and on the Continent of Europe were forging fast ahead. So we lost our chance, and should probably have to take other people's electrical plant for some time, instead of striking out our own leading line, as our less-governed forefathers did in railway work and shipbuilding years ago. He should like to remark how much of the real essence of economical engineering was contained in the work of settling standard sections of important constructive materials. This matter had been taken in hand by a joint committee of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Naval Architects and the Iron and Steel Institute. Sir Benjamin Baker, with a specially selected sub-committee, had charge of bridge and general building construction; Sir John Barry, with similar assistance, of railways; Mr. Denny of shipbuilding, and Sir Douglas Fox of rolling-stock. In the hands of these eminent engineers the work would be well handled. The address concluded with brief references to some of the more prominent features of the work about to be carried out in the various sections of the congress.

In the section relating to gas Mr. George Livesey presided. He said that since gas ceased to hold the monopoly of light nearly thirty years ago, the advance and improvement in its manufacture and supply and its increased use have been

greater than ever. More especially during the past decade it had come very largely into use for cooking, heating, power and manufacturing processes. By means of the "slot meter" it has taken almost universal possession of workmen's dwellings, and by the Welsbach mantle it had distanced all competitors in the beauty and cheapness of its light. Its future rested with engineers even more than its past had done. The first and greatest need of the gas industry was the supply of men in the best sense of the word in all ranks to fill up vacancies and to occupy new ground, and technical schools did not produce the article; he sometimes thought they rather tended to check the development of manhood. Technical training would not save national industry, but men who loved work more than play and who would put their heart and soul into their work were the necessity of the age. It was not by the repetition of old designs and ideas that progress was made; they needed engineers who would look ahead, anticipate as far as possible public requirements and then bring all their skill to meet them. One of the greatest of public necessities was smokeless towns, and the gas engineer was the man to provide smokeless fuel—cheap, abundant, and suitable for all purposes. As was the engineer, so should be his helpers and subordinates if he was to do the best work. One of his most important qualifications was the ability to select and train his assistants of all grades down to the workman, who was very much what his employer made him. This duty of employers, who were the natural and proper leaders of their workmen, and should be their trusted friends, had been too much neglected, and both classes suffered from the neglect. The gas industry wanted freedom to do its best for both the public and itself; legislative restrictions should be removed, and the suppliers of gas left free to do their best to meet the needs of their customers.

Mr. W. E. Langdon, in addressing the electrical section, said that the question whether England, in comparison with other nations, was becoming retrograde in her industrial achievements must prove one of peculiar interest. There were grave reasons to fear that in some paths, especially in the more modern applications of science, and notably in the development of electricity, they had not retained that prominent position which had characterised this country for so long a period. Twenty years back British manufacture stood on level ground with other countries in the production of electrical machinery, yet, if they might judge by the following figures, it would appear that they had from some cause failed to meet even our home demands. From these figures, which were approximate

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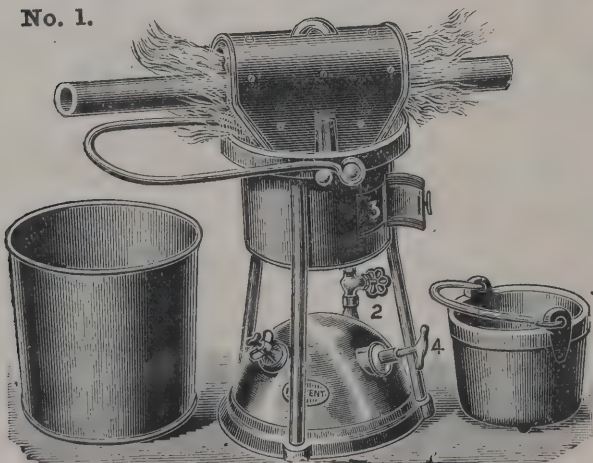


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it appeared that of some 300,000 indicated horse-power of steam-engines laid down for lighting and traction, 73,000 had been imported from the United States of America; and that, of some 200,000 kilowatt capacity of generators, 71,000 were derived from the same source. It would be understood that that did not mean that the residue was British production. The capital invested in European countries and the United States in electric-lighting, power and traction works amounted to 367,000,000*l.* Of this sum the United States contributed 200,000,000*l.*, and Great Britain 35,000,000*l.* The number of miles of single track equipped for electric traction in the two countries was, relatively, 21,000 and 900; of motor-cars, 68,000 and 2,600. Germany, where the power employed for lighting work approached closely that of England, had 2,300 miles of track and 5,400 cars, although the invested capital was but 29 millions, as against England's 35 millions for an enormously less mileage and smaller equipment. The population of Great Britain was, approximately, 40,000,000, as against 70,000,000, that of the United States. The area in square miles was, relatively, 121,115, and 3,581,885. Too much stress must not be laid upon territorial comparison, although it would seem an evident corollary that the more dense the population the greater must be the demand for means of locomotion. These figures should, at all events, prove effectual in disposing of any doubt that electrical development was only at the beginning of its era, and that an enormous field lies before it in almost every path of commercial and social life. Two important factors—cost and promptitude of delivery—attended successful competition in manufacture. Cost depended much upon labour conditions. Within a very short period rivalry in manufacture would be far more acute than now was the case, and in it labour would play the chief part. The artisan should not lose sight of the fact that this question of cost was one which affected the employé as well as the employer. Until the employé could be induced to recognise in a practical manner the fact that his employer's interest was also his interest, those labour regulations which had been fruitful of so much harm to the manufacturing interests of this country, and which must in the end prove disastrous to the workman, would continue. We were speedily approaching a condition in the industrial progress of the world that would test to the utmost not merely our means of production and our skill, but our position as a nation. It behoved us to consider how our manufacturing industry was placed in relation to that of other countries with which we had

to compete; whether the conditions of production—labour, legislative enactments or other restrictions—were such as gave our rivals an initial advantage. We saw other countries prepared and preparing to take advantage of every new development in industrial progress. We saw vast sums of money embarked in the use and advancement of electricity in its various modes of application, and we saw that here in England we were indebted to a foreign source to meet a great portion of our wants. There was a cause, and if our country was to retain her rank as a nation it was necessary that this cause should be ascertained and removed ere it was too late. We had sternly to face the fact that manufacture was daily becoming cosmopolitan; that the production of a land must form its staple source of revenue; and in this sense to emphasise the need to consider those liabilities to which the British manufacturer had, in relation to the conditions attaining in other countries, to subscribe. The subject was one which might claim the most careful consideration of every branch of our legislative administration, our labour organisations, and of every citizen of the British Empire.

THE HOUSING QUESTION IN LEEDS.

THE Leeds Corporation must shortly decide what it will do in regard to the housing question. Its insanitary areas cover from 60 to 70 acres, and in the process of clearing some 16,000 people will be dispossessed. It is required in such a case that other habitations be provided.

The people turned out of condemned areas belong to the poorest class, and hence a difficult social problem presents itself. An old slum must not be replaced by a new one; sanitary, healthy dwellings must be erected, and the rents must be within the slender means of the disoused.

Who is going to supply the deficiency? asks the *Leeds Mercury*. This is not a case in which the Corporation can complacently rely upon private enterprise. Neither the philanthropist nor the ordinary speculator will probably be satisfied with the financial return. So far neither has shown a consuming desire to rush in. There are those who have seriously considered the matter, and who see no alternative to the local authority bearing its own burden in the matter.

Probably few people are better able to say what is practicable in such a case than Mr. John Hepper. He states that he

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has given considerable attention to the subject, and examined many schemes of the kind; that at the outset he was opposed to the Municipality engaging in the enterprise, but that on closer examination his views have undergone considerable modification. Looking at all the conditions, he has, in fact, become convinced that provision for the poor concerned must be made by the local authority.

Mr. Hepper has come to that conclusion, though he is aware that private enterprise is endeavouring to solve the problem. Mr. Robert Wood (of the firm of John Wood & Son, building contractors) has erected on a portion of the insanitary area dwellings of the class required. The locality is that between Marsh Lane and York Street, flanked by Duke Street and Brick Street. There Mr. Wood has erected a long block of flats.

Built of red pressed brick, the row is of three storeys, and comprises thirty-nine dwellings, or thirteen per storey. They are all through houses, but not of the same size. The larger contain a kitchen or living room 12 feet square, a bedroom of the same dimensions, a smaller bedroom 12 feet by 8 feet, a scullery, coal bunker and water-closet. The smaller have only one bedroom, otherwise they are the same as the larger.

The first and second floors are reached from the front street by stone stairs, and the occupants of these upper flats can exchange visits by way of the balconies which extend along the front. Shoots are provided for the conveyance of household refuse to a receptacle on the street level, which can readily be emptied. A fairly spacious yard is provided at the rear for the drying of clothes.

The property is substantially built and sanitary. In such a collection of dwellings more than ordinary precautions against fire are obviously desirable. The floors rest on concrete, and are fireproof. A good oven forms part of the kitchen range. There is in each dwelling, indeed, all that is necessary for the comfortable housing of a small family, and Mr. Wood is to be commended for his enlightened enterprise.

The question of paramount importance, however, is whether such dwellings are within the means of the tenants for whom provision must be made? As has been said, these belong to the poorest class, and the rents will be 5s. 3d. per week for the flats with two bedrooms and 4s. 3d. for those with one bedroom. Such rents will probably yield no more than a reasonable return on the sum invested, and considering the accommodation provided, they do not seem excessive. But the point is whether the poor can afford to pay them. Judging

from the number of applications which the landlord has already received, he will have little difficulty in letting the property, but it does not follow that the problem is solved as the result.

Mr. Wood has made his attempt under more favourable conditions than other private speculators might obtain. He purchased the land at 12s. 6d. per square yard, and the Corporation, who were the vendors, undertook, contrary to custom, to provide the ground for the surrounding streets, and to pave, flag and sewer them. A building scheme was also provided for him free of expense.

These were important concessions. Mr. Hepper computes that of the 12s. 6d. per square yard the Corporation would not receive more than 4s. 6d. The buyer in such a case generally pays not only for the site, but for the moieties of the streets, and also for the paving and flagging and one-third the cost of sewerage. This would mean (says Mr. Hepper) that if the land cost 7s. 6d. per yard the total cost (including buildings) would be from 23s. 6d. to 24s. per yard.

If suitable dwellings erected under comparatively favourable conditions must be let at the rents mentioned, what would be the rents under conditions which entailed a very much larger outlay? The answer seems plain. The poor could not afford to pay them.

As private enterprise would not build for a less return than could be obtained from other equally safe investments, and as dwellings must still be provided for the dispossessed poor, the Corporation will require to consider and determine how the obligation can be discharged. It is evidently a question, too, in which the ratepayers are deeply interested.

THE WIDENING OF LONDON BRIDGE.

PREPARATIONS, says the *City Press*, are being made for carrying out the work of widening London Bridge, an improvement which has been under discussion for a considerable time. Everyone realised that the bridge needed widening owing to the narrowness of the footways, but the work could not be undertaken until Parliament had given its approval. This it did during the last session. There have also been engineering difficulties in the way, as it was thought inadvisable to disturb to any great extent the foundations of the bridge by placing any largely increased weight upon them. The Act provides for an extension of the footways without any detriment to the artistic proportions of the bridge, as the outer edge will possess

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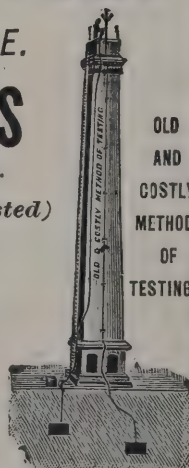
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a stone balustrade, solid work beneath being employed to give the necessary support to the extension. The roadway will be increased in width from 34 to 37 feet, and the footways from 9 to 14 feet. The increase in the width of the roadway will give facilities for the lighting of the bridge from the centre, where also refuges will be placed for the convenience of pedestrians. The widening of London Bridge will give the Bridge House Estates committee an opportunity of thoroughly draining it, as at present there are no gullies, except at each end of the structure. The present recesses, which are simply used by tramps as night harbours of refuge, will be swept away, while the solid parapet wall will give place to an elegant balustrade, through which much of the dust which now accumulates upon the bridge will escape into the river below. During the alterations the underneath side of the structure will be pointed wherever it is found defective, and the roadway will be repaved with granite. By this means the public will enjoy the benefit of an additional 6 feet width on each side, while at the same time the foundations of the structure will not be disturbed by the addition of any enormous weight. During the work of extension—which, it is expected, will take three years to complete—a temporary footbridge will be constructed on each side of the bridge to accommodate the traffic, the supports rising from the buttresses. The actual work of extension will commence in the course of a few months, by which time the temporary footways will be ready for use.

LIVING WATER FOR JERUSALEM.

MANY people, says a correspondent in Palestine of the *Times* will be interested to learn that at last an actual beginning has been made to bring a supply of living water into Jerusalem. The remains of ancient aqueducts and reservoirs testify to the abundant provision which the Holy City had when it flourished as the metropolis of the Jewish State. But it has now long been dependent on the scanty and often polluted accumulations of rain water from the terraces of different houses gathered in the rock-hewn cistern beneath them. When there is an abundant rainfall the cisterns are filled and yield a moderate supply. Even then, in the end of the summer, water becomes scarce, and there is annually no little distress from its lack, and much fever and other sicknesses caused by the use of the dregs of the cisterns. But in the event of a small rainfall

the distress is most acute, and begins early in the summer. The rainfall of the past season was only about 15 inches, which is but half the average of the past few years. In consequence there is already not only a dearth of water for household purposes, but the extensive building operations which form a chief source of employment to the artisans and labourers have had to be suspended, which has deprived thousands of employment.

For many years no little effort has been made by the rich and influential friends of Jerusalem, both Gentile and Jewish, to secure for it an adequate water supply. About thirty years ago General Sir Charles Warren, who was then making explorations here for the Palestine Exploration Fund, agitated the question, which resulted in Lady Burdett-Coutts offering the 50,000*l.* then said to be required to bring water from Ain Arroub, which is beyond Solomon's Pools and about 16 miles south of Jerusalem. The Turkish Government was unwilling to accept the offer on the conditions which accompanied it, which prevented the plan from being carried out. Likewise also, and for the same reason, the efforts of a London committee composed of friends of Jerusalem, who also have long had the needed amount in hand, were fruitless.

It is interesting to note the combination of circumstances which have contributed to bring about the work just now inaugurated. The first of these has been the insufficient rainfall of the past season and the fact that Jerusalem stood facing a water famine. Another factor has been the recent arrival of the new Governor of Jerusalem, His Excellency Mohammed Djavad Pasha, who found the municipality endeavouring to meet the emergency by having a daily supply of water for the poor brought in by the railroad company, to be sold at a small fixed price per skin. Of further help was the opportune presence in Jerusalem on a visit of Franghia Effendi, one of the Sultan's engineers, who suggested to the Governor the plan of at once laying a pipe to Jerusalem from Ain Salah, or the "Sealed Fountain," at Solomon's Pools, about nine miles south of the city, which could be accomplished in a month's time at a cost of 5,000*l.*, and would deliver about 8,000 skins every 24 hours.

There was in existence a fund or endowment, dating several centuries back, for giving Jerusalem a water-supply, the income of which has hitherto been diverted into other channels. On the Mohammedan feast of the birthday of the Prophet, the new Governor, in telegraphing his congratulations to His Imperial Majesty the Sultan, asked that the occasion

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might be signalled by permission to appropriate from this fund the amount needed to bring in the water in the way mentioned. The reply was favourable, and on July 5, about five o'clock in the afternoon, the laying of the foundation-stone took place at the Pools of Solomon, in the presence of the civil and military pashas, the Mohammedan religious heads, and a number of other leading Turkish officials. Representatives of the Latin, Greek and other Jerusalem religious communities were invited, but the shortness of the notice prevented the attendance of several. The Pasha laid the corner-stone, and the traditional lambs were slaughtered and prayers were offered. The flesh of the two lambs was divided on the spot by the poor among themselves, according to custom.

The work thus begun is that of laying a pipe of 10 c. in diameter from the Sealed Fountain to Jerusalem. This fountain is supposed to be the work of Solomon, and to be alluded to in the Song of Solomon in the words, "My beloved is like a spring shut up, a fountain sealed." It is a deep-down subterranean spring, which has, from the time of Solomon, flowed through the arched tunnel built by him to the distributing chamber or reservoir near the north-west corner of the highest of Solomon's Pools. Half a century ago the location of this "hidden" spring, which was still, as in Solomon's time, flowing into the reservoir mentioned, was unknown. The tunnel is roofed by stones leaning against each other like an inverted V, the primitive form of the arch, which is also seen in the roof of the Queen's Chamber of the Great Pyramid. The entrance to this tunnel from the spring is one of the oldest structures in existence. The piping is to be laid along the old aqueduct which formerly, from the time of Solomon, brought this same water to the Temple area. It will require about 20,000 metres or 20 kilometres of piping, and several English and Continental firms have just been telegraphed to for offers to supply the piping required. The course of the aqueduct is down the valley in which Solomon's Pools are built. Just below the lower pool the waters of Ain Etam join and augment the flow from the Sealed Fountain. At a little distance further down the valley the beautiful site of the ancient Gardens of Solomon, watered from these pools, is passed. The planting of these gardens, as well as the building of the pools of water, is mentioned by Solomon in the book of Ecclesiastes. Here now is Artas, a village in the still well-watered and fruitful valley. Here also has just been erected a Roman Catholic convent, built by a South American bishop at a cost of 15,000*l.*, where the nuns of the order of the

Daughters of Solomon will conduct a school for Armenian Catholic orphans. Further on, the course of the aqueduct passes Bethlehem, and on northward past Tantour, where live the successors of the real order of the Knights of St. John, past Mar Elias, where Elijah is said to have rested in his flight from Jezebel, then it crosses the historic plain of Rephaim, where David, in the heat of the battle with the Philistines, longed for water from the well at Bethlehem, and finally, after passing around the slope of Zion, it enters the city through the grounds of the mosque of Omar, the old Temple area.

There are eleven or twelve ancient fountains here and there in the city, long unused, but now to be utilised, and from which the water may be drawn, free to all, several taps being attached to each fountain.

His Excellency Mohammed Djevad Pasha shows the keenest interest in this work, and is also making inquiries into the feasibility of bringing an additional supply of water from Beeroth, which name means "the place of wells," whence it is said water was brought in ancient times to Jerusalem. From this source, at a cost, it is said, of about 8,000*l.*, a supply of spring water, similar in quantity to that from the Sealed Fountain on the south, can be readily had.

Another work of interest is the successful repairing of the Virgin's Fount in the Valley of Jehoshaphat, just outside the city walls. This is a fountain of brackish water with a small intermittent flow. That is to say, after several hours' flow there occurs a short interval during which the water ceases. It is the only fountain which Jerusalem possesses. Its waters pass to the Pool of Siloam through a tunnel built by Hezekiah, as was recorded by his workmen on the rock-hewn wall of the tunnel in rude Hebrew, forming the oldest Hebrew inscription extant. A few years ago this inscription was surreptitiously cut out from its place and stolen, but was recovered by the Turkish authorities before it had been taken out of the country, and is now one of the most interesting objects in the Constantinople museum. About the same time efforts were made by blasting to increase the flow of water from the fountain, which resulted in a greatly diminished flow, and in its ceasing altogether in the summer months. Some Siloam villagers undertook to restore the spring to its former effectiveness, for which they were to receive from the municipality 100 napoleons if successful. They found and closed the breaks through which the water was lost, and it is now flowing as formerly, to the great joy of the Siloam people, whose chief source of supply it was.

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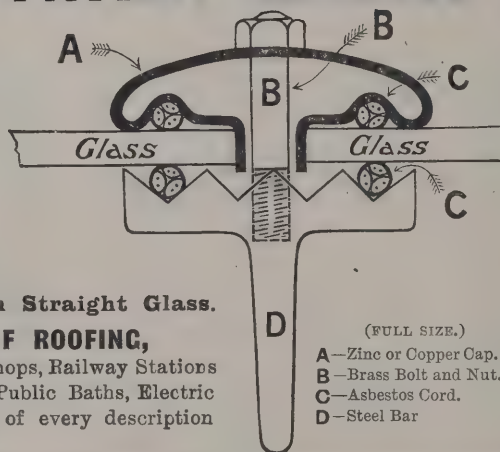
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The Architect.

THE WEEK.

THE annual general meeting of the Architectural Association will be held on October 11. The day school will open three days afterwards under the direction of Mr. A. T. BOLTON. The hours will be from 9.30 A.M. to 5 P.M., with an hour's interval at midday, except on Saturday, when the school will close at 1 P.M. The fee for the full course is 12 guineas per term, or 35 guineas per annum. The evening classes will also begin on October 14, when Mr. FARROW will lecture on "Formative Elements of English Architecture prior to the Norman Invasion," and Mr. SATCHELL on "Stone." The course of instruction is now remarkably comprehensive, and architectural students will be wise to profit by the opportunities which the Association can offer. At the ordinary meetings, commencing on November 1, the following papers will be read in succession:—"Cambridge in Early and Mediæval Times," by Mr. A. WOOD, M.A.; "The Sanitation of a Country House," by Mr. MAX CLARKE; "Capitals," by Mr. F. BOND, M.A.; "Travelling Students' Notes," by Mr. J. E. FORBES; "The Development of Domestic Architecture from the Twelfth to the Eighteenth Century," by Mr. J. A. GOTCH; "Architectural and Constructional Engineering," by Mr. T. C. CUNNINGTON; "Originality in Architectural Design," by Mr. C. H. TOWNSEND; "A Plea for Women practising Architecture," by Miss ETHEL CHARLES; "The Glasgow Exhibition," by Mr. J. MILLAR; "The Dwellings erected at Port Sunlight and Thornton Hough," by Mr. W. H. LEVER; "The Preservation of Ancient Buildings," by Mr. W. D. CARÖE; "Arbitrations," by Mr. E. A. GRUNING; "Artisans' Dwellings from the Municipal Point of View," by Mr. O. FLEMING, and "Artisans' Dwellings from the Private Point of View," by Mr. L. AMBLER. The conversazione will be on October 25 and the supper on May 2.

THE interest in antiquity by which men are incited to undertake explorations has extended to Russian-Armenia. The Archimandrite CHATSCHIK, who belongs to a monastery known as Etschmiadsin, near the village of Wagarschapat in the province of Eriwan, had come to the conclusion that the renowned church which was erected in the seventh century by King NARSES III. must have existed in the vicinity. Excavations were commenced, and the ruins of a church which was about 120 feet in length were discovered. Evidently the exterior was decorated with arabesques cut in the stone, of which the vine was one of the elements. According to the legend, King NARSES built the church as a memorial of the Saint GREGORY who introduced Christianity in Armenia, and whose remains were employed as relics in the building. Bones have been found near the sites of the altars, which confirm the statement. From what has been revealed it is evident there was a clock tower at the south-eastern end of the church, on which was a stone dial. An inscription which was found among the ruins is believed to date from the seventh century. It is interesting to hear of archaeological researches in so remote a region, and the results should encourage the Russian Government to be more mindful of antiquity.

AN important arbitration case has been lately heard before Mr. GODFREY PINKERTON. It related to an action taken by the trustees of the estate of Mr. J. T. HOCKLEY, of Grantham, a builder, against Messrs. HENRY METCALF & T. R. GREIG, architects, London. A contract was entered into between the parties for the erection of Irema Mansions, South Kensington, which were to consist of flats. The amount to be paid was 25,762*l.* Before the work was completed the payments were not forthcoming, and the works were stopped. Mr. HOCKLEY therefore claimed payment for all work executed as well as damages for loss arising out of suspension of works. Messrs. METCALF & GREIG claimed 6,000*l.* damages for breach of contract, contending that

payment was made for all work done. The award of the arbitrator is to the following effect:—(1) The sum of 2,025*l.* 1*s.* 9*d.* was due from METCALF & GREIG in respect of the work executed by HOCKLEY, the value of which he fixed at 17,169*l.* 1*s.* 9*d.*; (2) that METCALF & GREIG should pay the sum of 764*l.* for loss incurred by HOCKLEY upon plant and material supplied on the contract; (3) that there was nothing due from HOCKLEY to METCALF & GREIG in respect of damages claimed by them; (4) that METCALF & GREIG should pay the costs of and incidental to the reference, and the costs of the award as between party and party; and (5) that there had been a breach of contract on the part of METCALF & GREIG, and that HOCKLEY was entitled to a sum of 1,183*l.* for loss of profit on the contract, the total sum under which HOCKLEY would have been entitled to be paid had he completed it, amounting to 9,000*l.* As regards the last item of the award, the arbitrator reserved a point of law, which is to be submitted in the form of a special case stated by the arbitrator to the High Court, as to whether on the facts stated therein HOCKLEY is entitled to be paid the sum representing the loss of profit, or any part of such sum, the costs of the special case to be left to the Court. The first part of the award will be enforceable forthwith.

ANALYSES of several examples of bronze found in the explorations at Nussar, the ancient Nippur of the Babylonians, have been made by Dr. HELM, of Dantzic. He has ascertained that the ancient founders employed in the production of bronze not only tin, but antimony. The preference for antimony he ascribes to the difficulty of obtaining tin in sufficient quantities for general use. The proportion of antimony is largest in the oldest examples. The copper required is supposed to have been derived either from the land of Kinash, or from Meluth in the north-west of Arabia. Two heads of gazelles of almost full size, which were probably produced five centuries prior to our era, and were found by Professor HILPRECHT, are evidence of the skill in the use of metals possessed by the ancient founders. The analysis demonstrated the existence of nickel in the copper. An example which was found near the wall of Nippur, and which may belong to the fourth century B.C., contained iron and antimony.

THE sewage problem has many phases, but the most remarkable is the proposal to introduce it as part of a university course. In India the first experiment is likely to be made. A project is under consideration for an Imperial Indian university which would be devoted to the development of post-graduate education. Professor WILLIAM RAMSAY, F.R.S., who has been asked to report on the subject, proposes that among the staff should be comprised a professor of industrial bacteriology and a chemist who is a sewage specialist. He gives sound reasons for the appointments:—"As a member of the English Royal Commission on Sewage Disposal, I have done my best to dissuade the public bodies of India, during my trip, from embarking on any untried scheme, or from initiating English methods of sewage disposal, without exhaustive experiments in India. The conditions as regards temperature, rainfall, the habits of the people, and possibly also the nature of the bacteria are so different in India from those which obtain in England, and the problem is itself so far from having reached a satisfactory solution in England and America, that it would be rash in the extreme to embark on any scheme of sewage disposal without a thorough investigation of all the methods on a moderate scale. The problem is a chemico-bacteriological one, and requires the co-operation of a chemist and a bacteriologist." Professor RAMSAY is correct when he refers to the unsatisfactory solutions of the problem which have to pass in England, and that may be owing to the indifference of men of high standing in science. If in India a successful process could be evolved, America and England would gladly be indebted to the discoverer.

FRENCH FORTIFIED CASTLES.*

THE reign of law is exemplified in France as in England by the substitution of non-fortified dwellings for those which were erected to withstand attacks by armed enemies. Another cause of the change was the improvement in the means of attack. A building that could resist an onslaught by men with bows and arrows would quickly succumb to a few cannon-balls, or at least an opening would soon be ready sufficiently wide to enable a party to enter within the building.

In France there were more residential fortifications than in England. The country was larger in area and it was more exposed to the influx of invaders. In the fourth century the Romans found it necessary not only to erect shelters for permanent garrisons, but to organise a fleet to defend northern Gaul against Saxon and other enemies. A castrum in Dijon is described by GREGORY of Tours as having thirty-three towers, of which the walls for a height of 20 feet were constructed of squared stones, and above that height of small stones; the thickness was 15 feet. The Gallo-Roman fortifications had sometimes very large blocks of dressed stone in the foundations, some being sculptured, which it is supposed were derived from temples and public buildings. According to LA SAUVAGÈRE, the walls of Saintes, near Cognac, when demolished were found to contain fragments of columns, capitals, entablatures, statues, reliefs, altars, &c. Happily the triumphal arch over the Charente and the remains of an amphitheatre survive to suggest the importance of Mediolanum Santonum before panic had seized the inhabitants.

The fear of invaders disorganised the whole country, and GUIZOT says that in the fifth century society could hardly be said to exist. The majority of the country houses were only fortifications on a small scale. Where possible a site was sought on the summit of an elevation, and places which were rocky and precipitous were most valued. As time went on people became less fearful of each other. The hordes of invaders were stemmed, or they became settlers. There is consequently no better evidence of the general amelioration than the permission given by CHARLEMAGNE to the bishops. By it they were allowed to take down the walls raised for military purposes and to use the materials in the erection of cathedrals and churches.

The Normans, however, made a revival of the fortified château a necessity. They were treated as enemies, and as the French king's power was of little use, all people who were wealthy depended for safety on such means as could be created by themselves. The privilege to fortify, which at first was only granted to nobles, was by them allowed under certain conditions to their vassals, and for a time every important house was a detached fort. It was then the feudal system was developed. In France, as in England, the type of castle adopted was a single plain building surrounded by earthworks, ditches and palisades. According to a French writer of the end of the eleventh century, it was impossible to reach the door of the citadel unless a temporary bridge was raised to the level of the sill.

In spite of all the romances, the inmates of a castle in the tenth or eleventh century must have led as uncomfortable an existence as would a modern gentleman if he were compelled to live in a factory chimney. The lowest stage had the advantage of allowing egress to ground outside, but the two or three storeys above were difficult to approach and difficult to leave. In the twelfth century more room was sought, but as the walls were still enormously thick, it was not always advisable to widen any of the faces of the structure. Thus an inscription on one circular tower or donjon records "my interior diameter at foot is 27 feet and the exterior 53 feet." With so much strength of masonry the donjon could be relied on as a final refuge. Consequently parts were added which were less massive but better adapted for residence in times of peace. Sometimes these parts were flanked by towers—an arrangement which had much to recommend it, and was, moreover, picturesque. In so important a building as the Bastille of Paris there were no less than eight semispherical towers, which were supplemented by wide and deep ditches. The Bastille could hardly, however, be considered as a type of the citadels of the feudal age. Château Gaillard, which is

said to have been erected under the direct superintendence of RICHARD I., possessed a citadel which was defended by no less than seventeen towers, which were segmental on plan.

The advance in civilisation during the thirteenth century was marked by a diminution of the eagerness to possess fortified dwellings. Attention was given to ecclesiastical rather than to military architecture. But those castles which were erected in France during the century were more important than their predecessors. The famed Château de Coucy is a thirteenth-century work, and with such a possession ENGUERRAND III. might well be arrogant and make PHILIP AUGUSTUS indisposed to meddle with his depredations.

With men like the lord of Coucy, to whom even the property of the Church was not sacred, there was always a risk of the invasion of towns. PHILIP AUGUSTUS, although supposed to be a powerful king, found it wise to enclose Paris with a wall for the protection of the citizens. The smaller towns sought a similar protection. The inhabitants paid either the whole or a part of the cost of the construction, as well as a tax for upholding the walls, but the money was well laid out, for the townsmen could live and work in more security than formerly. At Angiers, St. LOUIS paid for all the land required for the walls.

The Château de Josselin, of which we give a view this week, is one of the buildings which were erected at a time when flanking turrets were still in vogue. Various alterations and additions are to be seen in it. One part dates from the sixteenth century, and is of a less fortified character. The castle belonged to the ROHANS, and by marriage was inherited by OLIVIER DE CLISSON, who was Constable of France, and died in one of the chambers about 1407.

In the fourteenth century the necessity to live in fortresses was still powerful in some places. It was about 1390 Pierrefonds was raised, and although the original building may have differed in details from the restoration by VIOLLET-LE-DUC which we now see, the general effect at least must have been similar. It could not be considered a dwelling for a prince in peaceful times. Apprehension of an attack made the Duc d'ORLÉANS seek to have assurance doubly sure, for although the masonry was of a higher class than was usual in such structures, iron ties were introduced to strengthen the angles. As late as the seventeenth century Pierrefonds was supposed to be still a menace to royalty, for in 1617 RICHELIEU ordered its demolition, and in order to expedite the process the roofs were at once removed to admit the rain. The Bastille of Paris was another fourteenth-century erection.

In the fifteenth century the astute LOUIS XI. was inimical to the possession of strongholds by nobles. Restorations of ruins found little favour with him. Those which were erected in his reign would appear to have their character determined by his military officers. For the sake of the picturesque, or rather in order to uphold the reputation of the nobles, the castles were allowed to appear as inviolable, but the masonry was no longer of colossal thickness. In some cases brick was employed, but when seen arranged in patterns no illusion could make onlookers believe there was much danger in the walls, especially if artillery and firearms were adopted by the besiegers. The increase in the number of doors and windows was another sign that for feudalism gloomy days had arrived.

A BUILDING LAW FOR SYDNEY.

THE loyalty displayed by the Australian Britons during the whole of the South African war should secure for them the gratitude of the English people. That such a feeling is growing is evident from what has been said about the preference shown by the Westminster authorities for American timber as a paving for some of the metropolitan streets. A very few years ago Londoners in general were indifferent about the region from whence paving blocks were derived. It must also be admitted with compunction there was no desire to show any appreciation of Jarrah or other hard wood, although occasionally the qualities of the timber were brought under the consideration of town councils and urban councils. Timber merchants

* See Illustration.

in general believed Australia would never take the place of Northern Europe, and much was done to convince architects, engineers and contractors that the timber grown at the Antipodes could only be employed in exceptional cases where cost was not regarded. A different condition of opinion is now general. The decision of the Westminster Council is treated as if it were an affair of *haute politique*, and although through a single vote Australian timber was not selected, its qualities have been announced with a resounding force which has amazed experts. If a market is not created as a consequence of the praises the failure must be ascribed to bad management.

It is natural that Australians, when they learn about the changed disposition towards them which their brethren in Great Britain profess, should conclude there is a new era dawning for them. By forming a Federation they have, as it were, prepared the way for their coming prosperity. As a further sign we can see how Australian architects are suggesting their capacity to deal with any coming emergencies, and if towns are to be transformed, as will be often necessary with the increase of business now anticipated, there are architects and builders ready to undertake the operations. Sydney, as becomes the capital of so extensive a colony, is already dreaming of a change into streets of twenty-storey cloud-capped blocks, as if it were an American city.

There is, however, a serious obstacle which has to be overcome before building on an imperial scale can be commenced even on paper. It is the law. In Sydney, especially, there is also the difficulty of discovering where the obstacle is to be found. In English university towns it used to be hard to delimitate the powers of the representatives of the arts, and when the townsmen also acquired privileges the definition of the respective rights of the parties often appeared to be more puzzling than any problem offered by mathematicians. Cathedral cities have had a similar experience. Sydney has two controlling powers, the Legislature and the City Council, and each is considered to be omnipotent in whatever relates to building. Each also is tenacious of power, and jealous of any interference with its rights. In such a case what course should be followed by those who believe in the necessity of new building regulations for the regeneration of Sydney?

The architects are of opinion that the aid of the Government and the Legislature should be first invoked. The builders take the opposite view and maintain that it is a municipal question which is concerned; the first step should be to put the case before the Mayor and the City Council. The Secretary of the local Institute of Architects wrote to the Master Builders' Association, saying:—"I have been directed to say that in the opinion of this Council the Minister for Public Works is the proper authority to approach first of all, and we should be much more likely to obtain what we propose to ask for from him than, at the present time, from the Mayor. The Council therefore proposes that at the earliest date possible a small deputation of, say, two, or at the most three, from both of our Associations wait upon the Minister for Works, with a view to putting before him the joint opinions of the architects and the builders, as to the Building Act and its proposed amendments." The President of the Association, when the letter was read, said it was an example of the correspondence between the representatives of the architects and of the builders which had been passing for some months. But he held that the proper authority to invoke was the City Council. The Minister of Works appeared desirous to make a party question of the subject and stump the country with it. The Mayor and Council had been elected to control the city and should be allowed a fair trial. One speaker said no politician should be allowed to interfere with municipal government, for it would be a deprivation of citizens' rights. Other builders adopted a similar view, and finally the subject was left to the decision of the committee of the Association.

While the architects and builders are discussing who is to be approached for inspiration instead of defining what is required to be done in order to bring Sydney into a condition befitting its importance, the City Council are not indifferent. Reports have been ordered from officials who are qualified to give advice. In one matter the Council might be considered as already committed; that is, the height of buildings. A few years since instructions were given for

the preparation of a Bill on the subject. It was then contemplated to restrict the height of buildings within a margin of 15 feet greater than the width of streets, the limit being 75 feet, and that only for edifices facing streets 60 feet wide, squares or open spaces. Restrictions as to the number of storeys were also proposed. But with such visions of commerce as are now indulged in, buildings 75 feet high are supposed to be as ill-adapted to the requirements of the future as any of the two-storeyed offices which are to be seen in so many streets. There are occasions when nothing can be more inconsistent than consistency, and the City Council should change with the times. If the report of the City Building Surveyor can be considered as indicating the spirit of the Council at the present time there will be little opposition to high buildings. He says:—"Much has been said at different times regarding the restrictions as to the height of the buildings, but with reasonable limitations. I do not see why undue restrictions should be exercised, as, owing to the increasing land value, it becomes necessary to raise the height of the buildings so as to afford ample accommodation, and also to make a reasonable return upon the financial outlay as an investment. I may mention the London Building Act of 1894, in the tables for minimum thickness of walls, provides for buildings a height of 120 feet, and our City Improvement Act up to 100 feet height." It should be remembered that from its geographical position Sydney cannot be extended laterally in all directions. The harbour, quays and park place limitations on its expansion. The value of building sites has, besides, increased to such an extent, a return for outlay cannot be anticipated unless with many-storeyed buildings.

There are other important subjects besides the height of new buildings which necessitate the repeal of the majority of the existing regulations which date from 1879. The assumption of authority by the Legislature as well as by the City Council does not promote the safety of the public. The City Surveyor when dealing with theatres and places of public amusement finds himself hampered in his authority through the licenses granted by the Government. There is an absence in most of the buildings of means for a speedy exit, and of fire-resisting materials in stairs, floors, &c. Timber is exceptionally important in Sydney, but it is not prudent to allow the yards containing it to exist in the most crowded parts of the city. The shanties of the Chinese are no less risky. In a young State much allowance has to be made for the improvised structures of settlers. But care should be taken to prevent people from believing that flimsiness was to be always accepted. In Sydney the influence of the early habitations has continued. Writing in 1888 Mr. JOHN SULMAN, the architect, described the construction which was then general as follows:—"Our present mode of building is to run up brick or stone walls as thin as the Building Act will permit, fill the openings with wooden frames, form floors of inflammable Oregon joists, cover them with boards, ceil with wooden linings, cut them through from top to bottom for lifts cased in with wood, if cased at all, divide the rooms with wooden partitions, erect a wooden staircase, and finally cover all in with a wooden roof. What is this but a magnified match-box?"

In the years which have elapsed since those words were penned Sydney has not become less inflammable. It is time a change were made, and we hope no question of personal dignity, such as obeying the regulations of a Government office rather than those of a municipality, will prevent the Australian architects from co-operating in the production of a law which will put some check on the recurrence of fires in the Australian capital.

The Excavations on the site of the Abbey church, Canterbury, have been the means of the discovery of the skull and mitre of Abbot Dygon, who died in 1510. The body appeared to have been robed in full pontificals for burial, but owing presumably to the poverty of the monastery at that period of its history—the time of Henry VII.—the inmates were unable to give the abbot a real jewelled mitre or gold ring. The mitre found is of lead, with painted imitations of jewels; the episcopal ring on one of the fingers is also of base metal, and the chalice and paten are of lead.

HOLLINGBOURNE AND BEARSTED.*

THE pretty village of Hollingbourne, although very ancient, has lived a quiet life and has no historical events to boast of. The neighbourhood is one of great beauty. In the Norman Survey it is called Hollingeborde, and in later records Holingburnan and Hologeburne. Hasted says that it probably took its name from the spring which rises in the vale underneath the hill in the parish. The Rev. J. Cave-Browne, in his "Story of Hollingborne," states that the generally accepted origin of the name is that the abundance of hollies on the hillside gave the distinction to the burn (Saxon for stream) which runs through it, as the thorn and the box did to the neighbouring parishes of Thornham and Boxley.

The Manor.

Æthelstan Etheling, son of King Ethelred II., gave by his last will in 1015 to Christ Church in Canterbury his lands at Hollingbourne with their appurtenances, excepting one plowland, which he had given to Siserth. These lands he had bought of his father, and gave them, with his consent, to Christ Church, L.S.A., that is, free from all secular service, excepting the trinoda necessitas, in like manner as Adisham had been given to it. The manor remained part of the possessions of the church of Canterbury at the time of the Conquest, when the revenues of it were enjoyed as one common estate by the archbishop and his convent; but Archbishop Lanfranc, after the example of foreign churches, divided them into two portions, one of which he allotted for the maintenance of himself and his successors in the see of Canterbury, and the other for the monks for their subsistence, clothing and other necessary uses. In this partition Hollingbourne fell to the



GODFREY HOUSE, HOLLINGBOURNE.

share of the monks and was allotted for their subsistence, and it is accordingly entered in the book of Domesday under the general title of Terra Monachorum Archiepi—i.e. the land of the monks of the archbishop.

In Aithorde Hundred

The Archbishop himself holds Hologingeborde.

It was taxed at six sulings,

The arable land is 24 carucates.

In demesne there are two and 61 villeins

With 16 borderers, having 23 carucates.

There is a church, 12 servants, and two mills and eight acres of meadow.

Wood for the pannage of 40 hogs.

In the whole, in the time of King Edward the Confessor and afterwards, it was worth 20 pounds.

And now it is worth 30 pounds.

For this manor there adjoins half a suling, which never pays scot.

This the Bishop of Baieux rents of the Archbishop.

At this time the whole of the above premises seem to have been valued at 30*l*.

* A paper read by Mr. C. F. Partington at Maidstone on August 31, before the members of the Upper Norwood Athenæum.

King Henry II. about 1160 granted to the monks of Christ Church a charter for their lands at Hollingbourne upon the Hills. In the tenth year of King Edward II. (1317) the Prior of Christ Church obtained a charter of free-warren for his manor of Hollingbourne, among others, about which time this manor with its appurtenances was valued at 46*l*. 9*s*. 8*d*.

King Henry VI. (1422-61), by his letters patent in his 25th-26th year, granted to the prior a market, to be held at this place weekly on a Wednesday, and a fair yearly on the feast of St. Anne.

William Selling, who was elected prior in the reign of King Edward IV., anno 1472, during the time of his holding that dignity, greatly improved the prior's apartments, after which it seems to have undergone no material alteration till the dissolution of the priory of Christ Church, which was surrendered into the hands of King Henry VIII. in the first year of his reign (1540), with all the lands and possessions belonging to it, in consequence of the Act passed that year, to the use of the king and his heirs for ever.

The manor of Hollingbourne did not remain long in the hands of the Crown, for King Henry settled it by his dotation-charter, dated May 23, in his thirty-third year, on his new-elected Dean and Chapter of Canterbury, part of whose possession it now remains. There is a court leet and court baron regularly held by the Dean and Chapter of Canterbury for this manor, which extends also over the adjoining parishes of Hucking and Bredhurst.

But the demesne lands of this manor have been from time to time leased out by the Dean and Chapter at a reserved rent of 10*l*. 9*s*. The year after the grant of this manor to them—viz. anno 34, King Henry VIII.—they demised them by lease to one J. Reynolde, and afterwards to Purefoy (1577), Fludds, Alabaster, D.D., Bargrave, Boys, Fanewell and Gookin, till the year 1684, when Sir Thomas Colepepper had a lease of them, in whose family they continued till John Spencer Colepepper, of the Charterhouse, passed away his interest to the Hon. Robert Fairfax, who held them in 1758, and then alienated his to Francis Child, banker in London, whose brother, Robert Child, of London, banker, was the lessee. At his death in 1782 the trustees of his will, Robert Dent and John Keysal, became possessed of the lease under the Dean and Chapter.

Hasted wrote about 1770:—"This parish is situated partly above the great ridge of chalk hills, where the soil is exceedingly wet, barren and stony, and much interspersed with coppice-wood, and partly below it the village of Hollingbourne lies close at the foot of them, at the south end of which stand the church and the vicarage house, near which there is a handsome brick mansion of the time of Queen Elizabeth. By its appearance the owners of it must have been of good condition in former times."

In 1821 there were 156 dwellings in the parish, and at the same period, according to the census, 535 males and 465 females, or just 1,000 souls in all. The village now boasts of its own gasworks, but from a financial point of view the result is not of so remunerative a character as the shareholders could wish.

Hollingbourne Church.

Hollingbourne is within the ecclesiastical jurisdiction of the diocese of Canterbury and deanery of Sutton, and is exempt from the jurisdiction of the archdeacon.

The church, which is dedicated to All Saints, is a handsome building, fourteenth century, consisting of three large aisles, with a chancel at the end of that in the centre, having a square tower at the west end. The chancel is highly ornamented with monuments of the ancient family of the Colepeppers, of Greenway Court, and for two of the Lords Colepepper, several having been executed by the masterly hand of Rysbrach. On the south side is a memorial to Sir Martin Barnham and his two wives, A.D. 1610, presenting their three figures kneeling at a desk, and beneath, their children. On the south wall there is also a monument to Hasted, the Kentish historian, who was vicar of the parish. At the east end of the north aisle is a small, neat chapel, elevated by several steps to give room for a vault underneath, in which lie the remains of all this branch of the Colepepper family. (It is said that beneath the chancel lie the remains of three score and ten members of the Colepepper family.) The sides of the chapel are filled with block escutcheons and square tablets of black marble alternately; only two of these are filled up, and these with younger branches of the family, settled elsewhere—a melancholy proof, wrote Ireland, of the disappointment and vain endeavour of the builder to transmit his descendants to posterity.

On the centre of the pavement is a beautiful raised monument of white marble, with the figure of a lady lying at full length in the habit of the times, of very fine sculpture, in memory of Elizabeth, lady of Sir Thomas Colepepper, daughter of John Cheney, of Sussex, obit. 1638. In the aisle is another memento for Nicholas Chaloner, obit. 1706, and against the north wall of the north aisle one for two of the family of the Duppas. On the north wall of the chancel there

is a very fine monument to Dame Grace Gethin, wife of Sir Richard Gethin, 1697. A mural tablet records the fact that this lady, while in a trance, had a vision of heaven.

At the lower end of the church there are memorials for the Plummers, the Collins and the Dykes. A few years ago, when the new organ was being played, a piece of the flat plaster roof fell down, when the Rev. W. G. Southey, vicar, had the roof examined, and discovered that there was the original roof above. The plaster was removed, and it was found that the original roof of Kentish oak was in perfect preservation.

In this church is a most superb altar-cloth and a pulpit-cloth and cushion of purple velvet, ornamented with the fruits

of the reign of Henry II. In 1821 there were 107 dwellings in the parish, and the population 257 males and 309 females, making a total of 566 souls. The village green is a very famous spot for cricketers.

The church is dedicated to the Holy Cross, and is a handsome building consisting of two aisles and two chancels, with a square beacon tower at the west end. On the summit of the tower at the three corners are the figures of three dogs or bears séjant, for being greatly defaced by time, their forms are merely conjectural. If they represent the latter, they may have



HOLLINGBOURNE CHURCH.

of the pomegranate and vine wrought in gold, being the needle-work of the daughters of Sir John Colepepper, afterwards created Lord Colepepper, who employed themselves for the space of twelve years in working the same during their father's absence abroad with King Charles II. in exile. The death of Lady Elizabeth in 1683 was attributed to blood poisoning, caused by the prick of a needle while finishing a communion-cloth about one o'clock on a Sunday morning, which she was anxious should be used in the services of the day. This needle, which had been preserved for two hundred years, was purloined by a visitor during the time of the late vicar.

The vicarage was endowed before the year 1407, at which period Arthur St. Leger, the rector, granted to William Mamby, vicar of this church, a messuage with its appurtenances in the parish for the habitation of himself and his successors for ever. The rectory of Hollingbourne was valued in the king's book at 28*l.* 15*s.* 5*d.* The vicarage was valued at 7*l.* 6*s.* 8*d.* The vicarage in 1640 was estimated at 86*l.*, when the communicants were 271. It was afterwards of the certified value of 70*l.* 16*s.* 8*d.* The vicarage was augmented 20*l.* per annum by lease between Ralph Staunton, rector, and Sir T. Colepepper.

Hollingbourne Caves.

These pseudo caves were discovered by accident in 1898, when some men were ferreting. While digging for the ferret a hole was found which led into an underground chamber. It was afterwards discovered that this hole was an air shaft to the caves, and situated some distance from the entrance. They are on the main road between Maidstone and Ashford, just past the three-mile stone from Maidstone and fourteen to fifteen miles from Ashford. The extent of the caverns is not known, but the passages, which are very irregular and abrupt, may probably be reckoned in miles. The sand is perfectly clean and dry, and an interesting fact to be noticed is that the temperature is uniform throughout and stands at about 51 degs.; it seems to be unaffected by external atmospheric changes.

The caves now belong to Mr. Walter Fremlin, to whom we are much indebted for the privilege of inspecting them, and especially for his kindness in sending someone to clear the entrance, so that our visit might be more easy and comfortable.

Bearsted, an ideal village, lies north-west from Leeds, and was anciently written Bergestede, having most probably derived its name from the situation berg, in Saxon signifying a hill, and stede, a place and village. It is said to be the cradle of the noble family of Bertie, who possessed lands here before



BEARSTED CHURCH.

been placed there in allusion to the name of the parish; if not, the figures were perhaps the crest of the founder of the church. They are also said to represent the lion, ox and eagle, symbolical of SS. Mark, Luke and John, but this suggestion cannot be correct, as the figures are unmistakably those of beasts. There are memorials to the family of the Cages, to Robert Fludd, M.D., also to William Godfrey, jun., A.D., 1690, &c.

As some of the words in my paper are unfamiliar, perhaps the following notes may be of interest to the members:—

SULING.—A certain measure of land.

CARUCATE.—As much land as one team can plough in a year.

VILLEINS.—The old word for villagers; were slaves who were the property of their masters, and were of three kinds, viz. those who were born of slave parents, prisoners captured in war, or those who on account of debt were reduced to slavery.

PANNAGE.—The food of swine in the woods.

BORDERER.—One who dwells on the borders of a county or near to a place.

SCOT.—In law, a tax.

SCOT AND LOT.—Parish payments.

LEET.—A court; in law, the court leet, or view of frank-pledge to the court of record, held once a year within a particular hundred, lordship, or manor, before the steward of the leet.

HUNDRED.—The division or part of a county supposed to have originally contained a hundred families. In Anglo-Saxon times the land was divided between the State (folcland) and individuals who held their property freehold in perpetuity (bocland from boc, the book or charter from which the title was conveyed). In other words, folcland meant land that belonged to a community, and bocland meant land held by private individuals. The kingdom was also divided into shires (from the A.S. *sceran*, to divide), and these into hundreds. At the meetings of the hundred every freeman was obliged to appear in arms once a year, and also to prove his registry in some tything or association of ten families. Frank-pledge was the mutual responsibility amongst the members of a tything for the good behaviour of the whole. Should one member of the tything violate the law, the other members were bound, if possible, to bring him to justice, and if they connived at his offence, and allowed him to escape, they were fined. The origin of trial by jury has not been satisfactorily ascertained. But although many have attributed this institution to Alfred, Hallam is of opinion that it did not exist amongst the Anglo-Saxons.

The illustrations are from photographs by Mr. C. F. Partington.

LITTLE WENHAM CASTLE AND CHURCH.

A PARTY of members of the Suffolk Institute of Archaeology and Natural History recently accepted the invitation of Mr. George E. Crisp, of Playford Hall, to visit the church and castle at Little Wenham.

At the church, which is in a ruinous condition, a paper was read by Mr. Redstone. The main part of the building, he said, is in construction Early English. This being so, it is probable that of the two churches existing in Wenham in the time of Domesday the one standing within what is now known as the parish of Little Wenham was replaced by the present edifice. It is well here to notice that in the days of the Norman kings Great Wenham, or Wenham Combusta, *i.e.* Burnt, or Brent Wenham, and Little Wenham formed one district, containing two or more manors. Little Wenham Church was distinctly a manorial church, and with the manor, once the property of Odo, Bishop of Bayeux, fell upon the rebellion of that prelate in 1070 into the hands of the Bigods. In the thirteenth century it became part of the possession of the Brewses, through matrimonial alliances with the Rous and Ufford families. The Brewses were great church builders, and wherever the family held possessions some member has left his stamp upon the church; this is notably the fact with the church of Woodbridge-Hasketon. It has been stated by Page and other historians that the Brewses were first connected with Little Wenham in the reign of Henry VI., in the middle of the fifteenth century, and that this church was probably erected by a member of the Holbrook family. The Brewses were connected with Little Wenham at an earlier date, for in 1336 John de Breouse, parson of the church of Stradbroke, and Wm. de Breouse, parson of the church of Little Wenham, settled the manors of Little Wenham and Brent Wenham, and the advowson of the church of Little Wenham, on William de Holbroke and Amice his wife in tail male, or in default, on the heirs of William de Holbroke. It still remains undecided whether the church and castle were erected by a Holbroke or a Brewse; whilst there are many marks of the presence of the Brewses, there remains no sign of a Holbroke having worshipped in the church. When a close inspection has been made of the castle it will be seen that the same hands employed to erect the one were engaged in the construction of the other building. A visitor naturally turns his attention first towards the windows, and fixes the period of construction from the style of architecture they portray. The lancet windows and the sedilia with its mouldings give the year 1260-70 as the date of the church. Especial notice will have doubtless been given to the low window on the north wall of the chancel, which contains a recess, and is sufficiently low to enable a priest occupying the seat to hear the words of a suppliant kneeling without. But there is this to consider—within the castle chapel, in the very same situation, a like window has been made to whisper through, to do which, into the ears of a confessor, a leper or penitent would have been compelled to kneel on the top stave of a ladder 15 feet or 20 feet high. The presence of a recess and the height of the castle window will not allow of the use of these windows as squints, through which to see from without that the lights were burning safely upon the altar or altars within. Low windows are found chiefly in Early English parish churches, and appear constructed mainly, if not solely, for ventilating purposes. The east window, with its three lights and three quatrefoils symbolical of the Trinity, is an exact counterpart of the east window in the chapel of the castle, and the ruinous north window, with the gadding ivy occupying the space between the falling mullions, was erected in the sixteenth century, and was once filled with the arms of the many families connected with the Brewses. The monuments within the chancel speak for themselves, and the double-canopied brass to Thomas Brewse and his wife Jane, dated 1514, may be coeval with the altar tomb within the south wall. In such a church as this there must necessarily be many features which puzzle us as to their origin and utility—*e.g.* for what purpose was the arched recess in the east wall constructed? Have we above us the remains of the rood-beam? To what saints were the nave altars attached to the rood-screen dedicated? Is the receptacle near the south door a holy-water stoup or a font? What saints are depicted in the fresco-painting on the east wall? It has already been stated that the Brewses left their mark upon the churches they erected. There is a distinct record of this near at hand. Upon the plaster remains of the rood-screen is to be seen, engraved in an Elizabethan court hand, the name of G. Brewse, for Giles Brewse, who was the only son of Sir John Brewse by his second wife. Giles Brewse died at Toddington, co. Beds. Near the name is an unfinished Latin sentence, of which the translation appears to be, "He meditates a minute or two with sincerity."

On arriving at the castle, Mr. Redstone read another paper, in which he pointed out that "there are three kinds of castles

known to East Anglians, two of which, strictly speaking, do not come under the term 'castle' as denoting a military fortress, yet, as they were constructed and erected as defensive works, may be considered as castles. The extensive earth-works at Offton and the circular moats at Dedham were never protected by embattlements; and the castellated manor-houses of Mettingham, Southwold and Little Wenham never had their defences tested, as did the royal and baronial castles of Bungay, Framlingham and Orford. Little Wenham Castle, hall or moated grange, was erected about the year 1260, but whether its founder was a Brewse or Holbrook is uncertain. The manor was settled by John de Brewse, of Stradbroke, and William, parson of Little Wenham, in 1336, upon Wm. de Holbroke and his wife, but the conditions attending the settlement are not given. The monumental inscription in the church seems to point to the fact that Sir Thomas de Brewse, as lord of the manor, resided in the castle in the year 1500, and it is probable that to his son Robert, who succeeded him in 1514, may be ascribed the structure of the walls, which belong to the Perpendicular period. The abundant use of Flemish bricks marks a still earlier alteration of the building. A close examination of the inscription on the west wall, "*Cecy fait a l'aide de Dieu l'an de Grace, 1569, N. 1-B.*" shows that the initials are N. 1-B.—not R.B., as given in Page's Supplement. There is a touch of pathos in the simple carving on the south pillar of the door above the inscription of the Brewses' cross crosslet, between the date 1584 and above the Latin farewell salutation "*Vale.*" It may have been carved by Giles Brewse when the family quitted their ancestral home. In making an inspection of the outer walls of the castle, proceeding from the west door northwards, we pass the narrow lancet window and the massive buttress on which the lines of the old sundial are faintly visible. Upon the buttresses, corner-stones and throughout the castle three distinct mason-marks are frequently repeated—one is a Z, running from right to left, and from left to right, or the two combined; another is a W, with the final stroke converted into a 6; and the third is a triangle, with the right side prolonged downwards. The window of the "Sovereign Room," with its two lights, has its dripstone or projecting moulding over the window to throw off the wet, of exactly the same character as those over the church windows, because of the slope upon which the building is erected. Above may be seen the narrow open window of the chapel corresponding to the low window in the church. The east window with its three lights has its counterpart in the east window of the church. The flint and stone used in the wall beneath the window contain material similar to seashore stone or rock employed in the construction of Orford Castle. Upon ascending the stone staircase a constant look-out should be made for the mason marks already mentioned. The banquet-room, with its open hearth, supported within by a much-charred beam, has many features of interest—its Tudor recess, wherein the massive gold and silver plate was washed in the sight of the lord; the glazed tiled floor, once strewn with reeds and rushes; the walls, formerly covered with arras and tapestry; the windows, with their deep recesses and the fine ceiling, will attract the attention of all visitors. But the most sacred spot is the chapel, with its piscina and sedilia, and the carved figure with fingers raised in the act of benediction, within the vesica of the vaulted roof. By ascending the winding staircase an entrance may be gained to the retiring-room, and thence to the summit of the tower, whence the timid may gain through the loopholes a sight of a vast extent of country stretching for miles beyond, which a bolder eye may view from over the battlements. A corner-stone of the tower bears the date 1663. A single bedroom was usually thought sufficient; houses that contained even four beds for the accommodation of their inmates were thought to be extravagantly furnished. Men had then no idea of comfort.

TESSERÆ.

St. Albans Abbey.

NOT to dwell upon the fact that the walls of St. Albans Abbey are composed of materials from ancient Roman structures (probably including also those of the church erected under Constantine), and that several architectural fragments remain of undoubted Saxon date, we have in the building, first, a specimen on a vast scale of the earliest Norman architecture forming the great bulk of the building, including also the great central tower; we have, secondly, an extremely beautiful specimen of the later and more enriched Norman in the passage or "slype" at the extremity of the southern transept; thirdly, we have, in the incipient works in the west front, including probably the three beautiful western porches, works of the earliest Pointed architecture, executed in the days of King John; and in conjunction with these, and on either side of the nave, we have a majestic specimen of the same style in its fuller development, executed early in the reign of Henry I.; fourthly,

we have in the choir a highly finished work of the end of the same reign, evincing the rapid development and refinement of the art at that period, and adjoining this in the half-ruined eastern aisle is a truly exquisite specimen of the same style slightly more advanced and probably executed in the time of King Edward I. In the nave, again, in the eastern half of the south side, we have a most noble and magnificent specimen belonging probably to the close of the same reign, and in the exquisite lady chapel we have the Middle Pointed or Decorated style in its fullest development; while, lastly, in the monumental chapels of Abbots Wheathampstead and Ramridge, and of Humphrey, Duke of Gloucester, and in the magnificent altar-screen, rivalling and closely resembling that at Winchester, we have splendid specimens of the closing period of Gothic architecture, and unfortunately in many insertions into the older work we see numerous instances of the decline which preceded its final extinction.

Mediæval Illuminators.

From A.D. 1150 a new and happy impulse began to be felt by painters and illuminators. Drawing acquired precision, firmness and a certain truthfulness of expression. Nevertheless, a black stroke marks the outlines, defines the form of the principal details and limits throughout the various tints of colour. The fanciful ornaments, the grotesque figures which, mixed with foliage and interlacings, surrounded the initial letters and often formed the sole decoration of the books of the preceding century, now began to be discontinued; the calligraphic borders are not so broad. From this period artists cease to borrow from heathen art and take nature for their guide. Their ornaments are derived from the vegetable kingdom, and their figures, with the exception of Christ, the Virgin and the Apostles, are all attired in the costume of the time. Gold is still generally employed for the ground. Painting continued to progress until the end of the thirteenth century, but the drawing, in which the outlines are too strongly marked, is apt to be hard and stiff. The gold grounds begin to be replaced either by grounds of colour diapered with patterns of gold or by grounds representing an iridescent mosaic, which has a very pretty effect. Painting towards the beginning of the fourteenth century exhibited a marked improvement. The pen is no longer in requisition for determining the outline of the drawing, the brush alone is employed; the motives are full of grace and the execution, although still timid, is always finished.

Vitruvian Buttresses.

According to Vitruvius, the walls in the lower part of a structure should have a thickness proportioned to the magnitude of the building, and *anterides* or *erismæ* (buttresses or counterforts) are to be erected in the front at a distance apart which is equal to the height of foundation. The meaning is not clear, and it is no wonder both Perrault and Galliani have deviated from the text, the latter without taking any notice of any such deviation. They say that the *anterides* or *erismæ* should at bottom project from the walls as much as the height of the wall, whereas the text clearly expresses, "*quam crassitudo constituta fuerit substructionis*," as much as the thickness of the wall. Their reason for this seems to be that as Vitruvius adds, "*deinde contrahentes gradatim ita uti summam habeant prominentiam quanta operis est crassitudo*," from thence diminishing till at the top they are as prominent as the thickness of the work, and understanding by this that the projection of the *erismæ* at the top is also to be equal to the thickness of the wall, and to increase gradually as they approach toward the bottom; they conclude that the text was erroneous in one or other of those passages; accordingly they have fixed on the former and altered it as above mentioned, although it is clearly and determinately expressed, leaving the latter passage (which is, indeed, vague and doubtful) unaltered, for this latter passage may be understood to signify that the *anterides* should project at the top of the foundation no more than is sufficient to receive the thickness of the work of the superstructure with its projecting pilasters, &c. In this sense Barbaro has understood it, and that this is the true sense, the determinate manner in which the quantity of the projection at bottom and the diminution from thence upward is expressed, and in which all the copies agree, renders it highly probable. Perrault remarks that as Vitruvius assigns the distance of the *anterides* to be equal to the height of the wall, the *anterides* will consequently be fewer as the wall is higher, which ought to be directly the contrary, and should be more numerous and closer in proportion as the wall is higher, as being in that case weaker and wanting more support; he therefore supposes we should read *crassitudo* instead of *altitudo*, and that the distances should be equal to the thickness of the wall, but this is taking it for granted that the wall, whether high or low, is to be always of the same thickness, whereas it is always understood that the walls are to be made thicker in proportion as they are higher, and, as Vitruvius before says, in proportion to the mass of ground they enclose. Considering it in this light, therefore, the height and thickness of the walls and the distance

of the *anterides* will be the same in proportion to each other in all cases, and of course be proportionally firm and strong. Vitruvius leaves it uncertain whether the thickness of the diagonal wall at the angles is excluded or included in the projection. He assigns them from the main wall, but Newton, in his translation of Vitruvius, determined for the former, as otherwise those diagonal walls would not bear against the *anterides*, which as being the strongest part of the wall they ought to do.

Hubert le Soeur.

One of the few men we have had that may be called a classic artist was a Frenchman, and disciple of John of Boulogne. Le Soeur arrived at least as early as 1630, and by the only two of his works that remain we may judge of the value of those that are lost or destroyed. Of the latter were a bust of Charles I. in brass, with a helmet surmounted by a dragon à la Romaine, 3 feet high, on a black pedestal; the fountain at Somerset House, with several statues; and six brazen statues of St. James. Of those extant are the statue in brass of William Earl of Pembroke in the picture gallery at Oxford, and the equestrian figure of Charles I. at Charing Cross, in which the commanding grace of the figure and exquisite form of the horse are striking to the most unpractised eye. This piece was cast in 1633 on a spot of ground near the church of Covent Garden, and not being erected before the commencement of the Civil War, it was sold by the Parliament to John Rivet, a brazier, living at the Dial near Holborn Conduit, with strict orders to break it in pieces. But the man produced some fragments of old brass, and concealed the statue and horse under ground till the Restoration. They had been made at the expense of the family of Howard Arundel, who have still receipts to show by whom and for whom they were cast. They were set up in their present situation at the expense of the crown about 1678 by an order from the Earl of Danby, afterwards Duke of Leeds. The pedestal was made by Grinling Gibbons. Le Soeur had a son Isaac, who was buried November 29, 1630, at Great St. Bartholomew's. The father lived in the close.

The Cathedral of Coventry.

When Camden the historian visited Coventry he wrote:—"The city is conveniently placed, large and neat, defended with strong walls and adorned with very handsome buildings, among which are two churches of rare workmanship. The city has nothing very ancient about it except the monastery or priory, whose ruins I saw near those churches." It was founded by king Canute for nuns, who being soon after turned out, Leofric, Earl of Mercia, A.D. 1040, enlarged and in a manner rebuilt it, with such profusion of gold and silver that the walls of the church seemed too confined to contain the treasures, which struck all beholders with astonishment, no less than fifty marks of silver being scraped off one single beam. It also contained numerous religious relics, which were held in the greatest veneration by the devotees. He endowed it with such revenues that Robert de Lindsey, bishop of Lichfield and Coventry, transferred the episcopal see hither, but this see a few years afterwards returned to Lichfield, yet so as that the same bishop is styled Bishop of Coventry and Lichfield. This noble cathedral was levelled to the ground by Henry VIII. at the time he destroyed the neighbouring monasteries, after it had stood nearly 500 years. In Dugdale's plan of Coventry, by Hollar, the space occupied by the cathedral and priory is a blank down to the river Sherborne and to Mill Lane, except a part of the cathedral ruins, reaching from about the north transept to the bishop's palace. The spot was afterwards converted into garden ground. Tanner says:—"The cathedral and the monastic buildings are all gone except the lower part of the western towers, from which some idea of the grandeur of the western front may be formed." The bishop's palace only retained the name, and was sold in 1647 to Samuel Lacey and others. A part of the site of the ancient cathedral was again consecrated in 1776 to be used as a burial-ground for Trinity parish. In June 1825, upon under-building a house at Hill Top, the ground was opened to a depth of 14 feet, when the south front wall of the cathedral, probably the transept, was discovered in perfect condition; the mouldings of the plinth, large and bold, commenced about 12 feet from the present surface, above which was the upright facing of the wall continued about 7 feet, its thickness being about 3 feet. The great central tower was standing in 1576, though despoiled of its steeple. A fine groined stone crypt and vault commenced under the eastern end of the cathedral and ran as far as the transept; it was said to be as much as 220 feet long and 15 feet wide. Several kings, queens and princesses visited this famous priory at various times, and took up their abode there, it having extensive accommodation and extending, with its offices, fishponds, &c., backward from the cathedral to the Sherborne. The sites of the different edifices are recognised by the naming of the streets by which they have been replaced.

NOTES AND COMMENTS.

IN the James Watt Laboratories of the University of Glasgow is a 100-ton universal testing machine, with variable accumulator. The machine consists essentially of a straining system embraced by a weighing system. The torsion apparatus will exert a twisting moment of 224,000 inch-pounds, and will twist in two a bar of iron $2\frac{1}{2}$ inches in diameter. The deflection apparatus has swivel supports to prevent indentation, and the presser-foot also has swivelling half-round pieces which spread the pressure over 6 inches of surface, while still allowing the specimen to bend freely. The steelyard of this machine has an arrangement of poise-weights constructed to meet Dr. BARR'S desire for a larger scale unit when measuring light loads, and has the effect of giving the same scale unit up to 100 tons, which was obtained on Dr. KENNEDY'S machine up to 50 tons, without materially lengthening the steelyard. The accumulator has a variable load consisting of ten 4-ton slabs, of which it can deposit any number up to nine on the base, and carry up the remainder.

TOPOGRAPHY has received so much attention in France and so many surveys have been prepared, it seems incredible that prior to the present year there was no cadastral plan of Paris. In June 1899 the Municipal Council voted funds for the work, which has cost about 1,500,000 francs. The direction was entrusted to M. FONTAINE, with M. TAXIL as chief surveyor. The scale adopted was 2 millimetres per metre or $\frac{1}{500}$, and the plan therefore measures 23 metres by 18 metres. The object of the survey was to ascertain and exhibit the number of properties within the 78,020,000 square metres forming the area of the city. It was found that on January 1, 1901, there were 88,587 properties comprising 84,882 "Maisons de rapport," 1,316 factories and 2,389 factories with residences. The annual value of the properties is put down at 879 millions of francs, which would yield an average income of 10,000 francs for each property. The total value is calculated at twenty thousand millions of francs. It being assumed that as some of the properties would not return 5 per cent., about $22\frac{1}{2}$ years purchase has been taken as the basis of the total value. The returns from the houses are not sufficient for the taxation which will have to be raised unless a higher rate is charged, and accordingly gardens and unoccupied ground will henceforth be assessed. Encouragement will also be given to building by the authorities in order to swell the amount from which a revenue can be derived.

THE participation of architects in the laying-out of gardens has been resented, but it would be an advantage if they or other artists who had made a study of colour were more often able to direct the arrangement of flower beds. CHEVREUIL considered gardens should be subjected to the laws of colour equally with tapestries, stained glass, &c. One reason for the continual repetitions which prevail is that owners of large gardens have not the courage to insist on the adoption of rules by their gardeners. The speech of Sir GEORGE DOUGLAS, Bart., which was delivered a few days ago on the subject at Kelso, is, it is to be hoped, a sign of revolt against the present arrangement. Sir GEORGE said that only once or twice, or at most five or six times, did he meet with a gardener who seemed to have a just notion of a flower's colour value; whilst when he remembered the numbers of gardens he had visited where the gardener's views of colour harmony seemed to be limited to one trite and hackneyed chord of scarlet geranium, blue lobelia, yellow calceolaria, he felt inclined to blush as red as "Lobelia cardinalis," or at least as "Vallota purpurea." Sir GEORGE DOUGLAS wished all gardeners to remember that they could be artists, as they possessed a finer palette than any painter. But unless owners will exercise their authority, and insist on the adoption of something more than the ordinary commonplace contrasts of colours, gardens cannot be considered as artistic, and only a partial advantage can be derived from a mass of beautiful materials.

THE firm of Messrs. SUGDEN & SON have been able to accomplish so much by their architectural skill for Leek and the surrounding district, it would be more than a

private loss if the business came to a close. The unexpected death of Mr. W. LARNER SUGDEN was a calamity, but the surviving representative of the firm, Mr. HARRY SUGDEN, has been fortunate in obtaining an auxiliary who is peculiarly adapted to support him on such an occasion. For over two years Mr. W. D. BLACK has been associated with the business, and he will have an opportunity of showing all his zeal as the partner of Mr. HARRY SUGDEN. Mr. BLACK is a native of Edinburgh, and for a time he was an assistant to Dr. ROWAND ANDERSON, and subsequently was engaged with Messrs. EVERARD & PICK, of Leicester.

THERE is a homely proverb about the unwisdom of putting all the eggs in one basket. It is, no doubt, very ancient advice, but timber merchants would find an advantage sometimes by accepting it as a guide. Messrs. WILLIAM OLIVER & SONS, of Bunhill Row, are now in a position to testify to the good sense of the proverb. The late fire, which did not, however, originate on their premises, has destroyed a valuable quantity of their timber, but as they had long ago adopted the precaution of storing timber in other yards they are now in a position to carry on their extensive business as if no conflagration had occurred. Their customers will not suffer the least inconvenience. As the front stage is saved all communications can be addressed as usual to 120 Bunhill Row. The numerous friends of the firm will be glad to hear that the losses have been fully covered by insurance; indeed, it would be remarkable if in any way Messrs. OLIVER did not exercise foresight in preparing to meet all contingencies. In order to obviate risk all the offices are lighted by electricity, and the "traveller" which has earned a rest is worked by the same power. There is no doubt that with so terrible a fire the consequences would have been lamentable, but owing to the prudent arrangements the premises will be soon seen in their pristine condition.

THE economy which now attends the study of architecture is exemplified in the series of large plates of the "Greek and Roman Orders," compiled and drawn by Messrs. MITCHELL, of the Polytechnic, and published by Mr. BATSFORD. The whole can be purchased at the rate of a shilling an Order. As the primary purpose of the series is to aid students who wish to pass examinations of the Board of Education, the style of representation does not suggest engravers' finesse, which no builder's apprentice could be expected to attain. The dimensions of details are less abundant than in the majority of the older plates of the Order, but they are more likely to be kept in remembrance. The plates are therefore well adapted for students, and their acquisition is a cheap investment, for the Orders are never likely to become disused. A third edition of Messrs. MITCHELL'S volume relating to the advanced course of building construction of the Board is also issued. Illustrations as well as pages have been increased in number, and the examination questions are brought down to 1901. The work deserves, if possible, still more success than before.

ILLUSTRATIONS.

CHATEAU DE JOSSELIN (MORBIHAN).

CATHEDRAL SERIES.—CHICHESTER: EAST CLOISTER AND SOUTH AISLE.

UNITARIAN CHURCH, BIRKENHEAD.

THE view of the exterior of the new Unitarian church, Birkenhead, has been reproduced from the drawing which was exhibited in this year's Academy. The commission was gained in competition among architects of Liverpool and Birkenhead. The materials employed are $2\frac{1}{4}$ -inch Ruabon wire-cut bricks with $\frac{3}{4}$ -inch white joints. The dressings are of Heswall stone. The roof is covered with Telberthwaite green slates. An interior view and plans will appear next week. The architect is Mr. J. JOSEPH TALBOT (WILSON & TALBOT), of Commerce Court, Liverpool.

THE EMPIRE, BRADFORD, AND VESTIBULE.

ORNAMENTAL LEADWORK.

By the late W. BURGESS, A.R.A.

AT the present time perhaps there is no metal considered less suited to the purposes of the fine arts than the subject of the present notice. However, the great artists of the Middle Ages thought very differently. Their architecture was (and always must be) eminently an architecture of figures and subjects, and accordingly they compelled even lead to bear its part in the great poem of Christian art. They cast it into ornaments, they hammered it into figures, and with the help of tin they executed imperishable paintings, which, when placed beyond the reach of man, have far more successfully resisted the ravages of time than the crumbling sculpture or the worm-eaten dossel.

At the same time it must be confessed that the intrinsic value of the material has but too often been the cause of its destruction, and although, as citizens, we can scarcely blame the French Government for melting even the historiated lead into bullets for the defence of the country, yet, as artists, we must ever deplore a necessity which has left us vestiges so few that our curiosity is rather stimulated than our inquiries gratified. I can, therefore, only pretend to put before you a very short notice of the various objects which our forefathers produced in lead and tin—beginning with those belonging to the Church—the great art patroness of the Middle Ages.

Roofs.

Let us imagine the architect had got up the carpentry of his roof, and then proceed to ascertain how he went to work to cover it; and here it may be premised that his roof is a very different one to those designed by the late ingenious Mr. Peter Nicholson. However, the only points of difference with which we have to do at present are—first of all, that there is no ridge-board, the rafters meeting one another at top whilst they are kept in a straight line by means of a ridge-beam below; the second point of difference is that the king-posts stand up above the roof for a considerable distance. In the thirteenth and early part of the fourteenth century, however, when continuous ridges were used, composed of isolated members as at Amiens or Exeter, the ends of all the king-posts, except that over the apse, were cut off, as they would not be wanted for the support of the ridge.

Now the architect, in those days as in these, had the choice of tiles, slates, or lead to cover his roof with, but then, as now, the latter was by far the most costly and the more esteemed. Still, even tiles and slates under his hands became beautiful. The tiles were covered with variously coloured enamels as at Mantes, while the slates had their edges cut into diver shapes, and were disposed in patterns according to their tints.

When lead was used it was generally very thick; that at Canterbury, I am told by Mr. Austin, runs about 12 lbs. to the foot. The roof being boarded, the lead was laid on much in the same manner as at the present day, except that the sheets were somewhat narrower (about 2 feet between the rolls), and that these latter were formed by turning over the sides of the sheets without the assistance of the wooden rolls used by the modern plumber. If there was no ridge the rolls were continued over the top of the roof and a little way down the opposite side, so as to allow the sheets to hang well on. If, however, there was a ridge the method was rather different. And here it may be observed that during the Middle Ages everything susceptible of having a ridge applied to it had one. This was the case even with the miniature enamelled "Bahuts de Limoges," and still more so with regard to the large silver chasses for reliques, some of the crestings of which are most beautiful, though of course treated according to the different nature of the material employed. The tile roofs had tile crestings, several of which have been discovered at Great Malvern, but the slate roofs were treated in a similar manner to the lead ones, to which latter we now return. We have hitherto supposed the roof to have been boarded and covered with lead, with the rolls continued over the apex. Now, as these rolls would interfere with the ridge they must be suppressed, and accordingly the sheets of lead are made to finish at some little distance (1 foot or more) from the top of the roof where they are turned in and nailed to the under side of boarding. The apex was not generally covered by two boards butting up against each other. On the contrary, it was thought better to cut a sort of trough out of the solid, and to apply it reversed to the top of the rafters, so as to form as solid a foundation as possible for the ridge. Irons in the form of an inverted Y were nailed on this inverted trough at proper intervals, and then the piece of lead forming the ridge piece having had corresponding holes cut in the middle was slipped over them. The next thing was to cast the various members of the cresting, to solder them together (for they could only be cast in halves), to slip them over the projecting irons, and lastly, to solder their lower extremities to the leaden ridge piece. When nails were used, the heads were covered with a

square piece of lead soldered at one end; and as this solder extends some way down, and is marked with the iron, at a little distance the whole looks like a coat-of-arms with a chef. Fig. I is from Amiens, and affords an excellent example of the very simplest form of ridge. Unfortunately there is nothing to tell the date by, as the fleurs-de-lys have been mutilated on one of those occasions when the French nation, wearied with kings, expelled the dynasty and defaced its badges. Most probably it is a sixteenth-century restoration of the thirteenth-century ridge; for the spire was burnt down, and with it part of the roof in 1527, and when restored shortly after, a very different form of ridge was in vogue. At Rheims the principal member of the cresting was 2 feet high and 1 foot 6 inches wide (French measure); that at Exeter is about 1 foot high by 10 inches wide. I am afraid that even the oldest part of the

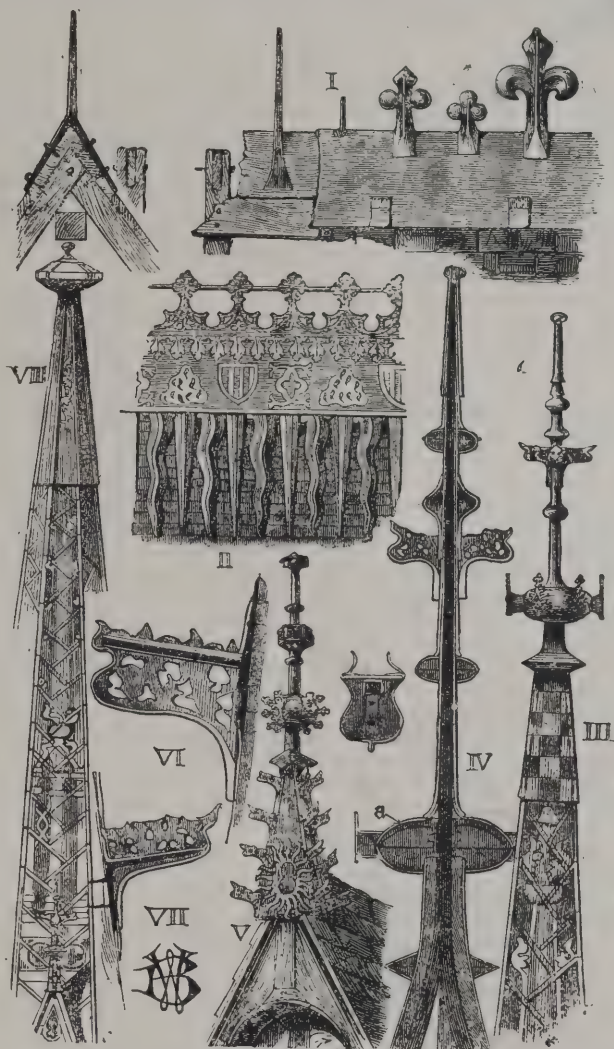


Fig. I. The Ridge at Amiens.

II. Ridge of the Château at Meillant, Seine-Inférieure.

III. Girouette from Angle-Pinnacle of the Spire at Châlons-sur-Marne.

IV. Section of ditto, showing construction.

V. Dormer, from the interior of the Quadrangle

of the Hospital at Beaune, near Dijon.

VI. Construction of the Crockets of the Amiens Flèche.

VII. Construction of a medium-sized Crocket.

VIII. Upper portion of the Spire of Notre Dame, Châlons-sur-Marne, showing the tinned ornaments.

Exeter ridge must be considered as a sixteenth-century restoration of an earlier one. Mr. Cornish who conducts the works of this cathedral has presented one of the ornaments to the Architectural Museum, where it is now to be seen; it is very badly cast and ill-adapted for its position, as the upper part is heavier than the lower.

The next modification of these simple forms is to be seen at Noyen, where a cusping is attached to the bottom of the trefoil or fleur-de-lys; this cusping being supported on two sides would have strength enough to keep it straight and not to sag by its own weight. This example is about the middle of the fourteenth century.

I must now go for authorities to the work of M. de la Querrière, who has given several specimens of ridges, but unfortunately has said nothing concerning their construction, which, however, was all upon the same principle; and we now see why the king-posts are carried up, for to them is nailed at some distance above the apex of the roof a bar of iron covered

loosely with lead. The ridge, which is always of an open and delicate pattern, is cast in two halves as usual (except when it is very light and open), is then soldered at bottom to the ridge piece, and at the top to the lead pipe covering the iron bar.

Occasionally, as in the Hôtel de Bourgtheroulde, at Rouen, the cresting is divided into two parts, one of which is fixed above and the other below the iron bar. In this case the upper portion is always the lightest, but still should always be kept very subordinate, as on account of having nothing to support it, it is liable to sag. De la Querrière tells us that in this instance it had disappeared.

Where slates were used, another decoration to the ridge piece was the application of long-pointed strips of lead alternately pointed and curved. These were cast and soldered on to its lower extremity; they occur at the Château Meillant, Seine-Inférieure, at the house of Jaques Cœur and at the Hôtel Cujas, Bourges.

Girouettes.

One of the objects of permitting the king-posts of roofs and the centre posts of spires and dormer windows to project was to get something on which to fasten the girouette, epi, finial or weathercock. These girouettes must have been one of the principal features in a Mediaeval town. Every house had one, if not several, and although there were laws occasionally passed restricting particular forms of vanes to the nobility, there were none that I know of to prevent the bourgeoisie having theirs in the shape of animals, birds, &c.

The girouettes, although remaining in far greater numbers than the ridges, are if anything even more difficult to get at for the purposes of study, inasmuch as they are placed on the most elevated parts of the edifice, and nobody ever cares to take them down until the building itself is destroyed. However, I have been so fortunate as to meet with one in the possession of M. Benvignac, of Lille, who kindly afforded me every facility for examining and drawing it. The construction is as follows:—An iron rod, the length of the proposed girouette, is split at the end into four feet, which are made rather long and broad, in order to fix it securely on to the king-post; this part is secured from the weather by a square hollow pyramidal covering of lead resting on the rafters and ridge of the roof; the rest of the rod is covered by a lead pipe, to which are attached various ornaments. This principle applies to the construction of all girouettes, the only difference consisting in the ornaments which, in the greater ones, will be found to be larger and more complicated; the lead pipe in these latter is made in several pieces, and each part of it supports itself upon the one below, which generally terminates with a flattened sphere or some other ornament adapted to the purpose. The upper piece of all which rested on the top of the iron rod had the plate of copper forming the vane soldered on last, and Mr. Potter, of South Molton Street, informs me that in the ancient work these upper pipes had a piece of agate inside, so that there might be less friction on the top of the iron rod; but in the present day gun-metal is used instead. The vane itself was painted with the arms of the proprietor or else gilt.

It is a curious thing that Chaucer as well as several other authors mention the harmony made by the vanes as something to be admired. Whether this is simply an exaggerated poetical expression for the creaking noise a number of vanes would collectively make, or whether each vane turned some mechanism concealed in the lead ornaments below, or whether the vane being double, the wind by blowing in between produced a noise like that of an Æolian harp, it is almost impossible at this time to decide.

The hospital at Beaune in Burgundy is the only building I am acquainted with which has preserved the whole of its girouettes and which can give us an idea of the effect produced by a number of these decorations; but inasmuch as they have all been restored and repaired, I can hardly consider them as quite safe guides with regard to the lead ornaments, although these latter themselves are pretty authentic, as several of the ancient stone moulds are preserved, and have been made to do duty again. During the Middle Ages the moulds for running lead ornaments were often made in stone. There is a mould formed in what is called the Speckstein, a lithographic stone, preserved among the collection of leaden tokens in the British Museum. See also the Bristol volume of the Archæological Institute with regard to a mould for pilgrims' tokens, said to have been found in the catacombs at Rome.

The general arrangement of the ornaments appears to have been this: the square pyramidal base was decorated at the sides with crockets; these in the Tournay specimen are flat, cast in lengths of three and then soldered on to the edges. In larger examples than this the crockets resemble those placed in the upper part of the girouette and described hereafter. A gilded sun, very thin and very open, was often fixed to the front of the base.

The space between the base and the weathercock is for the most part occupied by three tiers of ornaments. The

lowest consists of a flattened sphere, from which project sundry square or cylindrical short pipes, ending in stars or quatrefoils or masks, but more generally in a lozenge-shaped ornament, surmounted by a pediment; these several parts are cast separately and then soldered together. When this lower ornament is very large, as often happens, it requires to be supported by irons which are attached to the centre (iron) stem; of course in this case the lead pipe is interrupted. The ornament in the second tier is often a repetition of the one below, only smaller. Occasionally it takes the form of an open vessel, and does duty as a bird's-nest. They would appear to have been as fond of birds in the Middle Ages as they are now of storks in Holland and Upper Germany, where a nest is regularly made upon the top of the house against the bird's return. The last stage generally consists of a finial, formed of four or more crockets. These crockets are cast in halves, soldered together, the stems again soldered to the lead pipe and the inner leaves to each other. This, if they are not very large, will be sufficient to support them; if, on the contrary, they are rather large, each crocket has a thin piece of iron covered with lead (copper will do alone), one end of which is soldered to the lead pipe and the other to the extremity of the crocket. And while on this subject it may be as well to show how the largest crockets, such as those on the spire at Amiens, which are 1 foot 6 inches long, are managed. An iron, about 1½ inch square, has its end split into two parts, so that it resembles the letter T; the split part is nailed on to a single rafter, and the other, which juts out, is covered with lead; on the upper surface is soldered a piece of very thick lead, to which some of the upper leaves of the crocket are soldered; the end leaves next the rafter and the stalk are, of course, fixed to the lead covering of spire as usual. Another way of treating the medium-sized crockets was to make the iron in the form of an L, fixed in a similar manner; the projecting part covered with lead as usual, is soldered to the inside of the back of the crocket, in the body of which two holes are bored to let out the wet. The crockets running up the sides of dormers are usually executed in this manner.

But to return to the girouette. A very favourite ornament for their upper parts was four or more thick iron wires covered with lead, the ends of which are fixed into a thick square horizontal piece of lead soldered on to the pipe; a little higher there is another horizontal piece of a circular form, to which they are again soldered; the extremities of the wires end with flowers or balls.

Figures.

Another very favourite finish for a roof, especially at the east end, was a figure of the patron saint, beaten out in lead. The following extract, given by M. de Laborde, from the accounts of St. Maclou, Rouen, gives us some information upon the subject, as well as the names of the artists. "1514. To John Pothyn, sculptor, for having carved a prophet in walnut wood, to serve as a mould and pattern for the works in lead. All then the plumber had to do was to hammer sheets of lead over the wood statue until they fitted to the shape; these were then cut off and soldered together again with an iron frame work inside, to prevent the figure from getting out of shape and as a means of securely fixing the whole affair. At Paris where several of these figures have lately been executed for the Ste Chapelle and elsewhere, cast-iron moulds are substitute for those in wood, as will be seen by the following notice which I owe to the kindness of M. Gerente, of Paris:—

"You were correct in thinking the angel at the chevet of the Ste Chapelle is made of lead. Wood and lead are the only materials used in the flèche; for all the flat surface cast-lead is employed, but for the ornaments and figures miller lead is hammered on to cast-iron moulds. In a few instances lead castings are met with, such as the suns in the arcade. There is no zinc used at all. The moulds for the figures are made, of course, in several pieces; the different parts of the figure having been beaten up upon them, are joined together, soldered inside, and the joinings outside made with the hammer. As to the decoration, there is no tinning at the Ste Chapelle, but merely gilding, which is done with two coats of oil, yellow tint-varnish, and over it gold in leaf."

There is one difference between the ancient and modern leaden figures, which I think perhaps deserves to be noticed. The latter are soldered together like a modern work in bronze, i.e. the whole of the surface is homogeneous. Now, as far as I could ascertain by reference to the figures on the spire at Amiens, the former (i.e. the ancient ones), although soldered in parts, are nevertheless in two or three pieces, the joint probably being made by means of a lap as in roofs, and the places of junction concealed by means of the folds of the drapery; in fact, in a similar manner to the ancient bronze statues of the Herculaneum.

The same method was carried out in detached pieces of carpentry covered with lead, such as pinnacles, where one (if not two) of the edges is made by a lap—never by solder. It would appear to have been a principle to lay the lead as loe

as possible and to be very sparing in the employment of solder. It still remains to be proved which is the better of these two ways of constructing figures in lead—that of the moderns is certainly the strongest; the only fear would be the chance of it cracking for want of the necessary play for expansion. The figure most generally placed on the abside of a cathedral was a gigantic angel, which was so contrived as to answer the purpose of a weathercock by means of the wind acting on its wings. There are examples at Chartres and Rheims—the former is modern, the latter doubtful. At Evreux the crest ended in St. Michael and the dragon; at Rouen with a St. George; but of all the leaden figures which have come down to us, few exceed those on the flèche or spire of Amiens Cathedral, as large as life, and representing Our Lord, the Blessed Virgin, St. Peter, St. Paul, St. James, St. Firman and St. Ulpha. Above them are smaller figures of angels bearing the instruments of the Passion. This flèche is truly a *chef-d'œuvre*, whether we consider it with regard to its carpentry or its leadwork. Among the many beautiful wooden spires still left us in France, this is beyond all comparison the best. Every decoration possible to lavish upon it in the way of leadwork has been bestowed, and that with no sparing hand. Statuary, foliage, gilding, tinning, painting are all there, and well did it deserve its title of the golden steeple.

Flèches.

The wooden flèche or steeple was one of the chief features of every cathedral in France, where we so seldom meet with the centre tower. Chartres formerly had two flèches, one in the usual place at the intersection of the transepts, and the other between this last and the angel on the chevet. Its destination was to contain a bell, which was rung from inside to warn the ringers in the great towers when to sound the great bells. There are still two beautiful flèches remaining at Rheims and Evreux, the latter of which is pierced with openings nearly all the way to the top. In fact, so solidly were these charming little edifices constructed, and so scientific was the application of the timber and the lead, that very few indeed have perished from the effects of time compared with those destroyed by some disastrous fire, and yet in spite of this it is proposed to put a roof and flèche of iron and zinc upon the restored cathedral of Cologne.

Dormers, &c.

The only thing now wanted to complete our roof will be the dormers and air apertures. As to the former, it is simply an affair of covering the work of the carpenter, with the addition of the cresting and girouette. They deserve notice, however, as it is on their recessed pediments and on their sides, so well protected by the eaves, that the plumber applies his polychromy.

Of air apertures there is a charming example at Beaune. It is in two pieces; the front one is cut out, beaten up and soldered to that at the back, the flanges of which are inserted below the slates. It may best be described as a miniature dormer, entirely formed of lead, no wood being wanted to keep it in shape as it is so very small.

At Lincoln the lead of the gutter, which is relatively high up, is continued outside over the stone parapet, where it is beaten up into an octofoil ornament. I have been able to learn no particulars concerning this beyond the fact that part of it has lately been destroyed.

Water-pipes were a comparatively late invention, and can hardly be said to have been used in the Middle Ages. When, however, they did come into use they were made ornamental with colour and gilding.

Polychromy.

The architect having thus finished his roof, which, we may observe, was an affair calculated to last for four or five centuries, not simply ninety-nine years, neither more nor less, he thought that as so much pains and expense had been taken to make it strong and beautiful, it was worth while to go a little further and give it all the advantages of colour. How was this to be carried out? Direct polychromy could only be used in the more protected parts; and oil gilding, although in some situations very effective, hardly contrasts sufficiently with the lead to make it desirable to employ it in large quantities, to say nothing of the excessive expense.

The problem was solved by the use of tin, whose imperishable brilliancy contrasted well with the dulness of the oxidised lead, and which, being applied by fire, became part and parcel of the latter metal, and could neither be washed off by the rain like the gilding nor cracked by the sun like the oil painting.

The process of tinning is thus performed: the lead, being first of all covered with a tolerably thick coating of lamp-black and size, and the pattern traced with a point, all that part of the surface to be tinned is removed with the shave-hook, so as to leave it quite clean and bright; a little sweet oil is then rubbed over, and the solder applied and thinly spread with a copper bit in the usual manner.

The next thing, of course, was to fix the lead in the position

it was designed to occupy, for the tinning was done in the workshop, although occasionally it was performed when the lead had been up many years. Thus the spire of N. D. at Chalons-sur-Marne was probably constructed in the fourteenth century, but we must refer the tinning to at least a century later. In this case the process was the same, only much more tedious, as the workman was only able to apply so much tin as the end of his axe-bit would take up, and accordingly we find the work in the instance under consideration very coarse and rough, contrasting strongly with that on the dormer window at the east end of the same church.

All the leadwork of the roof was more or less susceptible of this decoration, but it was generally confined to the more ornate parts, such as the bases of the girouettes and the dormer windows, but more especially to the ridge pieces, which latter contrasted well with the long dark body of the roof, which was left plain. Almost all the principal Mediaeval edifices of France present more or less of this decoration; but I am not aware that any traces of it are to be found in England, although M. Durand, who executes the leadwork for the Sainte Chapelle, informed me that he had heard of some existing in England—he thought at Shrewsbury.

The places where gilding was applied are generally betrayed by the yellow or reddish colour mixed up with the oil, which formerly served to attach the gold leaf now washed off by the weather. In almost every instance, however, the gilding has in its turn preserved the mordant, and we are thus enabled to detect its position. The large figures terminating the crests were formerly gilt, and occasionally the ridges. To such an extent was this practice carried that Charles IX. issued an edict forbidding the inhabitants of towns to employ gilding on the exterior of their habitations.

It has been before observed that the recessed pediments of the dormers, their sides—when protected by eaves—and other sheltered situations received polychromatic decorations. The colours were not applied directly upon the lead, but upon a tinned surface, the lines alone being left to oxidise. The oil colours used upon the tinning were transparent, so that they might receive the full benefit of the brilliancy underneath; these paintings were easy to restore, for their outline was unalterable. I should imagine the subject upon the cheek of the dormer at Chalons-sur-Marne to have been originally coloured, although only the tinning and a few traces of the mordant of the gilding remain. This supposition is rendered more likely from the relation of M. Barbar, an old inhabitant of the town, who told me that when a boy, at the beginning of the century, he lived close to the church, and that one night a piece of lead fell down from the roof into the yard, the which piece was enriched with a variety of positive colours, such as red, green, &c. The plumber to the hospital at Beaune also informed me that traces of colour were found on the girouettes when under the process of restoration. According to his account the colour was thus distributed: the bases were painted in chevrons in red (and tin); the stems had a ribbon pattern; the rondels were blue, and the ornaments gilt. At present the only perfect specimen of polychromatic decoration upon lead I can refer to is on the inside of the second stage of the Amiens flèche.

Window Leads.

After covering the edifice the next important employment of lead in ecclesiastical art will be found in the windows. Now the old lead for this purpose was cast, not milled; it was also much narrower than the modern, but contained, if anything, more metal. The consequences are that much of it is good up to the present time, while our flat, broad, milled window-lead, having its grain broken by the milling and presenting a very thin and very broad surface to the air, becomes rapidly deteriorated. At Beauvais I saw some lead which was probably put up at the end of the last century, quite in a state of oxidation, and at Tournay, where the whole of the immense windows of the choir have been filled with stained glass, at no very distant period a very large expense will have to be undergone to fresh lead the whole, as nothing better than the common cottage window-lead has been employed.

Theophilus, in his excellent treatise on the arts of his time, gives us a rather long description how these glazing-leads were cast, two sorts of moulds being employed indifferently, viz. those in wood or those in iron, of which the latter were, of course, preferred on account of their superior durability. The lead was cast in pieces about a yard (ulna) long, and when wanted to be soldered together the two pieces were anointed with wax, lead was rasped over the surface, and the tin applied with the soldering-iron.

For the purposes of ventilation in domestic work it was customary to cast perforated leaden quarries. A specimen of these may be seen at the Architectural Museum.

Fonts.

Mr. Albert Way, in vol. vi. of the *Archæological Journal*, has enumerated no less than twenty-two leaden fonts as remaining in England; they are almost all referable to the

Norman period, and present the same general features in the design, which consists for the most part of figures seated within circular-headed arcades, with a band of foliage at the top and bottom of the compositions; sometimes the figures are all the same, sometimes they alternate with scrolls, and sometimes a totally different arrangement was followed, as at Brookland, Kent, where there are two ranges of arcades, the lower containing the labours of the months of the year, the upper the signs of the Zodiac. At Llancaut and Tidenham are fonts both cast in the same mould. I suspect that in these fonts separate wood moulds of the arcades and figures were impressed on the sand and the whole cast flat, and subsequently bent into shape and soldered together. The finest lead font remaining is to be found in the cathedral of Mayence; it is of immense size, suitable for immersion. The date is the fourteenth century, and the ornaments consist of edge tracery and figures in relief.

In the museum at Amiens is a font which deserves particular notice from the remarkable manner in which it is fabricated. All the ornaments, the tracery, the buttresses, the arch mould and label and the figures can be detached by removing certain rivets; it is, in fact, treated exactly as if it were made of iron not of lead.

Coffins, &c.

As our life begins at the font, so it ends with the coffin, and here we see the artists of the Middle Ages lavishing their pains and labour on an object which certainly stood the smallest possible chance of ever again being beheld. The ornaments on the coffins of the noblemen buried in the Temple Church are quite worthy of the golden period of art in which they were produced. They appear to me to have been executed much in the same manner as the ordinary lead fonts, viz. by impressions of wooden moulds upon the sand, the sides, top and bottom being cast separately and then soldered. Some of the ornaments were formed by imprinting ropes in the sand. The cist found at Lewes containing the remains of Gundreda, the wife of the Earl de Warren, was decorated with a lozenge-pattern cast from impressions of ropes.

Lead was occasionally employed in filling up the incised lines of monumental slabs. There are several examples of this at Chalons-sur-Marne, but I must confess I do not see any advantage it affords over the dark cement generally used for the same object, for it is apt to oxidise, and if not continually swept gets indurated with dust, and ends by becoming almost the same colour as the stone itself.

Lead or pewter is also occasionally employed instead of white enamel for the "argent" in armorial bearings found on monumental brasses.

The joints of tracery and other parts of the masonry, where it was thought undesirable to wait for the setting of the mortar, are often found run with lead. This system obtains a good deal in France at the present day; for instance, the whole of the restored tracery in the triforium of Troyes Cathedral is set in lead. In some cases it cannot be said to be without its disadvantages, for in the chapter-house at Salisbury a very great many of the neckings of the columns of the arcades were found to be split off at the point where the hole had been drilled for the lead to run into.

Lead is occasionally found doing duty for carving in wood and stone even during the Middle Ages. The practice is, I think, by no means to be commended, and the less said about it the better.

Lead for Domestic Uses.

There now remain a few words to be said upon lead and its alloys in the domestic life of the Middle Ages. When in 1260 Etienne Boileau compiled his book of the trades of Paris, the workers in pewter were sufficiently numerous to be divided into two companies, one called the "potiers d'étain" and the other the "ouvriers de toutes menues œuvres." The former produced the pewter vessels so universally in use in the households of high and low, while the latter fabricated the mirrors, the pilgrims' tokens, the little bells for horse furniture, the charming little boxes made of wood and covered with perforated cast-lead, the studs and ornaments for girdles, purses, &c.; in short, he was the jeweller of the poor.

In the latter part of the Middle Ages the potier d'étain, or pewterer, became quite an artist, for the works of François Briot are sought after by collectors of the present day with as much eagerness as those of Luca della Robbia. The latter, in order to multiply his works, from a sculptor became a worker in clay, and the former, for similar reasons, quitted the profession of a goldsmith for that of a pewterer.

It is generally supposed that Briot's pewters are but proofs of his works in the precious metals, and, in fact, that he never abandoned his former profession. In support of this we are told that it was the custom of the goldsmiths to run proofs of their works in pewter, and that Cellini recommends the practice and did the same thing. As regards the first argument, it is singular that we should have so many proofs (very often duplicates) of the works of Briot, and none of his contempora-

ries; and as to Cellini, a reference to his work, "Trattati dell' Oreficeria," ch. xiii. will show that he only recommends sundry small ornaments (intended to be joined to *repoussé* work) to be modelled first in wax, then cast in lead, and finally cast in silver; for he says, "you can reduce the lead thinner than you can wax, and it will serve for another occasion." From the context it would appear that the articles cast were very small, and that the last intention of Cellini was to use them as an article of commerce. We may therefore suppose that Briot, who was a contemporary of Cellini, was simply a "potier d'étain," but that he took the higher branch of it, viz. the manufacture of those pewter vessels which we find catalogued in the inventories as "à façon d'argent."

Few or none of the larger pewter vessels of the thirteenth, fourteenth and fifteenth centuries have come down to us beyond the half-decayed chalices and patens occasionally found in the tombs of ecclesiastics. The book of Etienne Boileau is quite sufficient to show that large quantities of it were manufactured; besides, we have the testimony of Theophilus, who gives a description as to how the ampullæ of tin were made. No doubt the fusible quality of the material has been the cause of the deficiency; yet we can scarcely regret it being melted into such works as Briot and his German imitator have left us.

There are two articles manufactured by the lesser pewterer which call for some little notice:—First, the counters, or mercaux, which are supposed to have done duty instead of copper coinage; and, secondly, the mirrors. These latter, we are assured by Vincent de Beauvais, were made by pouring hot lead over glass; and it is just possible that such a method might succeed if the glass were kept up to a sufficiently high temperature. Whatever might have been the process, it is a certainty that glass mirrors with lead applied behind them were well-known articles during the Middle Ages.

From Theophilus we learn that manuscripts were ornamented by means of tin ground into powder and applied with gum, much in the same manner as we now use gold-shell; and a varnish composed of saffron completed the imitation of the more valuable metal. Tin was likewise beaten out and used instead of gold-leaf—varnished, of course; but the most curious application of it was to form the ground of what the good monk calls a translucid picture. A surface, covered with burnished tinfoil, had a subject painted upon it with transparent oil colours, a procedure which, I suspect, was followed with regard to the blank windows, painted in imitation of stained glass, in the cathedral at Florence.

Thus we have seen, although in a very imperfect manner, how important a part even the vilest of the metals played during a period when art was universal, and applied to all the purposes of life. The history of a metal becomes under these circumstances the history of almost all the arts of the period. At present, unfortunately, we have no distinctive art, and although much might be written concerning the useful purposes to which lead and tin are applied, I am afraid their art history would be very small indeed. However, within these last few years we are beginning to amend; and, indeed, it would be folly to despair of an age which can produce such a picture as the *Huguenot* of Mr. Millais.

ART EXHIBITIONS IN JAPAN.

THE Tokio correspondent of the *Times* writes:—For some years past it has been customary to organise art exhibitions in Tokio every spring and autumn. Originally this enterprise was under the sole auspices of the Bijutsu Kyoshinkai, or "Art Union," which enjoyed influential support and was connected with a school of art receiving a substantial measure of Government assistance. By-and-by another association, the "Glyptic Society," entering the field, made arrangements to exhibit articles representing its own specialty and at a still later date several prominent experts, seceding from the Fine Arts School, established a rival academy of their own, and were soon able to advertise a competitive gallery of pictures and other art products. Finally, the lacquer manufacturers formed an independent union, and they too give periodical displays, so that there are ample opportunities for estimating the progress and present condition of Japanese art.

The general fact established by these exhibitions is that in every field of art Japan has made substantial advances during recent years. It has long been habitual with the European and American collector to maintain the opposite view. He has insisted that the work of pre-Meiji artists stands far above that of their modern successors, and that no man of educated taste would seek to acquire examples of the latter so long as specimens of the former remain procurable. That was a true verdict with regard to the outcome of a brief interval after the fall of feudalism, when the Japanese artist suddenly deprived of the munificent patronage he had enjoyed for centuries, and confronted by bewildering novel conditions, fell out of touch with his old standard

and sought to supply their place with false conceptions of Western taste. But the aberration did not last long. It was soon succeeded by a wholesome conviction that the road to achievement lay, not in pandering to public taste, but in educating it, and thus for the past twenty-five years Japanese artists have been steadily ascending to higher and higher levels. Possibly in the field of pictorial art this appreciation may be queried. It is difficult, however, to make any accurate comparison, for the past displays to us only its masterpieces, the works thought worthy to be treasured and preserved, whereas the present shows us its bad as well as its good, and we are apt to forget that excess of the former must have been a feature of other eras also. But, if the pictorial ground be debateable, nothing of the kind can be said of applied art. There the verdict is certain. In lacquer the Japanese are at least as great as they ever were, while in cloisonné enamel, in sculpture, in ceramics, in textile fabrics and in metal casting they have quite distanced their predecessors. It is, perhaps, misleading to set up any comparison between past and present in the matter of cloisonné enamel, for, with due apology to the treasures of collectors who attach value to the mere age of a specimen and have been greatly misled by ill-informed English authors, the hard fact must be stated that the art of successful cloisonné enamelling is not more than forty years old in Japan. Enamels were used, indeed, for decorative purposes at a very much earlier period, but they always occupied a subordinate position, and it does not appear to have occurred to Japanese artists that they could hope to imitate the specimens occasionally sent to them from China—specimens having the whole surface covered with enamels in cloisons. The first serious attempt to follow these models was made in 1838, and not until about 1860 were pieces produced showing artistic merit. Even then several years elapsed before these Japanese examples grew famous for harmony and richness of colour combined with fine technique, and the public had to wait still longer for the cloisonless pictures and exquisite monochromatic and translucent enamels of recent years. It is difficult to conceive the possibility of further progress. But in the meanwhile a curious achievement has to be recorded. The Japanese have now shown that they can imitate with absolute fidelity the finest enamels of the Chinese masters in the later Ming and early Tsing eras. This essay appears to have been undertaken by way of pastime, or, perhaps, for the sake of silencing critics who, while admitting Japan's excellence in her own lines, denied her capacity to follow the solid, restful and admirably decorative models of the old Chinese masters. Her artists seem to have experienced no difficulty in refuting the assertion. They are to-day making, by way of variety, enamels indistinguishable from choice examples of Wanlieh and Kang-hsi skill, and it is not improbable that collectors in Europe and America will soon be paying high prices for so-called "Chinese antiques," just as worthy to be admired as their originals, but still imitations after all.

This proof that Japanese workers in enamel, stepping out of the route where they are absolutely unique, can meet and compete successfully with the Chinese master on his own ground is less interesting than another fact demonstrated by the exhibition now drawing to a close in Tokio. Just as the ignorance of linear perspective shown by Japanese painters in past times seemed hard to reconcile with the closeness and accuracy of their observation in other directions, so their inability to sculpture correctly the attitudes and contours of the human figure contrasted strangely with their admirable studies of facial expression, drapery and the dynamics of motion. The conclusion drawn was that anatomical facts escaped their notice, and that the defect could not be remedied without scientific training. But that inference was completely falsified some thirty years ago, when an artisan (Matsumoto Kisaburo), a man in the rank of an ordinary mechanic, suddenly began to sculpture wooden figures as faultless anatomically as the works of Greek masters. Without special education of any kind, without even an opportunity to study models in a studio, not only did Matsumoto prove the unerring accuracy of his observation, but his pupils and successors also evinced the same capacity. Their fault was over-realism; their works were entirely objective. Still they showed that even the commonest class of artists in Japan can accurately model the surface of the human body without knowing anything about the underlying bones or muscles. It may be noted *en passant* that proof of a similar faculty has been given by modern Japanese painters. The best of them in former times never limned anything resembling a real tiger. They painted a tiger's skin admirably, but what they put inside the skin was a fabulous monster. They had never seen a tiger. But now that Western civilisation has brought the circus in its train, they are able, having seen, to place that already perfect skin upon an irreproachable mass of ferocious, snarling energy, true to life in every detail. As for Matsumoto's school of wood-carvers, the element of idealism wanting in their work has now been supplied by experts of the

Art Academy, who sent to the Tokio exhibition sculptures of the very highest merit, quite faultless anatomically, and showing grace, tenderness and softness such as never previously distinguished Japanese carvings in wood. Since the seventh century the glyptic artist in Japan has been able to depict majesty, ferocity, benignity and decrepitude, alone or in combination, and since the sixteenth his chisel has produced, with unsurpassed fidelity, birds, flowers, insects, fishes and other natural objects. But only now has he attempted to show the normal human figure in its gentle, pathetic, passionate and tranquil aspects. In this field he seems likely to achieve what has long been hoped from him—the union of modern technical methods with old and purely Japanese artistic instincts.

The work of the Japanese keramist of to-day, though little can be claimed for it in point of originality, is also seen to have made remarkable strides. Some ten years have elapsed since, ceasing to think only of following in the footsteps of his predecessors, he turned his attention to Chinese porcelains as the best types for a new departure. Chinese céladon always commanded the highest esteem in Japan, as, indeed, it did in the land of its origin. Yet the Japanese of pre-Meiji days could never imitate it to his own satisfaction. Even the most delicate and velvety glazes of the Nabeshima experts seemed palpably inferior in artistic eyes to the Kwan-yao of the Sung dynasty and the Lung-chuan-yao of the Ming. But of late there has been a long stride of progress. It is true that the Japanese connoisseur still affects to despise the modern céladons of his own country as compared with their early Chinese prototypes. He cannot deny, however, that either Séifu of Kyoto, or Miyagawa of Ota, or Kato of Owari can produce céladons quite equal to the lace-surfaced or pure monochromatic wares of the Kang-hsi and Chien-lung kilns. Céladon, indeed, is no longer regarded as a technical feat in Japan. A higher ambition is to rival the celebrated Lang-yao (sang-de-bœuf), Chi-hung (liquid-dawn red), Sung-Chien-yao (black with silver streaks and dead-leaf dappling), and Ming-Chien-yao (ivory-white); nor can it be denied that beautiful, though not completely successful, specimens in these special lines are manufactured to-day. What the last exhibition shows, however, is that, contrary to the predictions of many connoisseurs, the grand blue sous couverte of the Kang-hsi and Yung-ching eras can now be obtained in all its deep, lustrous purity by Japanese artists, and that they can also "reserve" blue designs in a field of canary-yellow as successfully as did the greatest of Chinese experts in the golden eras of the seventeenth and eighteenth centuries. It remains for them to achieve the Yung-la egg-shell and the soft-paste Kaipien-yao; but truly, looking at the feats they have already accomplished, it would be rash to predict failure for them even in these unique porcelains.

Independently of the interest attaching to this story of artistic progress, it has a moral, namely, that the time has come for Western collectors seriously to compare their unreasonable esteem for "old curios" with their indifference to the beautiful products of modern Japanese art. There are, indeed, a few special objects of which the finest types belong to bygone days. But, on the other hand, there are many modern works which are quite without rivals in the past. It is not only senseless that the amateur should cling to his conservative fancies, but it also exposes him to be the victim of perpetual deception, for, if the Japanese of the Meiji era can surpass their predecessors, they are evidently able to imitate them, and they will not cease to imitate them for the special benefit of the shallow collector so long as a mere pretence of age enhances the pecuniary value of a specimen in his eyes.

REGISTRATION IN CALIFORNIA.

A LAW has been enacted in California to regulate the practice of architecture, and under its provisions a State Board of Architecture has been formed and rules adopted for the guidance of the members of the profession in taking out licenses. There are ten members of the board, all appointed by the Governor of the State. Five of them are residents of the northern part of the State and the other five of the southern part, and all must be members of a "chapter of the American Institute of Architects or some similar institution or association of architects." The term of office is four years, except in the case of four members of the original board, who have been appointed for two years. The members serve without compensation from the State, and the expenses are raised by fees collected from applicants for certificates to practise. The officers of the present board are as follows:—President, Octavius Morgan, Los Angeles; vice-president, Seth Babson, San Francisco; secretary and treasurer, Merritt J. Reid, San Francisco; assistant secretary and treasurer, Fred H. Roehrig, Los Angeles.

For administrative purposes the State is divided into Northern and Southern Districts, with offices at San Francisco and Los Angeles respectively. The members from the two

sections, five from each, are grouped into district boards, each having a seal distinct from that of the whole board. The latter meets once a year regularly, and on other occasions at the written request of four members and after twenty days' notice. The district boards meet at their offices on the last Tuesday of January, April, July and October of each year for the examination of the applicants for certificates to practise, and at such other times and places as they may elect.

Any person is entitled to such an examination on payment to the district board of a fee of 15 dols. If the examination is passed a further fee of 5 dols. must be paid to the secretary for an official note of the fact, addressed to the Secretary of State. On the presentation of this note to the latter officer and the payment to him of another 5 dols. fee the candidate will receive a certificate or license to practise, containing a statement of his full name, birthplace, age and the district board before which he appeared.

Any architect in good standing who can prove to the satisfaction of the board of the district in which he resides that he was practising his profession on the date of the passage of the Act will be granted a note of this fact without any examination on payment to the board of 5 dols., provided the application is made within six months of the passage of the Act. On receipt of this note and another fee of 5 dols. the Secretary of State will issue a certificate stating that the person named is authorized to practise.

Every licensed architect must have his certificate recorded in the office of the recorder of every county in which he practises, the fee being the same as for recording deeds. A failure to have a certificate so recorded is sufficient cause for revoking it.

The penalty section of the Act establishing this system of licenses is as follows:—"After the expiration of six months from the passage of this Act, it shall be unlawful and it shall be a misdemeanour punishable by a fine of not less than 50 dols. nor more than 500 dols., for any person to practise architecture without a certificate in this State, or to advertise, or put out any sign or card or other device which might indicate to the public that he was an architect, provided that nothing in this Act shall prevent any person from making plans for his own buildings, nor furnishing plans or other data for buildings for other persons, provided the person so furnishing such plans or data shall fully inform the person for whom such plans or data are furnished that he, the person furnishing such plans, is not a certificated architect, provided that nothing in this Act shall prevent the employment of an architect residing out of the State of California to prepare plans and specifications for buildings or other structures within the State, conditioned, he shall present satisfactory evidence to the board of the district in which the structure is to be erected that he is a competent architect, when such board shall issue to such architect a temporary certificate for such employment upon the payment of a fee of 5 dols. Architects' certificates issued in accordance with the provisions of this Act shall remain in full force until revoked for cause, as hereinafter provided for in this Act. A certificate may be revoked for dishonest practices, or for gross incompetency in the practise of the profession, which question shall be determined by the district board of the district in which the person whose certificate is called in question shall reside, or shall be doing business, and upon a full investigation of the charges by the district board, an opportunity having been given the accused to be heard in his own defence or by counsel, and upon the verdict of at least four members of the district board, the board may issue its certificate to the Secretary of State revoking the certificate of the person accused, and the Secretary of State shall thereupon cancel such certificate. And on the cancellation of such certificate it shall be the duty of the secretary of the district board to give notice of such cancellation to the county recorder of each county in the State, whereupon the recorder shall mark the certificate recorded in his office 'cancelled.' After the expiration of six months, the person whose certificate was revoked may have a new certificate issued to him by the Secretary of State upon the certificate of the district board by which the certificate was revoked."

All plans issued from the office of a certificated architect must be impressed with a seal having his name and place of business, and the words "certificated architect." A rubber stamp is not sufficient.

Each member of a firm practising in the State must have a certificate.

The rules concerning examinations recently adopted by the board read as follows:—

The regular class examinations shall occupy not less than two days. One day at least shall be devoted to written examinations, and one day shall be devoted to ascertaining the ability of the candidate to make practical application of his knowledge in the ordinary professional work of an architect, which will include an effort toward ascertaining the qualifications of the applicant in draughtsmanship and also in design, in construction and in the art of planning and rendering.

A diploma of graduation from the full course in architecture or architectural engineering in any university or technical school, approved by the board, may be accepted as satisfactory evidence of a competent knowledge of architectural design and construction required for a certificate to practise as an architect in California according to law; provided that in such case the applicant for examination shall present evidence satisfactory to the board to show that he has acquired the ability to successfully apply his knowledge to the design and construction of buildings and to supervise the execution of work.

The subjects upon which the applicants for a certificate of competency to practise architecture shall be examined are as follows:—

Demonstration of ability to make practical application of knowledge in the ordinary professional work of an architect, as follows:—1, Merit as investment; 2 planning; 3, construction; 4, design; 5, rendering.

Materials and construction of buildings, eleven subjects, as follows:—Foundations, concretework, stone masonry, mortar, brick masonry, structural iron and steelwork, carpentry, joinery, sheet metalwork, plastering, painting.

Strength of materials, eight subjects, as follows:—Tension, compression, shearing, transverse strain, structural columns, floor beams, girders, trusses.

Sanitation, three subjects, as follows:—Plumbing, heating, ventilation.

Electrical construction as applied to buildings.

Supervision of all the foregoing subjects as applied to buildings.

Each subject of each subdivision shall be graded by the committee on examinations, and the applicant whose grading shall be 75 per cent. or over shall be entitled to a certificate of competency.

TUNNEL BETWEEN SCOTLAND AND IRELAND.

A PAPER was read by Mr. James Barton, C.E., on "The Proposed Tunnel between Scotland and Ireland," at the International Engineering Congress, Glasgow, on the 5th inst. The first question, he said, to be considered was the selection of a site for the tunnel. Three positions suggested themselves. First, the nearest approach of Great Britain to Ireland was at the Mull of Cantyre, where the distance to the co. Antrim was 12½ miles. The next position in point of distance was from Wigtownshire, where the Scotch coast came within 21 to 25 miles of Ireland. The third position was from Holyhead to Howth. The maximum depth of water on the Cantyre route was 460 feet, on the Wigtownshire route the depth varied according to the line selected and was from 480 to 900 feet, and the greatest depth on the Holyhead route was 432 feet. The strata of the Cantyre route were lower Silurian; on the Wigtownshire route to Antrim, Silurian for the most part, but overlaid near the Irish coast by new red sandstone and the Keuper marls; between Wigtownshire and the co. Down, lower Silurian throughout; from North Wales to Dublin would be in the Cambrian rocks. The first of these positions had to be abandoned on account of its not forming a practically useful connection. The second formed a direct line between Carlisle and Belfast, the business centre of Ireland, and gave the best route from Scotland to all Ireland, and for the North of England to Ireland. The third route would connect London best with Dublin, but would be of little use as between Scotland and Ireland, and being more than double the length of the second route it had to be abandoned, and the second route adopted for the present project. On the second route two lines were considered—one from Portpatrick, Wigtownshire, to Donaghadee, co. Down; the other from near Corsewall Light to the co. Antrim, with a curve in the centre to pass round the north end of the Beaufort Dyke, a deep valley or gorge in the bottom of the sea, which runs for thirty miles north and south seven miles from the Scotch coast. The channel bed north of this dyke was comparatively level. A tunnel under Beaufort Dyke would involve very serious difficulties and probably dangers. The tunnel line adopted begins at the Stranraer railway station, and, passing north, enters the tunnel at five miles, and, descending 1 in 75 passes under the shore line at the Ebbstone Beacon at nine miles; it passes round a curve of a mile radius at the head of Beaufort Dyke at 16 miles, and reaches the shore line at Island Magee, co. Antrim, at 34 miles rising 1 in 75 from the deep water, and, passing out of the tunnel at 39½ miles, it joins the Belfast and Northern Counties Railway at 41 miles, and runs 10½ miles along it into the terminus at Belfast. The total length from Stranraer to Belfast was 51½ miles, of which 34½ was tunnel and 25 of this under the sea. To provide suitable drainage the line fell each way from the centre, and drainage heading would have to be run to the shafts at each side, where pumping stations would be placed. Subsidiary shafts were proposed at

a short distance inland, and would in connection with the main shafts enable specially accurate lines to be given for the tunnel. The geological formations had been reported on by Professor Hull, late director of the Geological Government Survey of Ireland. The top of the tunnel was proposed to be placed 150 feet below sea bottom, and the tunnel was to be for a double line. The principal operation, and that which controlled the time of execution of the whole work, was the heading. The heading proposed was 10 feet wide by 7 feet high. The heading through the Silurian should be as rapid as those now being made in the Simplon Tunnel; those in the Keuper marls more rapid; and the whole heading could, it was believed, be completed under ten years, and the finished tunnel between eleven and twelve. The top of the tunnel was proposed to be placed 150 feet below sea bottom, and the tunnel was to be for a double line. Improvements in rock drilling in the Alpine tunnels had been remarkable of late years. The maximum speeds of Alpine tunnels were as follows:—

Cost of tunnel
per yard complete.

Mont Cenis, maximum speed per day, 6 yards	... £224
St. Gothard, maximum speed per day, 10 yards	... 142
Arlberg, maximum speed per day, 12 yards	... 107

The Simplon heading had so far been faster than the Arlberg and in a very hard rock. The amount of water to be dealt with was the one uncertainty, though there were grounds for believing it was not likely to be a very serious difficulty. The Severn and Mersey tunnels encountered no serious water leakage under the sea, the great leak of the Severn tunnel being from fresh water and a quarter of a mile from the sea. Judging from these tunnels, and a tunnel driven under the Forth, there seemed good ground for believing that the sea-bed under the Irish Channel had probably sealed all interstices, so that excavation might be expected to be fairly dry. The working of the line from Stranraer to Belfast was proposed to be by electric motors from installations near the main shafts, one at each side of the Channel; and it was intended that trains should be run at a speed of 60 to 70 miles per hour, so that the time in the tunnel would be a little over half an hour, and the whole distance between Stranraer and Belfast would be traversed in less than an hour. The ventilation of the tunnel was rendered easy by the use of electric power. The cost of the tunnel was estimated by the engineers and by a contractor at 10 millions, exclusive of interest during construction, and this left a considerable margin for contingencies. The finance of the project was the present difficulty, the prospect as a speculation not being sufficiently good. The subject had been brought before the Government as an imperial one, and a small guarantee was asked for. Mr. Balfour expressed himself desirous of seeing the project carried out, and was willing, if the amount of capital could be definitely fixed, to bring the subject before his colleagues. Until a heading had been run from the Irish side past the junction between the sandstone and Silurian, no contractor was willing to undertake the tunnel at a fixed sum; to do this, however, would probably not cost more than half a million, and the cost of a heading through the whole 34 miles was estimated at 2½ millions.

Mr. J. Mansergh said he had recently been driving 10 or 12 miles in Silurian, and in some of the tunnels they had had a good deal of water. Probably under the sea the interstices would be filled up with matter that would prevent water coming through, and it was on the cards that there would be less water in a tunnel of this sort than in the open surface.

Mr. F. W. McCullough said that as far back as 1886 he took considerable interest in schemes for a Channel tunnel, and after examining all the routes that appeared to him to be feasible in the district, he early in 1890 brought forward a scheme of a direct tunnel from Whitehead to Portpatrick. It was after this that Mr. Barton brought his scheme before the public, and he considered that any proposed scheme for an Irish tunnel rather reasonably and fairly compared with other schemes that were in existence. It was not a matter for any individual to seek credit for introducing a scheme that in reality was a borrowed one; for he contended that the route suggested by Mr. Barton was entirely within the limits of the scheme mentioned by him in 1890. When Mr. Barton first proposed his scheme the length of the tunnel was given at 26½ miles, whereas the length of the marine tunnel was now 25½ miles. The Whitehead tunnel was almost two miles shorter than Mr. Barton's scheme, and the whole length of the line from Whitehead was only 31 miles, while that of Mr. Barton was 41 miles, so that the Whitehead proposal showed a difference of 10 miles. The ruling gradient in the scheme before them was 1 in 75, while the ruling gradient of the Whitehead and Portpatrick tunnel was 1 in 58, and he therefore held that that route had important advantages over any longer route. It could be more easily constructed, for although the greatest depth of water on the Whitehead route was 650 feet, as compared with 450 feet in Mr. Barton's scheme, that only affected the question generally in a matter of

gradients. He considered that a gradient of 1 in 58 was not extreme, inasmuch as he had travelled on railways in Scotland where at places the gradient was 1 in 45. Until some more definite knowledge was had regarding the geological difficulties to be contended with, the advantages showed the Whitehead and Portpatrick to be the more practical one.

Mr. Leonard Bell said he had to drive seven or eight miles of tunnel through the Silurian in connection with the Mourne Waterworks, and he did not think that the tunnel could be cut at the rate Mr. Barton hoped. Two yards per day was considered good work in a heading of 8 feet by 8 feet. As to the gradients of 1 in 75 there were much heavier gradients—1 in 50—in the Simplon Tunnel. But as a special electrical engine would be employed he did not think the heavier gradients would be a very serious objection. He also suggested whether, in order to prevent any trouble from water, it would not be better to divide the tunnel into two tubes or cylinders, something like the electrical railways in London.

Sir Douglas Fox said that since Mr. Barton came to him two or three years ago he had taken a deep interest in this question. It was one of national importance, inasmuch as the position of the tunnel would really connect the two commercial centres of Glasgow and Belfast. As to the suggestion of the last speaker that two single tunnels should be adopted, there was a good deal to be said, and it was worthy of consideration whether it would be desirable to adopt two single tunnels with a heading between. But that was a matter of detail. Mr. Bell had stated that he had been working in the Silurian, and had only got two yards a day. That might be perfectly true, but the whole question resolved itself into whether thoroughly good arrangements had been made as to plant and that there was plenty of power. They had the practical results at the Simplon, where the material being cut through was harder than any Silurian he had ever seen, and yet that was proceeding at the rate of 22 feet per day. They might fairly assume that if this tunnel was sanctioned they would make even greater progress than had been accomplished in the Simplon. His brother had only recently returned from the Simplon tunnel, and the speed attained was 22 feet per day in a heading 11 feet by 8 feet. As to Mr. McCullough's scheme for a tunnel from Whitehead to Portpatrick, he just got into the very difficulty they had tried to avoid. It would be, of course, very pleasant to run straight across the channel without that curve which was in the proposed tunnel. But he was strongly of opinion, from his experience in tunnelling the Mersey and elsewhere, that it would be a risky operation to go across that chasm which had been ploughed out in the bed of the channel. It was far better, as Mr. Barton proposed, to avoid that difficulty and go round the northern head of the chasm. When the Mersey tunnel was made it was feared by some that the water would percolate through the river into the workings, which were only 25 feet below the bed of the river. The fact was that no water came direct from the river; all the water that was pumped out came from the land. And, so far as the difficulty of making this Irish Channel tunnel was concerned, he would face it with much more composure than when he looked at the Mersey and knew what had to be dealt with there. In fact, this tunnel could be made with greater ease than either the Mersey or the Severn tunnels. Then as to the cost. The cost of the Simplon tunnel when completed would be about 60% per lineal yard for a single line, and doubling that for a double line would be about 120% per lineal yard, and he considered that the result attained at the Simplon was wonderful. He also believed it could be made quicker.

Professor C. A. Carus-Wilson said the gradients, which were 1 in 75, were a much more serious matter than might at first sight appear. High speed was evidently a great feature of the scheme, inasmuch as the author of the paper spoke of attaining 60 miles an hour. To attain that speed with a 100-ton train up a gradient of 1 in 75 would require a locomotive of something like 800 or 1,000 horse-power. He considered it would be almost impossible to get 60 miles an hour up that gradient, and that it would not be economical to attempt to do it. Any attempt to increase the gradient would have a still further effect on the speed. Another point in connection with the speed was the effect that a break in the straight line would have.

Sir Douglas Fox remarked that the curve would not have any effect on the speed.

Mr. Barton, in reply, said he would be sorry if there was anything in his paper that might imply that he had taken from anybody any special credit that was due to him.

The chairman (Sir B. Baker) said that whatever might be their views as to this scheme, yet in its social, political and commercial aspect it could not be over-estimated. It would be what he might call the readiest means of bringing to a successful issue what had troubled the people of this country for many years—it would be an engineering solution of the Home Rule question. It would do more than anything else to cement the three countries together.

ARCHITECTURAL EDUCATION.

AT the recent convention of the Architectural League of America, short papers were presented by representatives of the various clubs composing the League, treating of different phases of the subject of the proper education of architects, which had previously been assigned to each club for consideration. For the Toronto Architectural Eighteen Club, Mr. Wm. Rae contributed the following as the views of the club on the questions submitted to it, which were:—

"How much mathematical and engineering training should an architect have?"

"Should design and construction be separated so as to train specialists in each of these lines?"

(a) An architect should have as much mathematical and engineering training as will enable him to solve, by means of formulas derived from the experimental research of scientific experts, every problem the erection of a modern building may involve in the safe and economical use of the materials of its construction, including steel construction, heating, lighting, ventilation and sanitation.

In considering this question we have borne in mind the difference between education and merely a knowledge of the expedients of modern practice, for these expedients vary so much in different localities and change so from time to time, so many men devising their own and ever learning fresh ones, that we think no rule may be laid down concerning them.

The use of formulas and tables thus derived we think one of the most justifiable expedients of modern practice.

The architect's work is the harmonious association of all the crafts, which harmony can only be considered complete when the possibilities of each craft in relation to the whole are perfectly developed, and to do this a knowledge of the nature and functions of every material used is necessary.

(b) Design and construction should not be separated, so as to train specialists in each of these lines, because a specialist is one who, in addition to the ordinary knowledge of his craft, acquires a special knowledge of one line, not one who has acquired a knowledge of one line only of the general knowledge of his craft.

Design in architecture is surely, as seen in the study of the highest design—the human figure—constructing beautifully. Certainly, the most intellectual part of the æsthetic satisfaction derived from the contemplation of the human figure comes from the perception of the harmonious grace of its constructional requirements.

Could we imagine a figure built up of compression members covered with tension members and concealed beneath a coat of ornament?

What we understand by architectural design has to be based upon the use of some material; to what material shall we limit it? Stone and wood only? We do not know what the material of the future may be; there may be no stone or wood. Times change, and we must change with them.

CAWOOD CASTLE.

THE village of Cawood is conveniently situated on the banks of the Ouse, about five miles above Selby. Like Sherburn, says Mr. B. Milnes, it was given to the Archbishops of York in the tenth century. At first there was only an ordinary manor-house, and we do not hear much of it before the end of the thirteenth century, though many of Walter Gray's documents are dated there. Archbishop Gifford (1266-76) obtained Henry III.'s permission to pull down the house and to rebuild it as a castle. In time it became a very strong fortress, and this gave it a political as well as ecclesiastical importance. In the then disturbed state of the north, and frequent fighting which prevailed, it was convenient for the archbishops to have a fortified stronghold to which they could retire, and this, added to its convenient position on the river, was doubtless the reason why it became one of most magnificent hospitality. If "His Grace of York" wished to entertain on a royal scale he chose Cawood Castle for the purpose. Henry III. and Queen Eleanor were lodged here on their way to Scotland in 1255. In 1299 it acquired still greater fame as a royal residence when Edward I. left his Queen there from 1299 to 1304 while he was fighting against the Scots, returning to spend each winter with her. Here Edward II., during his troubled reign, often sought a refuge in the home of his happier childhood. Alexander Neville considerably enlarged the Castle in Richard II.'s reign, and Henry Bowet (1407-23), famous for his magnificence, built the great hall. Cardinal Kempe (1426-52) spent much money on the place, and it seems to have been his favourite residence during his twenty years' tenure of the see. The gateway, which is almost all that is left, still bears his arms, with the cardinal's hat. He was succeeded by Geo. Neville, the elder brother of Warwick, "the King maker," whose installation feast on January 15, 1466, has become proverbial. Leland has preserved an account of it: he gives a list of all the chief guests and their arrangement at the different tables,

with a wonderful menu of the courses at the banquet. It is calculated that some 1,800 persons were present. A full description of it is given by Dean Purey-Cust in his magnificent "Heraldry of York Minster." He shows that it was really a great political demonstration against King Edward IV., who doubtless remembered it. A few years afterwards he seized the archbishop's estates and banished him to France. Archbishop Rotherham died of the plague at Cawood in 1500, and his successor, Savage, also died here in 1507. The Castle became famous again as the scene of poor Wolsey's arrest. Here it was that he spent what were almost the last few quiet weeks of his eventful life, with "a peace above all earthly dignities, a still and quiet conscience," preparing for his installation in the minster, which never took place. He died a few days after he had left, on November 29, 1530, at Leicester Abbey.

Cawood continued for many years to be the occasional residence of the archbishops, though its old glory was gone. George Montaigne, a native of the place, died here in 1628, only a fortnight after his enthronement, and his monument remains in the parish church. Williams was the last archbishop to occupy the Castle. In July 1642 it was surrounded by the Parliamentary troops, and he had to fly for his life by night. It was dismantled in 1646 by Act of Parliament, along with several other Yorkshire castles, and has since been a gradually diminishing ruin. The property remained in possession of the archbishops of York until 1882, when it was taken over by the Ecclesiastical Commissioners. The old manor court is still held every year in a room over the gateway.

GENERAL.

The Clarence Memorial Church at Craigydun, Llandudno, has been consecrated. It was designed by Mr. Oldrid Scott, and was built in sections. The nave was opened in 1895, the memorial-stone having been laid by H.R.H. the late Duchess of Teck. The two side aisles were added in 1899. The style is that of the thirteenth century.

The Town Clerk of Liverpool has been instructed to communicate with the architect of the Central Technical School with the view of urging the contractors to finish the work, so that the classes might be fully accommodated during the ensuing session.

A Window, which is believed to be one of the very few fragments of pre-Norman church architecture remaining in the Principality, has been discovered in the course of the restoration of Llandenny Church, near Usk. The opening is only 3 inches wide, the inner splay broadening considerably.

Mr. John Rochester Thomas, the New York architect, died suddenly at the Thousand Islands on August 27. He was born in 1848. He opened an office in New York in 1882, and soon built up a large practice. The Elmira Reformatory, the Eighth Regiment Armoury and the double-storey drill-halls of the Seventy-First Regiment Armoury in New York, and the Rahway Reformatory are a few of his leading works. In 1896 his designs for a new city hall in New York were awarded first prize among the 133 submitted in competition, but the Legislature stopped their execution.

The Chief Rabbi on Sunday reconsecrated the Hampstead Synagogue which has been enlarged, and consecrated a new synagogue at Finsbury Park. The architect for both works was Mr. Delissa Josephs.

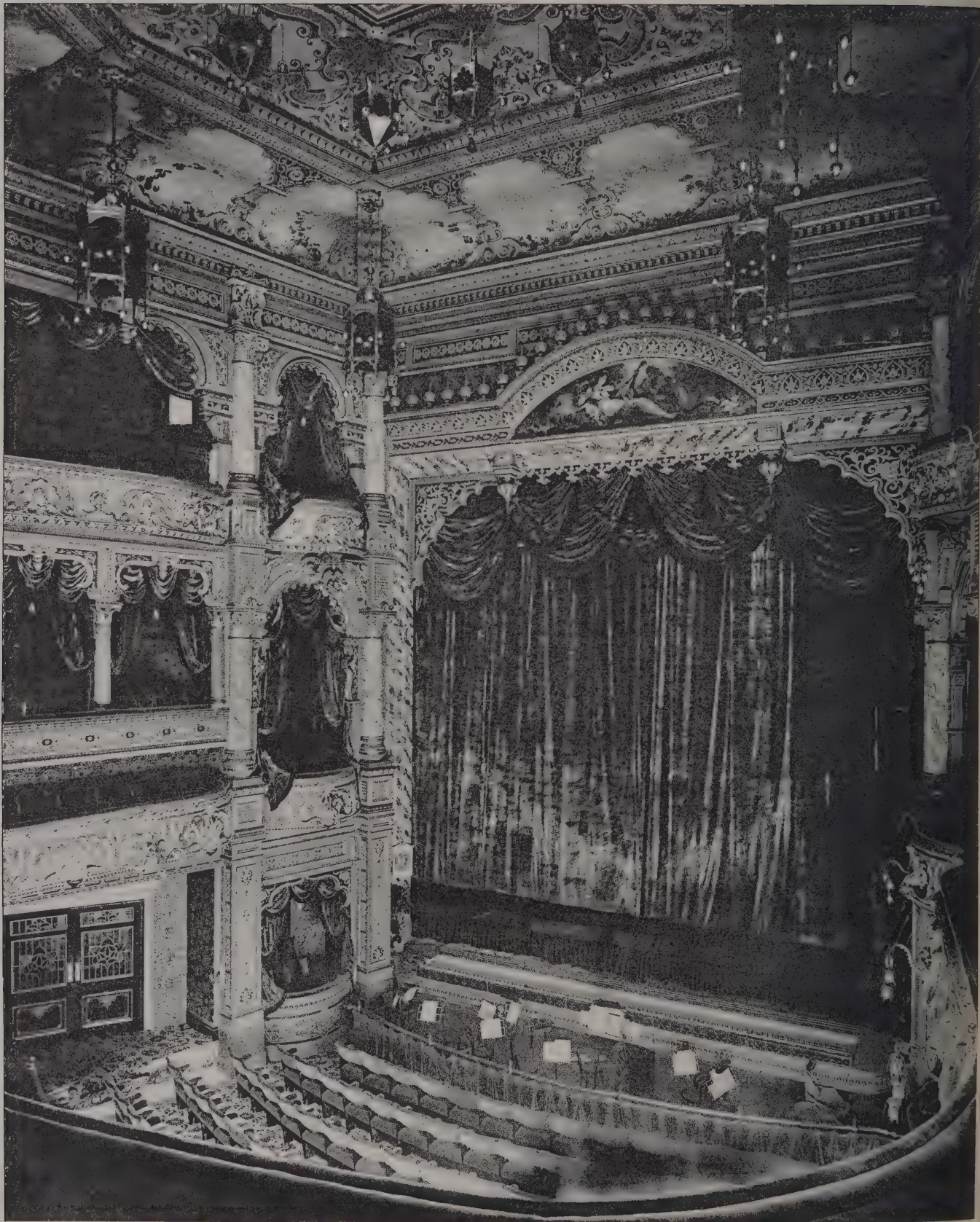
The Death has occurred of Mr. Charles Dorman, senior member of the firm of Messrs. Charles Dorman & Son, architects and surveyors, Northampton. Mr. Dorman, who went to Northampton from Uppingham, started business in 1882, and in 1897 he took his son into partnership with him. He was architect for many large and prominent industrial buildings in Northampton. Mr. Dorman was in his sixty-third year.

The Ontario Government has rejected the proposal of the City Council of Toronto that the proposed statue of Queen Victoria should be placed on the main approach to the Legislative Buildings, midway between the statue of the late Sir John Macdonald and the buildings. The Government claim that the statue should occupy the foremost and most prominent position.

A Meeting has been held at Gainsborough to consider the question of enlarging the church of St. John. The population of the parish is now 5,196, an increase of about 1,800 during the past ten years, and it is obvious that a church with a seating accommodation for only 450 is not adequate. The vicar (the Rev. F. W. Hutchinson) presided, and explained the two schemes submitted by the architect. One was to add an aisle on the north side and the other to lengthen the nave by three bays. The last-named scheme, which was estimated to cost from 2,500*l.* to 3,000*l.*, was considered the most practical as it provided seats for 240 more people.

Mr. H. E. Lloyd, a well-known Redditch architect, died yesterday morning of poison accidentally administered. He was confined to his bed with a cold and was given carbolic acid in mistake for his medicine.

The Architect, Sep^r 13th 1901.



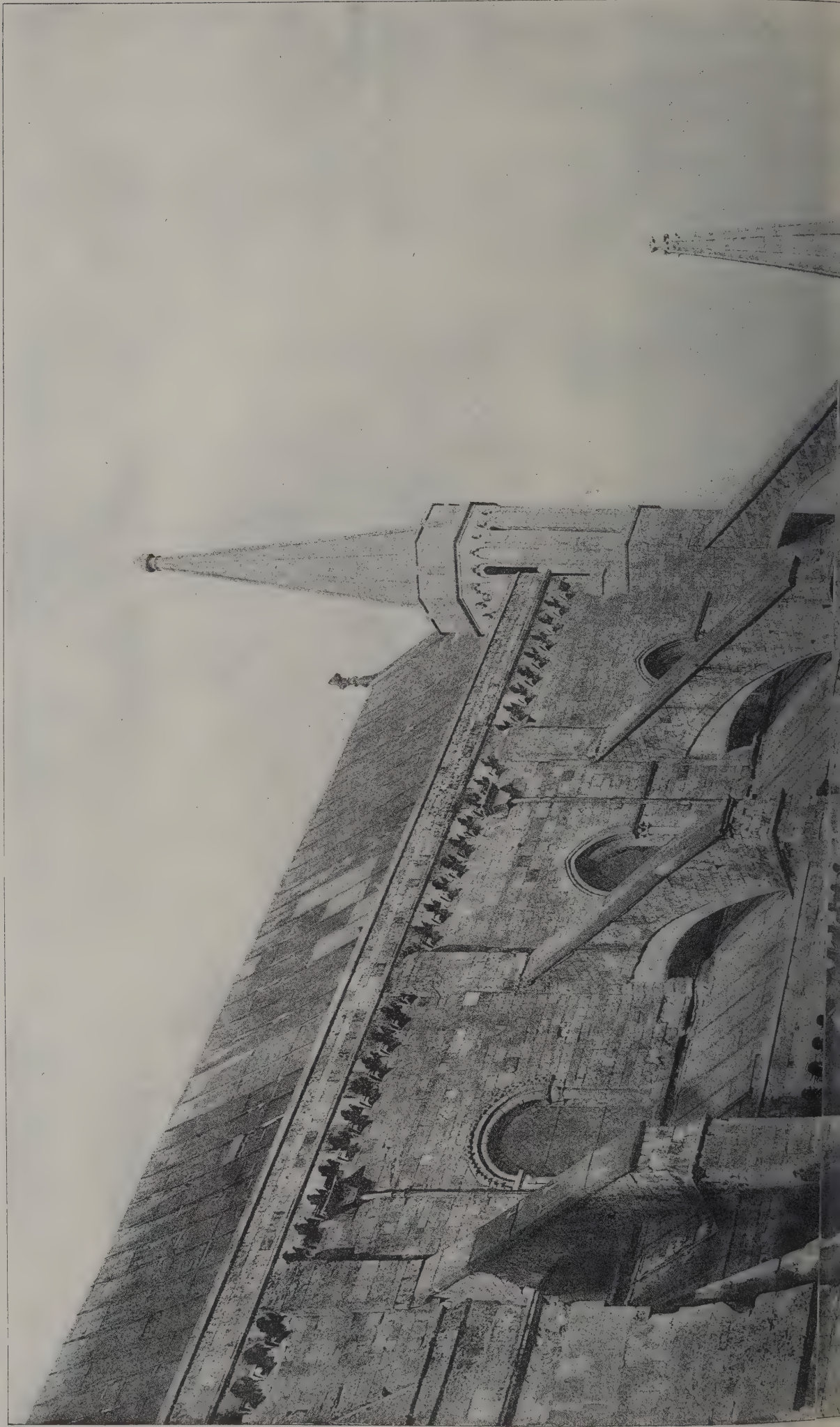
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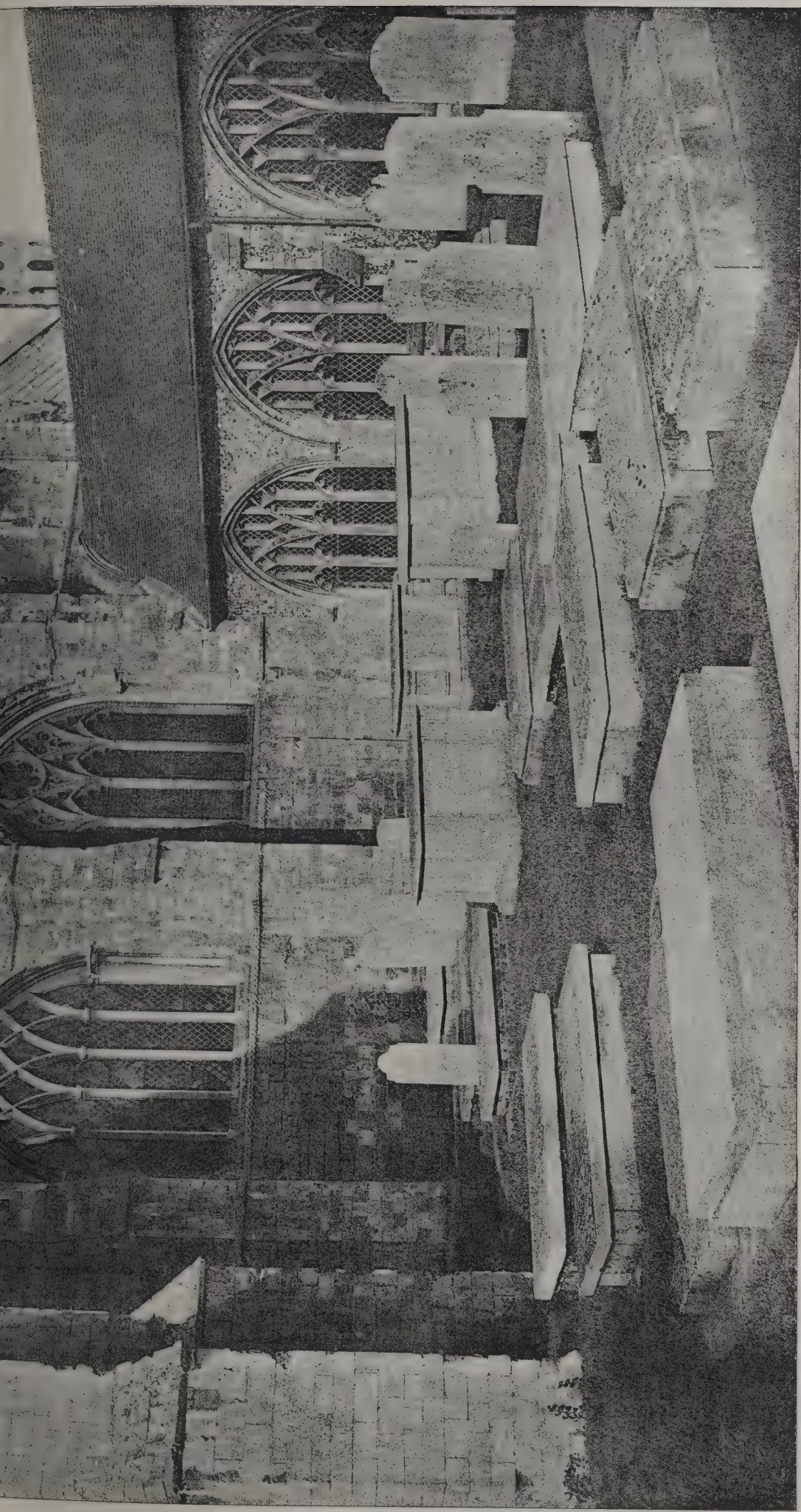
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"THE EMPIRE," BRADFORD.

W. G. R. SPRAGUE, Architect.

Chir. Arrchifert. Sep^t 13th 1901.





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CATHEDRAL SERIES, No. 353.—CHICHESTER: EAST CLOISTER AND SOUTH AISLE.

The Architect, Sep^r 13th 1901.



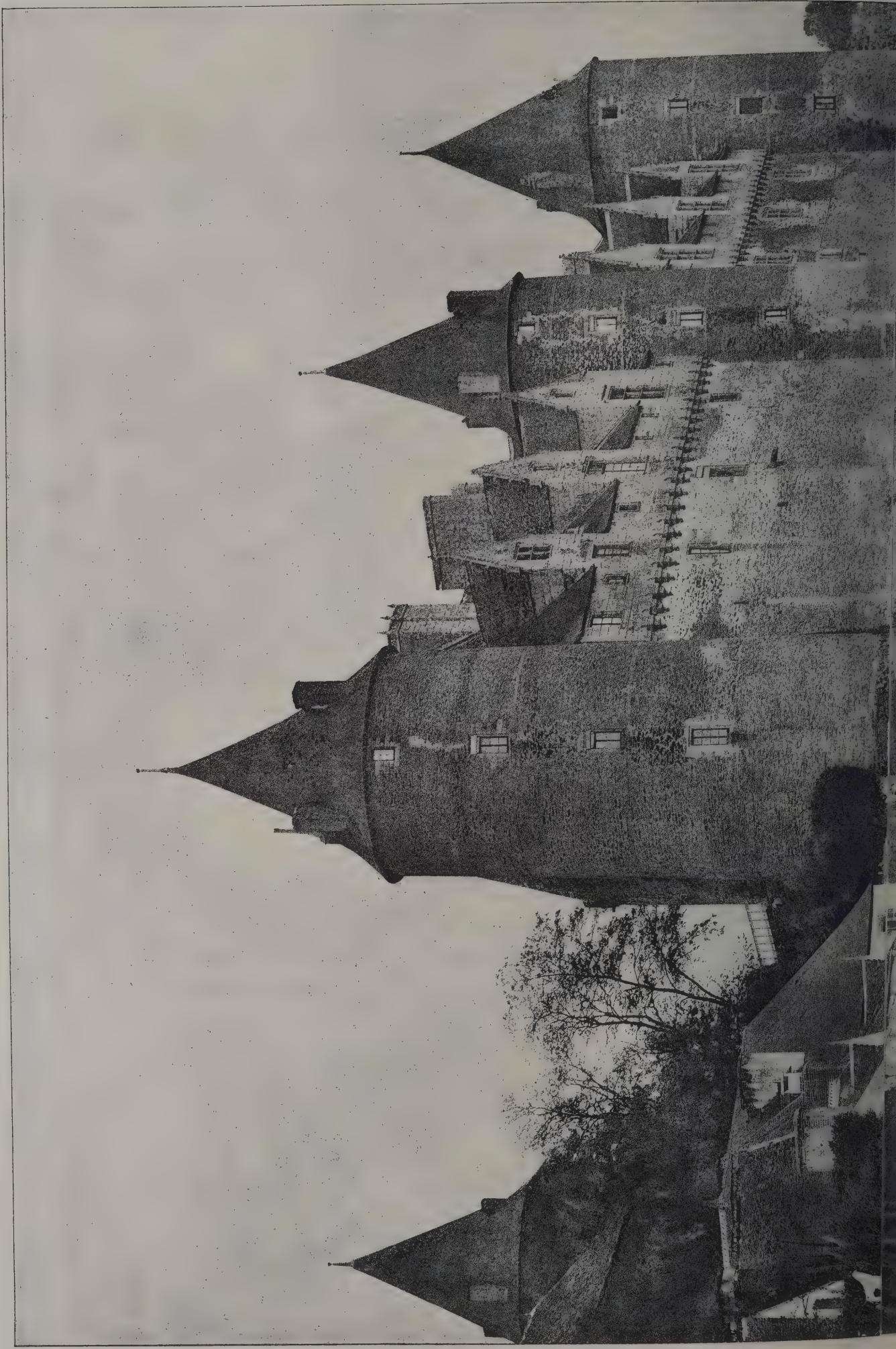
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"THE EMPIRE," BRADFORD: VESTIBULE.

W. G. R. SPRAGUE, Architect.

The Architect, Sept 13th 1901.





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CHÂTEAU DE JOSSELIN (MORBIHAN.)





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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—Sept. 16.—Competitive plans are invited for the laying-out of land to be added to the cemetery, with specifications, descriptions and estimates. Premiums of 30*l.*, 15*l.* and 5*l.* are offered. Mr. T. Loftos, town clerk, Town Hall, Blackpool.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

IRELAND.—Sept. 21.—The Roscommon Rural District Council invite plans for cottages, which would not cost more than 110*l.* Mr. T. J. O'Keeffe, clerk to the Council.

ST. PETERSBURG.—Sept. 14.—Building projects are invited for the permanent Palais and Ochta Bridges (and their connections with the banks), to be erected over the Great Neva River. Particulars will be supplied by the St. Petersburg Town Council.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., or personal application.

BARNSELY.—For erection of a chimney about 90 feet high and an engine-house, and for the seating of two Lancashire boilers. Plans, &c., at the offices of the Barnsley Coal and By-Products Company, Limited, Smithies, Barnsley.

BARNSELY.—Sept. 16.—For erection of an entrance lodge; a new main ward block to contain twenty-eight beds, with duty-room, heating chamber, heating apparatus, &c.; additions to administrative block, additions to laundry, fence walls, &c. Mr. J. Henry Taylor, surveyor, Manor House, Barnsley.

BARNSELY.—Sept. 17.—For erection of a villa in Park Grove. Mr. Charles L. McLintock, architect, 28 Church Street, Barnsley.

BARNSTAPLE.—Sept. 23.—For extension of the Imperial hotel. Mr. W. C. Oliver, architect, Bridge End, Barnstaple.

BERWICK-ON-TWEED.—Sept. 24.—For erection of a villa at Norham. Mr. J. L. Murray Sherriff, East House, Norham.

BIRMINGHAM.—Sept. 16.—For building two cottages and extension of farm buildings. Messrs. Whitwell & Sons, architects, 23 Temple Row, Birmingham.

BOWNESS-ON-SOLWAY.—Sept. 17.—For erection of a concrete wall at the west end of the village of Bowness, in the parish of Bowness-on-Solway. Mr. William Brown, surveyor, Bowness-on-Solway.

BRISTOL.—Sept. 14.—For erection of warehouses, &c., in John Street, Little John Street and Tower Lane. Mr. Henry Williams, architect, Imperial Chambers, Corn Street, Bristol.

BRISTOL.—Sept. 30.—For erection of an infants' school and special class centre at Wilson Street, St. Paul's. Messrs. Philip Munro & Son, architects, 6 St. Stephen's Chambers Baldwin Street, Bristol.

BROMLEY.—Sept. 24.—For alterations and additions to the mortuary buildings at the sick asylum at Devons Road, Bromley, Middlesex, E. Messrs. J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

BURLEY-IN-WHARFEDALE.—Sept. 16.—For erection of a dwelling-house, &c., at Burley-in-Wharfedale, Yorks. Mr. D. Dodgson, architect, 86 Albion Street, Leeds.

CALAIS.—Sept. 20.—For works in connection with a lock-gate and aqueduct at Calais, including the construction of the coffer dam, the masonry of the lock and the aqueduct. M. Thanneur, ingénieur-in-chef, à Boulogne-sur-Mer.

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GLASGOW, PARIS, BERLIN, STOCKHOLM, MILAN, AMSTERDAM.



COVENTRY.—Sept. 18.—For erection of offices, extension of factory, &c., at Great Heath, Foleshill. Mr. Herbert W. Chattaway, architect, Trinity Churchyard, Coventry.

DOVERCOURT.—For erection of nine houses at Dovercourt, near Harwich, Essex. Mr. R. G. Kestin, 1 Colosseum Terrace, N.W.

DUNSTABLE.—Sept. 16.—For additions to the Upper Houghton Regis Board school. Messrs. J. R. Brown & Son, architects, Castle Street Chambers, Luton.

EDGWARE.—For erection of a house, Canon's Park Estate. Mr. H. M. Lawson, architect, 40 Broadway, Ealing, W.

EGGESFORD.—Sept. 18.—For repairs, &c., Eggesford Bridge. Particulars can be obtained at the office of the Council, at the Castle, Exeter.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FIELD BROUGHTON.—Sept. 24.—For erection of a vicarage at Field Broughton. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

GRESSENHALL.—Sept. 25.—For alterations and new structural work, hot-water heating, supply by rain and storage of water, engineering works, including boilers, cooking apparatus, laundry machinery, pumping engines and iron emergency staircase, &c., at the workhouse at Gressenhall, Norfolk. Mr. John B. Pearce, Upper King Street, Norwich.

GREAT YARMOUTH.—Oct. 1.—For erection of cemetery chapel, superintendent's lodge, office, toolhouse, entrance gates and fencing at Caister. Mr. J. W. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

HALIFAX.—Sept. 27.—For erection of fourteen houses, &c., near Pellon, Halifax. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HORNSEA.—Sept. 30.—For extension and removal of creosoted wood fencing at the cemetery, Southgate, Hornsea, Yorks. Mr. W. G. Warburton, surveyor, Public Rooms, Hornsea.

HOUNSLOW.—Sept. 30.—For erecting twenty-two houses for the working classes. Mr. P. G. Parkman, surveyor, Town Hall, Hounslow.

HUDDERSFIELD.—Sept. 16.—For erection of laundry, boiler-house, electric-light engine and power-rooms, pump-rooms, laundry residence, &c., in connection with the new

asylum now in course of erection at Storthes Hall, Kirkburton, near Huddersfield. Mr. J. Vickers Edwards, county surveyor, County Hall, Wakefield.

HULL.—Sept. 16.—For erection of offices and warehouse in Collier Street. Mr. Ernest Whitlock, architect, 26 Scale Lane.

INCE.—Sept. 21.—For building public offices for the Urban District Council. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

IRELAND.—Sept. 16.—For erection of three villas and additions and alterations to existing house at Fahan. Mr. R. Eccles Buchanan, architect, Castle Street, Londonderry.

IRELAND.—Sept. 17.—For alterations to various rooms in the workhouse, the erection of water-closets in the male side of the infirmary, and the fitting-up of baths and wash-hand basins at Kerr's buildings of the Union workhouse, Belfast. Messrs. Young & Mackenzie, architects, Belfast.

IRELAND.—Sept. 17.—For construction of a new roof over the rink building (near the Great Northern hotel), Rostrevor, Dublin, and the execution of other works in connection therewith, for the Great Northern Railway Company, Ireland. Mr. Wm. James Watson, architect, Benvenue, Rostrevor.

IRELAND.—Sept. 18.—For alterations of two wards in the workhouse. Mr. Patrick Cuniam, clerk to the Guardians, Loughlinstown.

IRELAND.—Sept. 19.—For completion of the St. Patrick's parish church, Ballymacarrett. Mr. Samuel P. Close, architect, Donegall Square Buildings, Belfast.

IRELAND.—Sept. 20.—For erection of diocesan schools in Letterkenny. Mr. M. O'Callaghan, architect, Main Street, Letterkenny.

IRELAND.—Oct. 1.—For cementing walls, flooring rooms, painting and general repair at Shiels's Institution, Carrickfergus. Particulars from the Superintendent.

LAMBETH, S.E.—Sept. 18.—For extension of the kitchen accommodation at Prince's Road workhouse. Messrs. Woodward & Brooks, architects, 69 Kennington Oval, S.E.

LEEDS.—Sept. 16.—For erection of Primitive Methodist chapel at Woodhouse Hill. Messrs. Howdill & Howdill, architects, 7 Oxford Road, Leeds.

LEEDS.—Sept. 23.—For alteration of the coal stores at the Meadow Lane gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Dewsbury Road.

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LONDON.—Sept. 17.—For alterations at the underground convenience in Lothbury. The Town Clerk, Public Health Department, Guildhall.

LONDON.—Sept. 18.—For erection of casual wards in Little Gray's Inn Lane, Gray's Inn Road, W.C. Mr. J. Allan Battersby, clerk, Holborn Union Offices, Clerkenwell Road, E.C.

LOWER SYDENHAM, S.E.—For erection of a wall at the home park open space. The Surveyor, Town Hall, Catford, S.E.

MANSFIELD.—Sept. 16.—For erection of schools in Littleworth, Mansfield, to accommodate 895 children. Messrs. Vallance & Westwick, architects, Mansfield.

MELTHAM.—For erection of shed, engine-house, engine-bed, &c., at the Bent Ley Silk Mills, Ltd., Meltham, Yorks. Mr. William Carter, Station Street, Meltham.

MENSTON.—Sept. 30.—For erection of an isolation hospital at Menston, Yorks, consisting of administrative block, scarlet-fever pavilion, typhoid-fever pavilion, isolation pavilion, laundry, engineering and stable block; mortuary and discharge block, porter's lodge, roads, drainage, &c. Messrs. Blackwell & Thomson, architects, Leicester.

NEWCASTLE-UNDER-LYME.—Sept. 23.—For iron staircases and building alterations at the union workhouse. Messrs. Chapman & Snape, architects, Newcastle-under-Lyme, Staffs.

NEWCASTLE-UPON-TYNE.—Sept. 16.—For erection of a school of cookery and domestic economy at Northumberland Road. Mr. John W. Dyson, architect, 67 Grey Street.

NOTTINGHAM.—Sept. 14.—For erection of entrance lodge, &c., at the Lenton recreation-ground, Derby Road, Nottingham. Mr. Frank B. Lewis, city architect, Guildhall.

PADDINGTON.—Sept. 16.—For erection of mortuary buildings and chapel at the north end of Manor Place. Plans, &c., may be seen at the Surveyor's Department, Town Hall, Paddington.

PORTSMOUTH.—Sept. 17.—For alterations and additions to the Church Street Board school, Landport. Mr. A. H. Bone, architect, Cambridge Junction, Portsmouth.

RAINHILL.—Sept. 26.—For additions and alterations to laundry and boiler-house, the erection of a chimney and of

pathological rooms and museum at the County Asylum, Rainhill, Lancashire. Mr. James Gornall, clerk and steward at the Asylum.

RIPON.—For erection of a detached residence at Ripon. Messrs. James Young & Co., architects, 63 Market Street, Bradford.

ROTHERHITHE, S.E.—Sept. 23.—For pulling-down and clearing the site of a number of houses in Fulford Street, Paradise Street, Rooney Street, Braddon Street and Seven-Step Alley, in the parish of Rotherhithe. Mr. Fredk. Ryall, town clerk, Town Hall, Bermondsey.

RYECROFT.—Sept. 17.—For erection of two dwelling-houses and outworks at Rycroft, near Rawmarsh. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

SCOTLAND.—Sept. 16.—For erection of a villa at Tarves, Aberdeen. Mr. James Cobban, architect, Estate Office, Haddo House.

SCOTLAND.—Sept. 17.—For removing present buildings, excavating site and building foundation walls of the new post office at Aberdeen. Drawings, specification and a copy of the conditions and form of contract may be seen on application to the Clerk of Works at the Post Office, Aberdeen.

SCOTLAND.—Sept. 19.—For rebuilding Kirkmichael Hotel. Mr. John Sim, architect, Montrose.

SCOTLAND.—Sept. 19.—For extensive additions to Braeroy shooting lodge. Mr. Alexander Mackenzie, architect, Kingussie, N.B.

SCOTLAND.—Sept. 19.—For erection of New United Free church at Cults, Aberdeen. Messrs. D. & J. R. McMillan, architects, 211 Union Street, Aberdeen.

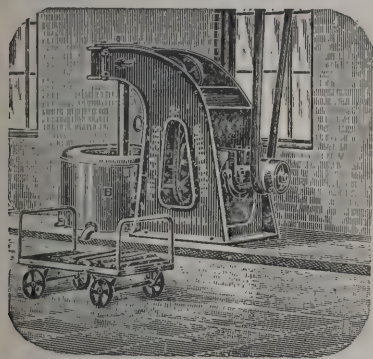
SCOTLAND.—Sept. 21.—For erection of a boiler-house at Ladysbridge Asylum, near Banff. Messrs. W. & J. Smith & Kelly, architects, 170 Union Street, Aberdeen.

SCOTLAND.—Sept. 30.—For reconstruction of the buildings 75-101 Union Street, in connection with the extension of the Glasgow Central Station. Mr. James Miller, architect, 15 Blythswood Square, Glasgow.

SHOREDITCH.—Sept. 18.—For alterations to the laundries at workhouse and infirmary. Mr. F. J. Smith, architect, Parliament Mansions, Victoria Street, S.W.

TOOTING, S.W.—Oct. 8.—For erection of 276 cottage dwellings for the working classes on part of the Totterdown

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TYLDESLEY.—Sept. 23.—For erection at the gasworks, Tyldesley, of an iron shed with corrugated iron roof, for the coal store. Mr. Wm. J. Matthews, clerk to District Council, Council Offices, Tyldesley.

WALES.—Sept. 16.—For alterations and additions to Hafodyrnyns inn, near Crumlin, Mon. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Sept. 16.—For building 200 houses at Dowlais. Mr. W. Dowdeswell, architect, John Street, Treharris.

WALES.—Sept. 18.—For building new harbour offices. Mr. T. Strick, Harbour Offices, Swansea.

WALES.—Sept. 18.—For alterations and renovations at the Ogmere Valley hotel, Tynwydd. Messrs. Cook & Edwards, architects, Masonic Buildings, Bridgend, Glam.

WALES.—Sept. 21.—For erection of a schoolroom and master's house at Mynachlogddu, Clynderwen, R.S.O., Pembrokeshire. Mr. William J. Williams, clerk, 1 High Street, Cardigan.

WALES.—Sept. 24.—For erection of some twenty to thirty cottages at Treallaw. Mr. Arthur O. Evans, architect, Pontypridd.

WALES.—Sept. 26.—For erection of new schools and offices at Burry Port. Mr. Richard Williams, architect, Burry Port.

WALES.—Oct. 2.—For erection of a school at Brynmawr for 420 boys, and for converting the three departments of present schools into two departments and executing various repairs at the Brynmawr Board schools. Mr. F. Baldwin, architect, 13 Frogmore Street, Abergavenny.

WALES.—Oct. 10.—For erection of the proposed hospital for Pontypool and district on a site abutting Leigh Road. Mr. Robert Williams, architect, 10 Clifford Inn, Fleet Street, E.C.

WALES.—For erection of forty houses in the Western Valleys, Mon. Mr. C. Telford Evans, architect, 8 Queen Street, Cardiff.

WALTHAMSTOW.—Sept. 24.—For erection of a cookery-room, cloakroom, scullery, &c., at the Wood Street Girls' school, for the Walthamstow School Board. Mr. H. Prosser, at the Board's Offices.

WEALDSTONE.—Sept. 17.—For erection of a chapel in connection with the proposed new cemetery, the erection of an entrance lodge to the recreation-ground, the supply and erection of wrought-iron fencing and ornamental gates in connection with proposed new cemetery, &c. Mr. F. Hill Parr, surveyor, Council Offices, Wealdstone, Middlesex.

WEST HAM.—Sept. 24.—For construction of an underground sanitary convenience, Sebert Road, Forest Gate, E. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

WHITSTABLE.—Sept. 27.—For erection of coastguard buildings at Whitstable, in the county of Kent. Quantities, &c., will be sent on application to the Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

WIGAN.—Sept. 18.—For erection of a corrugated iron building within the workhouse grounds, to accommodate children in the workhouse. Mr. Henry Ackerley, clerk, 9 Victoria Buildings, King Street, Wigan.

WILLESDEN.—Sept. 24.—For erection of main generating station and sub-station and offices in connection with proposed electric-lighting scheme for the district. Mr. O. Claude Robson, engineer, Public Offices, Dyne Road, Kilburn, N.W.

WOOLWICH.—Oct. 3.—For erection of reception-house for dead bodies upon a site adjoining St. John's Church, Eltham. Mr. Frank Sumner, borough surveyor, Maxey Road, Plumstead.

WREXHAM.—Sept. 16.—For erection of a division wall and lights at the end new shed in the vegetable market. Mr. J. Oswald Bury, clerk to the markets committee, 9 Temple Row, Wrexham.

MESSRS. W. H. LASCELLES & Co. beg to thank their many friends who have expressed their sympathy, and offered practical assistance, in their difficulties arising from the disastrous fire on Saturday last. They have secured the premises recently occupied by Messrs. W. Scrivener & Co., which, with their own premises at Stratford, will enable them to continue their joinery business without any delay. Communications are still to be sent to their old address, 121 Bunhill Row, London, E.C., as the offices have escaped serious injury. The "Lascelles'" concretework and other departments which are carried on at their Stratford premises are not interrupted.

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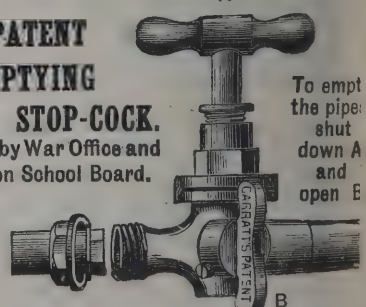
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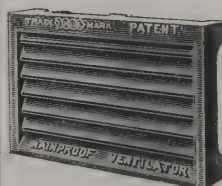
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For erection of a fire-station. Mr. L. J. VEIT, surveyor.			
W. Featherstone	£370	0	0
Elliott & Sons	370	0	0
J. Walker	360	0	0
Jackson & Dimbeline	554	0	0
KELSEY & CO., Goole (accepted)	350	0	0

HULL.

For painting and internal colouring the School Board offices, Albion Street.

J. Dickson	£60	15	0
Crawford & Credland	57	16	0
C. S. Drury & Sons	54	0	0
Stephenson & Christopher	50	0	0
Lightowler & Son	48	17	6
G. Harbron	48	16	10
J. Y. Torr & Sons	48	11	6
T. W. Bailey	43	9	0
C. CRANE, Spring Street (accepted)	42	3	0

KIRKBY-IN-ASHFIELD.

For sewerage works at Annesley Woodhouse, Pinxton Road, and the Rectory. Mr. WILLIAM DODSLEY, surveyor, 14 Stockwell Gate, Mansfield.

J. H. Vickers, Ltd.	£1,968	0	0
Lock & Andrews	1,389	13	0
Lane Bros.	1,310	19	0
J. Hawley & Son	1,284	11	3
J. Lane	1,046	18	3
J. TOMLINSON, South Normanton (accepted)	967	0	0

KNARESBOROUGH.

For supply and fixing of a pump at the waterworks. Mr. S. TURNER, surveyor.

Mather & Platt	£266	0	0
Robinson, Cooks & Co.	260	0	0
Hayward Tyler & Co.	259	12	6
Worth, Mackenzie & Co.	180	0	0
HATHORN, DAVEY & CO., Sun Foundry, Leeds (accepted)	175	0	0
J. Simpson & Co. (delivery only)	159	0	0
Excelsior Engineering Co.	125	0	0
J. Whiteley & Co.	110	0	0

LEAVESDEN.

For alterations and additions to laundry buildings at Leavesden

Asylum, Herts.			
Clark Bros.	£8,755	8	8
C. Brightman	7,675	0	0
T. Turner, Ltd.	7,367	0	0
E. Wall	6,810	0	0
R. L. TONGE, Kingsfield, Watford (accepted)	6,450	0	0

LEEDS.

For laying about 1,689 square yards of tar macadam at Cross Flats Park

KEIGHLEY & RIDDIOUGH, Globe Road, 2s. 9d. per square yard (accepted).

For erecting a set of conveniences and a set of urinals and conveniences at Potternewton Park.

J. RICHARDSON, Harrogate Road, Chapel Allerton (accepted) £295 10 0

For cages for the new bird market, Kirkgate Market.

HAMILTON & SON, Halifax (accepted) £68 8 0

LONDON.

For street works, Borthwick Road, Ravenshurst Avenue and Cricklewood Lane. Mr. S. SLATER GRIMLEY, engineer.

Borthwick Road.

Myers, Gilson & Rose	£1,178	6	6
T. Adams	1,112	16	3
Bentham & Co.	1,110	9	4
MESTON & HALE, Tubbs Road, Harlesden (accepted)	1,064	0	5

Ravenshurst Avenue.

Myers, Gilson & Rose	1,081	4	2
T. ADAMS (accepted)	1,042	10	4
Bentham & Co.	982	0	4
Meston & Hale	820	17	0

Cricklewood Lane.

T. Adams	769	1	0
Myers, Gilson & Rose	755	7	9
Meston & Hale	736	16	2
H. BOYER, Paddington (accepted)	717	7	6
Bentham & Co.	683	9	0

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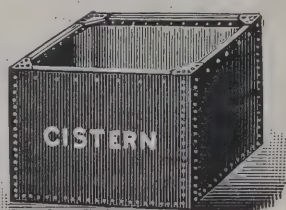
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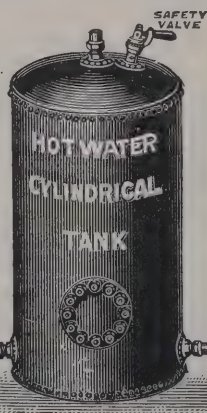
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LONDON—continued.

For supplying and fixing boilers at Joyce Green Hospital.		
D. Adamson & Co.	£4,125	0 0
J. Adamson & Co.	4,040	0 0
J. Musgrave & Sons, Ltd.	4,027	0 0
Tinkers, Ltd.	3,987	0 0
Holdsworth & Sons	3,927	0 0
Yates & Thom	3,916	0 0
Moorwood, Sons & Co, Ltd.	3,775	0 0
A. Anderton & Sons.	3,625	0 0
Oldham Boiler Works Co., Ltd.	3,586	0 0
W. Arnott & Co.	3,500	0 0
J. Thompson	3,400	0 0
E. DANKS & CO., LTD., Oldbury, Birmingham		
(accepted)	3,400	0 0
Hewitt & Kellett	3,399	0 0
For repairs and decoration at 840A Old Kent Road. Mr. T. H. COLE, surveyor, 858 Old Kent Road, S.E.		
Lee	£143	16 6
Cooper.	135	0 0
Gloag	120	0 0
Dawes	119	0 0
Stewart	111	19 0
Beazley	105	0 0
Castle Bros.	97	0 0
ARUNDELL, London (accepted)	80	0 0
Mills	79	0 0
Eldridge & Black	72	0 0

NUNEATON.

For construction of a river wall, weir, flood-gates, &c., at the town hall site, adjoining the Mill Walk. Mr. J. S. PICKERING, engineer.		
C. Baker & Sons	£1,869	13 4
T. W. Pedrette	1,592	14 0
Bentley & Loch	1,462	10 4
A. Jewell	1,280	11 0
T. SMITH, Nuneaton (accepted)	1,132	3 3

PENANG (STRAITS SETTLEMENTS).

For fittings for new abattoir.		
LOCKERBIE & WILSON, LTD., Station Street, Birmingham (accepted)	£1,337	1 0

PUDSEY.

For sewerage works at Lowton, with manholes, &c. Mr. JOSEPH JONES, borough surveyor.		
PARKIN & CO, Horsforth, near Leeds		
(accepted)	£444	0 0

RAMSEY.

For erection of a school and schoolhouse at Ramsey St. Mary's, Hunts.		
GUTTERIDGE (accepted)	£2,518	15 0

ROTHWELL.

For erection of two houses, Ragsdale Street, Rothwell; Northants. Mr. W. J. SMITH, architect.		
R. READ, Rothwell (accepted)	£420	0 0

RUSTINGTON.

For erection of seaside homes for children at Rustington, Sussex.		
J. Longley & Co.	£19,844	0 0
T. Turner, Ltd.	18,850	0 0
W. Pattison & Sons	18,343	0 0
Peerless, Dennis & Co.	18,229	0 0
Norman & Burt	18,223	0 0
H. M. Patrick	18,190	0 0
J. PARSONS & SONS, 118 Church Road, Hove		
(accepted)	17,228	0 0

SCOTLAND.

For construction of a brick culvert and other works at Gibshill, Greenock.		
D. K. MCPHERSON, Greenock (accepted)	£806	17 3
For construction of twin filters, with the necessary pipe connections, at Lochornie. Messrs. BUCHANAN & BENNETT, engineers, 12 Hill Street, Edinburgh.		
W. CARAGHER, Dunfermline (accepted)	£1,445	13 10

SEVENOAKS.

For widening Blower's Hill Road, Cowden.		
WARREN & PIPER (accepted)	£53	15 0

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SURREY.

For erection of three pairs of semi-detached cottages at Woking village for Daw's Trustees. Messrs. R. CLAMP & JOHN B. DROWER, architects, Woking.
W. R. ROAKE, Horsell (*accepted*) . . . £1,250 0 0

UCKFIELD.

or paving works at Church Street and Framfield Road, with retaining walls in brick, and other works. Mr. C. THOMPSON, surveyor.
W. & E. Noakes . . . £428 16 6
R. Evans . . . 381 5 6
F. Bradford & Co. . . . 363 14 8
A. C. W. Hobman & Co. . . . 261 15 7
W. MORLEY, Framfield (*accepted*) . . . 250 0 0

WALES.

For erection of a public reading-room at Penydarren, Merthyr.
Ingleson & Son . . . £875 0 0
J. Jenkins . . . 610 0 0
S. Williams . . . 595 0 0
E. WILLIAMS, Dowlais (*accepted*) . . . 559 12 0
For painting and varnishing Capel Degwel Chapel, St. Dogmells, Cardigan.
J. Wilson . . . £24 10 0
J. Thomas . . . 22 16 0
W. THOMAS, Cardigan (*accepted*) . . . 21 0 0

WALSALL.

For erection of the proposed new municipal buildings. Mr. JAMES S. GIBSON, architect.
Armitage & Hodgson, Leeds* . . . £67,650 0 0
* Recommended for acceptance.

WELLS.

For erecting a house for the hall-keeper, Wells, Somerset.
DELL & Co. (*accepted*) . . . £660 0 0

WEST HARTLEPOOL.

For paving works at Front Street, Seaton Carew. Mr. W. J. BROWN, borough engineer.
NORTH OF ENGLAND ASPHALTE CO., LTD., 5 Cross Street, Manchester (*accepted*).

WEST THURROCK.

For construction of a new sluice through the walling of the river Thames and other works at West Thurrock, Essex.
Mr. JOSEPH VEVERS, engineer, 31 Effra Road, Brixton.
T. W. Pedrette & Co. . . . £1,599 0 0
Wilson, Border & Co. . . . 1,080 0 0
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Coxhead . . . 750 0 0
PIPER & SON, Camberwell (*accepted*) . . . 700 0 0

WOTTON-UNDER-EDGE.

For additions and extensions to the Wotton-under-Edge water-works. Mr. A. P. I. COTTERELL, engineer, 28 Baldwin Street, Bristol.
M. Lovell . . . £2,108 0 0
A. E. CHASE, 12 Richmond Avenue, Montpelier, Bristol (*accepted*) . . . 1,814 12 3

WREXHAM.

For erection of cottage property at New Broughton. Messrs. DAVIES & MOSS, architects, 2 Temple Row, Wrexham.
R. Williams . . . £1,918 0 0
B. S. Roberts . . . 1,654 17 0
T. WILLIAMS, Southsea (*accepted*) . . . 1,475 0 0

THE technical college which has been erected by the Corporation of Sunderland on a commanding position on The Green was opened on the 6th inst. The building is of red brick, a square tower, capped by a dome, being a feature at the south-west corner. The building is in the English Renaissance style. In the basement the physical laboratory, the heating apparatus, working machinery, testing machines and workshops are situated; on the ground-floor is the examination and lecture-hall, 70 feet by 30 feet. On the first floor are the chemical laboratory, 70 feet by 30 feet and 28 feet high, and the chemistry lecture theatre, with accommodation for eighty-four and sixty students respectively. Rooms for astronomical study are on the second floor and in the tower. Projecting from the latter is a handsome clock after the pattern of that in the old Tolbooth, Edinburgh. The cost of the site, building and furnishing will be about 21,000*l.* or 22,000*l.*

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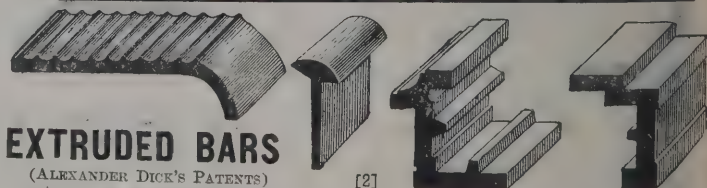
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VARIETIES.

RHESYCAE parish church, Flintshire, has been reopened after extensive improvements, which have cost about 200*l*.

A NEW Congregational church, to seat 500 persons, erected at Swinton, near Sheffield, at a cost of 2,200*l*., was opened on the 5th inst.

IN the Public Works Office, Ireland, Messrs. G. W. Crowe and E. Twist have been appointed assistant surveyors of buildings.

THE Duke and Duchess of Devonshire have given 500*l*. towards the restoration of St. James's Church, in Dale Road, Buxton, and a site for another to be called St. Mary's. The total expenditure for church extension in the district is expected to reach something like 20,000*l*.

LIQUID air is being used in Germany as a blasting agent. Under the name of oxyliquid liquid air is absorbed by some suitable material, and introduced into paper cartridges filled with an oily mass. They are fired by the electric spark or by a Bickford fuse. The effect is said to be equal to that of dynamite. If a cartridge misses fire it becomes harmless in a quarter of an hour, owing to the rapid evaporation of the gas.

CONSIDERABLE extensions are being made to the Shoreditch Town Hall in order to render it sufficiently important to worthy shelter and provide accommodation for the new Borough Council. The contract price for the addition is 21,833*l*., and the land cost 4,550*l*., the funds being provided by a loan from the London County Council. The ceremony of laying the foundation-stone of the extension was performed on Tuesday.

A NEW chapel which has just been erected by the Primitive Methodists at the corner of Camp Street and Great Clowes Street, Broughton, was opened for public worship on the 4th inst. The building takes the place of the old chapel in Blackfriars Street (which has been sold), and affords accommodation for 450 people. It is in the Renaissance style, designed by Messrs. Sankey & Cubbon, of Manchester, and has cost about 7,400*l*.

NEITHER Wasdale nor Lullington possesses, it appears, England's smallest church. The village of Upleatham, near Saltburn, North Yorkshire, claims this honour, for its church measures only 17 feet 9 inches by 13 feet 9 inches. It was measured last year by a Frenchman, who said it was smaller than the smallest church in France by 4½ inches. The church

dates back about 900 years, and except the top of the tower is absolutely covered with ivy.

ONE of the oldest Wesleyan chapels in Sunderland is to make way for business premises. It is situated in Fawcett Street, one of the town's most busy thoroughfares, and the closing sermons were preached on Sunday. A new chapel has been built on the Durham Road to accommodate the displaced congregation. The old edifice was erected in 1838, and was for thirty years the only Wesleyan quarters on Wear-side. There are now three circuits working from the town.

THE new church erected for Ruthneston United Free congregation, Aberdeen, was opened last week. The edifice is erected in front of and connected with the existing church buildings in Broomhill Road, and the old church is to be transformed into a hall and other adjuncts for congregational purposes. The new building possesses the Gothic features of the original structure. The church with its gallery will accommodate 750 persons. The cost is about 4,000*l*.

ACCORDING to the Vienna *Politische Correspondenz* the Turkish Government has ordered the construction of four new lighthouses in the Red Sea, namely, at Dschebel-Zubeir, at Abn-Ail, at Muscha and on the island of Dschebel-Tir. Lighthouses at these places have long been an urgent necessity to mariners, who will doubtless welcome the news that they are at last to be constructed. The contract has been given to a French company, which has undertaken to complete all four lighthouses by the first day of January, 1905.

SOME time ago the Postmaster-General acquired a site in Linlithgow for the erection of a new post-office, the accommodation in the present premises being quite inadequate to meet the requirements of the town. The site is at the east end of the town and in close proximity to the railway station. The site is a desirable one, and has now been surveyed with the view of having the necessary plans prepared. In addition to this the authorities contemplate the establishment of a sub-post and telegraph office at Blackness, which is increasing in popularity as a summer resort.

THE public baths which have been erected at the corner of Church Street and Summertown Road, Govan, N.B., were formally opened to the general public on Saturday. They are equipped in a manner unsurpassed in Scotland. Both the ladies' and the gentlemen's swimming ponds are of the regulation size, 75 feet by 35 feet, the former having a depth of from

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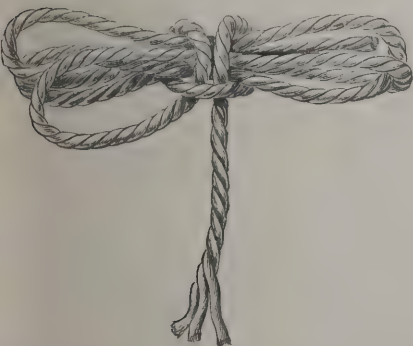
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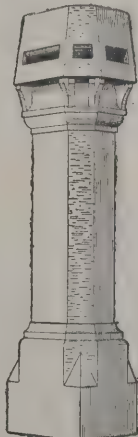
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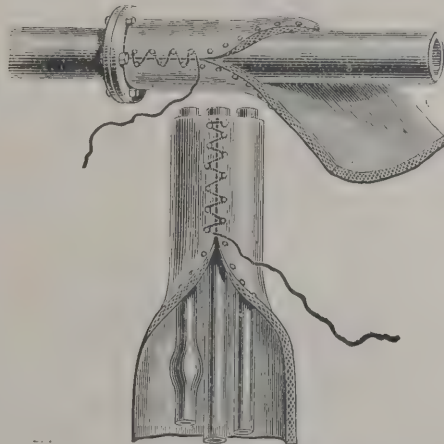
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2 feet 6 inches to 4 feet 4 inches, and the latter from 4 feet 3 inches to 7 feet 3 inches, with a diving ladder 13 feet high at the deep end. The scheme involves a capital expenditure of between 24,000*l.* and 25,000*l.*

MR. HENRY YOUNG, founder and engineer of the Eccleston Iron Works, Pimlico, who has for the last ten years resided at Bexhill-on-Sea, has, in his position of vice-chairman of the Council, done much to advance the interests of the town, and his popularity with all classes is evidenced by his invariable return at the head of the poll. A further proof of the esteem in which Mr. Young is held was furnished last week, when a deputation waited upon him to request him to become—in the event of the efforts to obtain the incorporation of Bexhill proving successful—its first Mayor, but it is now definitely known that Bexhill will not receive its Charter of Incorporation this year.

THE new central fire station at Scarborough was officially opened by the mayoress (Miss Darley), who also formally opened the new sub-fire station on the South Cliff, this ceremony being performed by aid of the telephonic communication between the two stations. The central station is a handsome building, situate on North Marine Road, and the estimated cost of the structure was 3,000*l.* The accommodation is in every way up to date and the appliances which have been procured are such as no town, equal in size to Scarborough, can surpass. There are now two patent currie fire-escapes, specially built hose-carts, hose-reels and other appliances, and also a steam fire-engine, which is capable of discharging 350 gallons of water per minute and of throwing it to a height of 160 feet through a 1½-inch jet.

GREYFRIARS United Free church, Aberdeen, which has been undergoing reconstruction for the past ten months, has now been reopened. The alterations have completely modernised the building. Underneath the church two halls and three classrooms have been formed, the former capable of containing in all 360 persons and the latter 70 persons. The walls have been raised 3½ feet, the seating has been remodelled and a platform pulpit erected. An important addition has been made to the general accommodation by the construction of an annexe on the Maberly Street side, the basement floor containing the heating apparatus, the ground floor a ladies' cloak-room, and the second storey the vestry, an airy and well-lighted apartment. The cost of the reconstruction scheme has been about 1,800*l.*

THE prettily-situated parish church of Logie, near Stirling, which has just been reconstructed at a cost of about 3,000*l.*, was reopened for public worship on Saturday afternoon. With the exception of the side walls, the church has been entirely rebuilt. Extensions have been made at both ends, the addition at the east end containing the chancel, and that at the west end a new vestibule, staircase and gallery, and ladies' cloakroom. A new pulpit has been put into the left of the chancel, and a small pipe-organ, driven by water-power, has been installed. The chancel is panelled in oak, and a number of very fine old carvings of Biblical subjects, the gift of the late Mr. Donald Graham, of Airthrey, have been introduced very successfully at intervals. Three beautiful stained-glass windows have been put in by generous friends of the church.

NEW business premises of a somewhat ambitious character have been erected in the Beastfair, Pontefract, and were opened on the 31st ult. as a high-class grocery store and café. The front has been carried out in Cuba mahogany, Aberdeen granite, St. Anne's marble and mosaic. The internal fittings and fixtures are all in best mahogany, Sicilian marble and faience tilework. The café on the first floor is fitted with the most up-to-date requirements in all respects, including gentlemen's and ladies' lavatories, billiard-room, smoke-room, &c. The mosaicwork has been supplied by Messrs. G. Woolliscroft & Co., Hanley; the shop is fitted up with a Waygood's lift; and the whole of the fireplaces and stoves on the first floor and in the billiard-room are carried out in Burmantofts ware. The café has been decorated in artistic colours with Messrs. Hall's washable distemper, and the lavatories with Messrs. Blundell S. Spence & Co.'s petrifying liquid. The café is well ventilated by Messrs. Crossley & Son, of Halifax, and the whole of the works have been carried out from the designs of the architect, Mr. Chas. Keyworth, Pontefract.

AN alarming accident occurred at Wellington on Sunday afternoon, in which four workmen from Walsall, who were engaged in placing an iron roof over furnaces at the Haybridge Ironworks, near Wellington, were seriously injured. Shortly before five o'clock the scaffolding on which the men were working collapsed, and the men fell with the ironwork and timber. Thomas Keabury, Chapel Street, Bicks, Walsall, in falling was caught in the scaffolding, and hung head downwards until rescued. He was badly injured, and one of his legs was fractured. Samuel Dexter, who also lives at Chapel

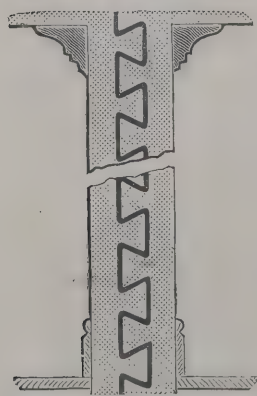
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Street, Walsall, was cut about the head in a shocking manner. The other two men escaped with severe cuts and bruises. Keabury and Dexter were attended by Dr. Wedd, and then taken by road to Shrewsbury Infirmary, where Dr. Edleston made a further examination, and expressed the opinion that although they were severely injured they might recover. Had the furnaces been at work the men would probably have been killed.

ST. PAUL'S CHURCH, Craigydun, Llandudno, which has been erected as a memorial to the late Duke of Clarence, was consecrated on the 4th inst. by the Bishop of St. Asaph. The church, when completed, will provide sittings for 950 worshippers. The style is Early English. It consists of a fine nave, 94 feet long by 28 feet wide, with north and south arcades, and entrances towards the west and south; a very noble chancel, 37 feet long and 25 feet high, with an aisle or chapel on one side, and vestries and organ chamber on the other. The church is built of a beautiful local limestone, with dressings of Bromsgrove stone, the interior walls being faced with Bath stone ashlar. One feature of the interior is the use of the fine fossil marble from Frosterly, in Northumberland, for all the main columns. It is a deep grey on black marble, with larger fossils of a lighter shade scattered through it, and this colour contrasts with good effect with the varying tints of the stonework. The benches in the nave are of oak, and of handsome design.

SIR JOHN NEILSON CUTHBERTSON, chairman of the Glasgow School Board, opened on Friday evening an addition which has recently been made to the Keppochhill School Buildings, Glasgow, from designs by Mr. J. C. Menzies, architect. The extension is two storeys in height on the north wall frontage, and owing to a quick fall in the ground it reaches a height of three storeys on the frontages in Keppochhill Road and Bruce Street. The building, which is of white freestone, harmonises with the former building, and is designed to meet the present-day requirements of the Education Department. The basement floor is partly utilised as a drill hall, while there are playgrounds for girls and infants and a separate staircase for boys on the same floor. On the ground floor are five classrooms reserved for children, and a similar number for scholars in the higher standards are situated on the upper floor. The school throughout is heated on the low-pressure hot-water system, and each classroom is ventilated by independent shafts carried to the ventilators in

the roof. In general equipment the school is complete. The new portion provides for the accommodation of 242 infant and 360 older scholars.

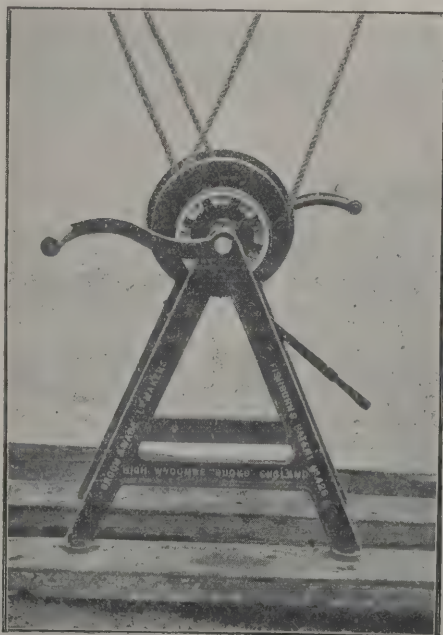
An accident which might easily have had serious results occurred on the 10th inst. at Winchester, where preparations are being advanced for the King Alfred celebration next week. During the afternoon the colossal bronze statue of the king was being raised to its position on the granite base when one of the guide ropes broke. Luckily, the statue itself had only just begun to lift, and it settled down without injury. Two or three minutes later the two large scaffold poles, or shear legs, carrying the pulleys, came down with a crash, and falling on the hoarding were snapped off. Mr. Timothy Driscoll, of Chiswick, the contractor for the erection of the statue, was inside the hoarding, and was struck by some of the falling debris. At first he was thought to have been seriously hurt, but on examination at the hospital it was found he was only bruised. One of the broken poles rests on the upraised arm of the statue, but Mr. Thornycroft, the artist, who was present, hopes his work is unharmed.

THE parish church of Chevening, Kent, was opened last week after having been closed for the past few months for necessary alterations and repairs, which have been carefully carried out under the supervision of Mr. W. D. Caroe, architect to the Ecclesiastical Commissioners, at a cost of about 1,350*l*. On starting the work it was found that the floor and seats were full of dry-rot, and these were removed. The floor was then lowered about 6 inches, and instead of the old planks a new block-flooring was put down. An additional step was required for the chancel, and new seats were provided. The pulpit, organ and reading-desks were supplied with new bases, and the vestry was separated from the main building by a fine oak screen. An old ash screen, filled in at the top with glass, which at one time stood inside the west door, has been removed, and the font placed at the end of the main aisle instead of in the centre. A new staircase has been placed in the tower, and the old west doors have been done away with and replaced with one of oak. The interior of the walls has been cleaned, and the building presents a bright and cheerful appearance, and imparts a feeling of comfort and freshness.

THE new church erected for the Edzell (N.B.) United Free church congregation, from competitive plans drawn by Mr. P. H. Thoms, of Messrs. Thoms & Wyllie, Dundee, was opened on the 29th ult. It is built on a site at the corner of

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Dalhousie Street, a new street running westward, and the style is a modern version of late English Gothic. The church consists of nave and one aisle, with small transept for the choir, and provides sitting accommodation for 350. Besides, there is a hall seated for 100, with vestry, &c. Internally the church has a very bright and pleasing appearance. The windows, including a beautiful tracery window facing east, are all leaded, and the glass is of a light shade of amber. The ceiling of the church is ivory coloured, and the walls of light sage green. The stencilling in blue and red is bold, but withal has a harmonious effect. The pitch-pine pews are stained dark oak, and are admirably constructed. The features, however, undoubtedly are the pulpit and the pillars. The former is of oak and in keeping with the style of architecture. To the right of it, transferred from the old church, is the memorial tablet to the late Rev. Robert Inglis, the first minister of the Free church, to whose son, Colonel Inglis, the whole district owes so much. The pillars are of Brechin freestone, and have carved capitals, the artistic handiwork of Mr. James Bremner, Dundee. The passages are laid with cork carpet. The walls of the hall are painted in vermilion and the ceiling in ivory, while the cornices run in different shades. A bell has been placed in the tower.

THE synagogue erected in South Portland Street, Glasgow, for the Jews resident on the south side of the river, was consecrated on Sunday last. The building, which is of Moorish design, and has cost 9,000*l.*, has a frontage to South Portland Street of 81 feet, with a depth of 104 feet, excellent light being obtained on all sides. The façade is divided into a centre, which contains spacious doors under a wide arch, with decorated windows and pediment over the two projecting ends at the extreme corners. The floor level is 4 feet above the pavement, and the entrance into the synagogue is through a central hall. With the women's galleries, the synagogue has accommodation for about 1,000 worshippers, while on holidays the classrooms are so arranged that they can be utilised along with the main building, thus giving accommodation for over 1,600 people. The basement consists of a lower synagogue, where the study of the law can be conducted in perfect quietness, and ample provision is made for ladies' rooms and for social and other meetings, as well as the usual ritual bath accommodation. Altogether the new synagogue is the largest in Scotland. The plans were prepared by Mr. James Chalmers, I.A., Glasgow. The ceremony began with a meeting in the vestry adjoining the inner doorway of the

synagogue. Mr. E. Hyman, the president of the synagogue, here presented a massive gold key to Mr. J. Frankenburg, the convener of the building fund, with which he was invited to open the door prior to the entry of the clergymen and the procession. In making the presentation, he expressed the indebtedness of the congregation to Mr. Frankenburg for his efforts in connection with the new edifice.

TWO new Board schools were opened at Edinburgh on the 3rd inst., namely, the Flora Stevenson school, at Comely Bank, and the Parson's Green school, adjoining the King's Park, the former of which has accommodation for about 1,400 pupils and the latter about 1,450. The new schools are large and solid-looking buildings, with somewhat plain exteriors, and immediately on going inside one is struck with the spaciousness and airiness of the surroundings. These, along with the abundance of light, are indeed the special features of the new schools, and apart from them there is nothing noteworthy about the classrooms, except that everything is new and fresh, and that the fittings and furnishings are of the latest and most improved types. This cheerfulness and brightness is largely due to the presence of a large central hall, with two galleries, and it is from this hall and these galleries that entrance is obtained to the classrooms, admission to the upper flats being got from wide staircases at each end. The whole of the ground floor will be occupied by the infant department and the upper flats will be set apart for the seniors and juniors. In addition to the ordinary classrooms there is a combined workshop and cookery classroom, and a gymnasium on the top floor. The centre of the roof is covered with glass and a splendid light is thereby obtained. Matters are not yet quite in order at either of the schools, and in some instances yesterday the teachers were carrying on their work side by side with painters and other workmen, who were busily engaged putting the finishing touches upon their operations. Desks and other things have yet to be fitted up in some of the classrooms, and the fine large rooms set apart for the gymnasiums at both schools have not yet been equipped, and were quite empty yesterday. Both schools are lighted with electricity, ventilation is obtained from fans driven by electric motors, and the heating is done by hot-water pipes.

THE foundation-stone of a new English Presbyterian church at Wepre, Connah's Quay, was laid on Wednesday.

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ELECTRIC NOTES.

OPERATIONS have commenced for the erection of works in Commercial Road, Hawick, for the supply of electricity for both light and power. It is expected that the work will be so far advanced as to be partially in operation on November 1 next. The plan includes boiler-house, engine-room, store-room, concrete flat, &c., and the front elevation will face Commercial Road.

IN connection with the extensive electrical illuminations which are being prepared at Dunkirk and at Compiègne on the occasion of the visit of the Czar of Russia to France, effective devices on the E.L.B. system are being provided by the Paris representatives of Electric Lighting Boards, Limited, of 7 Pall Mall, on a very large scale. The new town hall, which is to be opened by President Loubet, and other public buildings at Dunkirk are being entirely illuminated on the E.L.B. system, and at Compiègne alone, where the Czar will reside for a few days, the approaches to the Castle are being illuminated by devices requiring no less than 7,000 lamps.

A SERIOUS explosion took place on Wednesday afternoon at Tunbridge Wells at the electric light works of the Borough Corporation. The explosion was caused by the bursting of a super-heater attached to a Lancashire boiler. Without any warning, the super-heater shot into the air, wrecking the roof of the engine-house. There were nearly twenty men about at the time. One of them named Young, of Willesden, was scalded about the face, arms and legs, and several were cut about the hands and body by glass and debris from the roof. The injured men were conveyed to hospital in the police ambulance, and after treatment all except Young were able to leave. The cause of the explosion is unknown.

THE annual report of the Burgh electrical engineer (Mr. A. J. Fuller), submitted at the meeting of Ayr Town Council, stated that the whole of the machinery had run perfectly satisfactorily throughout the year. Two and a half miles of extension cable had been laid, and 94 connections made during the year, the private consumers now numbering 450. As to public lighting, three additional arc lamps had been connected and 29 incandescent lamps, making a total of 85 arcs and 146 incandescent. During the year orders for extension of plant and mains had been placed amounting to 17,000/. The capital expenditure on the works now amounted to 56,158/. The revenue for the year from private lighting was 3,327/; from public lighting, 2,065/; from other sources, 198/—total 5,590/.

The total output from the works had risen from 425,639 units to 490,496 units, an increase of 15 per cent. For private lighting the average price was 4.7d. per unit, and for public lighting 1.5d. per unit. With these low figures, the engineer reported, they were able to provide a surplus profit of 1,432/. towards meeting the interest and sinking-fund charges, amounting to 2,560/, leaving a deficiency of 1,127/.

AT the monthly meeting of the Manchester City Council held on the 4th inst. at the Town Hall, Dr. Bishop, in moving the adoption of the electricity committee's report, stated the reasons which led to the acceptance of a foreign tender for switchboards instead of one of an English firm. He said that of the twenty firms who competed in response to the Council's advertisement the lowest tender was that of the Electrical Company of Berlin, which amounted to 39,306/, and which the committee had accepted. The next tender was that of the British Westinghouse Company, which amounted to 42,551/. The difference was only small, but had it been accepted the work would have been done in America. The third tender was that of Siemens Brothers, Ltd., for 50,004/, but in that case the work would have been done in Berlin. The lowest English tender was between 19,000/ and 20,000/ higher than the tender the committee had accepted. Only two were tenders in which, if the committee had accepted them, the work would have been done in this country. He maintained that it was quite impossible, under the circumstances, for the committee to have considered either of those two firms.

THE application of electrical traction to the tramways and light railways in Dudley and Kinver district was inaugurated on the 31st ult., when, on the invitation of the British Electric Traction Company, a large party, including representatives of local authorities interested, travelled over some of the lines between those places. At the latter Mr. J. S. Raworth (technical director) proposed the toast of "The Local Authorities," and urged the desirability for such a district of a comprehensive scheme of tramways in preference to a number of small systems owned by independent local authorities. Alderman Dunn, of Dudley, acknowledged the toast. Mr. Graham, of Wolverhampton, in proposing "Success to Electric Locomotion in South Staffordshire," said he was sorry Wolverhampton occupied an isolated position. He would not enter into the dispute between the Corporation and the Company, but suggested that it should be settled by arbitration. Mr. Garcke (managing director) responded. He stated that the

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company had under its control some 60 or 70 miles of tramway in South Staffordshire and North Worcestershire, and hoped ultimately to have about 100 miles. By the time the electrification of this system had been completed the company would have spent a million and a half on the district. They had carried out negotiations with twenty-four different local authorities, and of these only three or four still remained to be converted—Wolverhampton, Tipton, Wednesbury and Birmingham. He believed they had practically arranged the matter with Tipton and Wednesbury, but Wolverhampton for the present preferred to remain in a state of isolation. He was willing to adopt the suggestion that the matter should be settled by representatives of the Corporation of Wolverhampton and of the company. Sir F. Godson, M.P., and Mr. E. Spencer, M.P., also spoke, and the visitors returned to Dudley by special trams.

BUILDING AND BUILDERS.

PLANS have been approved for a new infirmary for Chesterfield, which, it is estimated, will cost about 45,000*l*.

IT is proposed to apply for the sanction of the Board of Education to borrow 700*l*. to provide a site for a new infant school at Portobello.

FOUNDATION-STONES were laid at Morecambe on Saturday of the new Baptist church, which is to be erected in Victoria Street at a cost of 4,238*l*. 15*s*. The church will seat 720 persons.

A NEW church is to be built in the place of St. Paul's Congregational Church, Wigan. The parent building dates back to 1785, and is the parent Congregational church of the district.

IT has been decided after six years' consideration to expend a sum of about 6,000*l*. in the erection of municipal buildings at Musselburgh, N.B. In course of the final discussion Bailie Bisset referred to the existing offices of the burgh as kennels.

THE plans of the Infectious Diseases Hospital for Girvan, N.B., have now been approved by the Local Government Board, and an immediate start will be made with their erection. The water scheme is also in a forward condition.

AT the monthly meeting of the Avondale School Board it was unanimously agreed to build an elementary school in Strangsfeld to accommodate about 1,000 pupils at a probable cost of 11,000*l*. Mr. Cullen, architect, was instructed to prepare plans for the Department as soon as possible.

THE Methodist New Connexion Church has decided to erect a school-chapel at Cudworth, Yorks. Plans have been prepared by Mr. P. A. Hinchliffe, Barnsley, and corner-stones have been laid.

MR. PERCY H. CURREY, architect, Derby, has in hand plans for the erection of a church for the newly-created parish of Dethick, Lea and Holloway, for which a good site has been secured about the centre of the parish, and funds to the amount of 2,500*l*. have been raised towards the 4,500*l*. needed for a church to seat 300 people.

THE Colne (Lancs) Town Council have adopted the Baths and Washhouses Acts, and appointed a committee to prepare a scheme. This action on the part of the Town Council is the outcome of an application, which was refused, from the Colne School Board to the Corporation for the supply of water to baths the Board proposed to erect.

MR. ALFRED HEAVER, of Oak Lodge, Upper Tooting, and of Holcombe Cottage, Westcott, near Dorking, builder, who died on August 8 last, aged 60 years, has left property which has been valued at 389,883*l*. 19*s*. 9*d*. gross, including personality of the net value of 235,250*l*. 6*s*. 6*d*. He bequeathed to his manager, Mr. Edward Coates, if and when he should be unable to continue his employment through illness or old age, an annuity of 4*l*. 4*s*. a week for the remainder of his life.

THE memorial-stones of a new church and school which are in course of erection in Beverley Road, Bolton, were laid on the 31st ult. The buildings comprise a complete scheme of church and Sunday school premises, as it has been thought best to enter upon the work thoroughly equipped for all its branches, rather than follow a frequent custom of hampering the work by squeezing it all into a small building ultimately intended for only one section. The church will occupy the angle formed by Beverley Road and Wyresdale Road, and will thus be seen from Chorley New Road, of which it will become a prominent and, it is believed, a pleasing feature. The site has been a difficult one to deal with, but the plan arrived at will, it is expected, give both an effective interior and exterior. There will be end and side galleries, and an ample gallery also for organ and choir. The accommodation will be for about 400. The main entrance will face Chorley Road, but there will also be entrances from Beverley Road and Wyresdale Road. The school will be at the back of the church, and will be of two storeys, each schoolroom measuring 50 feet by 30 feet, and there are to be seven classrooms of various sizes, easily acces-

LIST No. 4.

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sible. Separate entrances and staircases for boys and girls will give access to the upper rooms. The exterior is to be faced with local pressed bricks and terra-cotta dressings, and the style is a free Renaissance. The builders are Messrs. Atherton & Morris, and the architects Messrs. Potts, Son & Hemmings.

THE Local Government Board have forwarded their sanction to the application of the Cheltenham Town Council for power to raise a loan of 35,000*l.* for the erection of a town hall and assembly rooms upon a portion of the Winter Garden site on the north side of the glass structure. The necessity for the provision now about to be made arose from the acquisition of the famous old Assembly Rooms in High Street (opened by the Duke of Wellington) by Lloyds Banking Company, who are now erecting upon the site of the demolished building handsome bank premises. Considerable opposition was raised to the Corporation scheme by the residents in Imperial Square. It was admitted that the provision of similar accommodation to that which the old assembly rooms had for so long supplied was an imperative necessity in a town of the social amenities which have characterised Cheltenham, but the opponents of the scheme objected to the particular site chosen on the ground that it would considerably diminish the area of a desirable open space in the centre of the town, and they suggested as an alternative that the Corporation should either adapt the present Winter Garden building to meet all requirements—which was, the other side contended, a matter of impossibility—or they should acquire the premises which Lloyds Bank will relinquish when the new bank is ready, and put the new building opposite the site of the old rooms, and at the same time widen Winchcombe Street. This latter scheme, however, would have involved an outlay of something like 100,000*l.*, and it was not really put forward with seriousness. The Local Government Board have, it would now seem, come to the conclusion that the Corporation scheme is a wise and good one, and the best under the circumstances. They have consequently not listened to the objections of the opponents, beyond inquiring into the effect of certain legal covenants attached to the Winter Garden property, and having satisfied themselves thereon, their reply has been received by the Town Clerk, giving sanction to the loan mentioned. The Council now have under consideration a proposal for buying up the old (Lloyds) bank premises for 8,000*l.*, and converting them into municipal offices.

At a sitting of the Consistory Court, held on Saturday at Norwich Cathedral, before the chancellor (Mr. T. C. Blofeld),

Mr. Hales prayed an Act of Court with respect to the restoration of Wymondham Church. He said he appeared on behalf of the vicar (the Rev. and Hon. A. Parker) and the churchwardens (Messrs. E. B. Pomeroy, J. S. Parker, E. W. Routh Clarke and W. B. Fryer), and alleged that the parish church required alteration. The proposed repairs were:—(1) To repair the roof of the church with the best English oak and lead where necessary, including the roofs of the nave and aisles; (2) repair the walls and windows and reglaze the latter where necessary; (3) remove certain tablets from the pillars of the nave to the north and south aisles; (4) remove the organ gallery and apparatus behind it now standing at the west end of the church, build a new west gallery and complete in the best English oak a fan-vaulted ceiling to the tower; (5) take up the floor of the church and remove soil so as to restore it to its old level, fill up the vaults, concrete over same and relay the floor with York stone paving, the memorial slabs to be kept in the same position as at present and not concealed from view; (6) to furnish the church, the choir and the sanctuary with oak fittings to walls and screens; (7) erect a stone reredos at the east end, and decorate according to plans to be hereafter submitted; (8) erect vestries at the east end; (9) supply lighting and heating apparatus; (10) fit up the eastern part of the north aisle for daily service, and erect a screen there; (11) rebuild the organ and fit the same in a new west gallery; (12) repair the abbey or eastern tower; (13) repair the western tower and complete it with its parapets and pinnacles; (14) recast and rehang the bells, and do other works to the church. Mr. Hales said with reference to the memorial tablets to be removed from the nave, he did not yet know which one would be removed, but he would produce an affidavit explaining later on. The tablets interfered to an extent with the moulding. The parapets and pinnacles of the western tower had never yet been completed, and it was proposed to finish this work. The total cost of the work would be an amount not exceeding 25,000*l.*, half of which had already been promised, and the remaining half would be provided by voluntary subscription. The work would not be carried out until the money was provided, but as some of it had already been subscribed the work had been commenced. The vicar produced plans and specifications of the repairs and alterations prepared by the architect, Mr. W. S. Hicks, of Newcastle. He said that one of the bells was badly cracked and had a piece sawn out, and another was out of tune. Citation was ordered to be issued.

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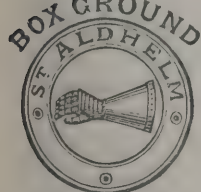
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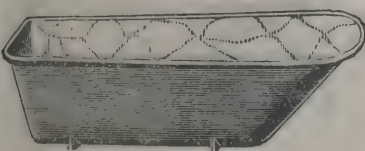
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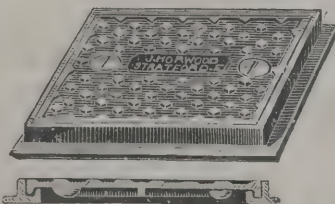
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NEW BATHS FOR RUSHOLME.

COLONEL W. LANGTON COKE held an inquiry at the Manchester Town Hall respecting the application of the Corporation for sanction to borrow 40,000 $\frac{1}{2}$ to be used in the erection of public baths in High Street, Chorlton-on-Medlock, to be known as the Victoria Baths. The case for the Corporation was opened by Mr. Hudson, the deputy town clerk. He said the area of the city was 12,709 acres, the population in 1901 543,969, and the rateable value 3,359,298 $\frac{1}{2}$, a penny rate producing 12,892 $\frac{1}{2}$. The wards of the city which the proposed baths were intended to serve were St. Luke's, Rusholme, and Longsight, which together had an acreage of 2,003 acres, a population which in 1891 was 62,722, and the rateable value was 331,886 $\frac{1}{2}$. These baths had been thought of for many years, but on May 1 of this year the City Council agreed to the present scheme. The city already possessed nine public baths, of which eight were in the east or north-east portions and one in the south-west, but there was none in the southern portion of the city. The site measured 7,406 square yards, and had been acquired for 750 $\frac{1}{2}$, plus ground-rents of 89 $\frac{1}{2}$ and 44 $\frac{1}{2}$, which were perpetual and which the city would have to pay. The nearest existing baths were from thirty to forty minutes' walk from the proposed site. It was intended in the new buildings to make three plunge-baths. These would be 75 feet long, and one of them would be reserved for women. The width of this bath would be 30 feet, whilst the first and second-class plunge baths for men would be 40 feet and 35 feet wide respectively. The baths would be in three storeys. In addition to the three plunge baths there would be storage-rooms, rooms for swimming clubs, a set of rooms equipped for Turkish baths, and one room for Russian vapour baths. Slipper or wash baths would be provided for

forty-one men and twenty-three women. With regard to the Turkish baths it was intended to make such a charge as would make that part of the outlay self-supporting. The Corporation suggested that the loan of 40,000 $\frac{1}{2}$ which was asked for should be repayable in forty years.

Mr. Rothwell, deputy-chairman of the baths committee, in supporting the application, said the committee were practically unanimous in recommending the plans submitted, to which they had given an unusually large amount of time and attention. In addition to the general public there were twenty-three public schools in the vicinity of the site, and in accordance with the settled policy of the baths committee those schools would be encouraged to send scholars to the baths.

Mr. J. H. Boardman, solicitor, said he appeared to oppose the application on behalf of the Manchester and Salford Property Owners' Association. That body did not oppose baths as such, but they took exception to the elaborate character of the present scheme and to its excessive cost.

Mr. Henry Marsden, one of the councillors for the St. Luke's ward, supported the application. He said that there were hundreds of houses around which were without baths.

Mr. Joseph Derbyshire, the general superintendent of the Manchester Corporation baths, stated that the existing baths were often overcrowded. In 1900 295,446 school children attended them, and of these 139,311 were admitted free. Out of 157 schools, eighty-three had an official connection with one bath or another.

Mr. T. de Courcy Meade, city surveyor, put in the plans and elevation of the proposed buildings, which he described in detail.

The inquiry then closed.

A MEETING of Whitchurch (Cheshire) parishioners took place at the vestry last week to consider the question of further improvements to the church. The chair was taken by the rector, and there was a good attendance. The Rev. C. R. Pembbridge (secretary) reported at some length on the work done and recommended by the committee, showing that the two sides of the church had been covered with stone according to contract, and stating that it was now suggested to treat the west end similarly, also to carry out renovations and improvements in the apse, chancel, vestry, &c. It was decided that the architect should be asked to make an inspection and report as to what was most desirable.

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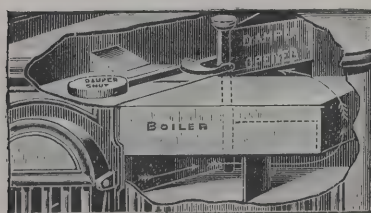
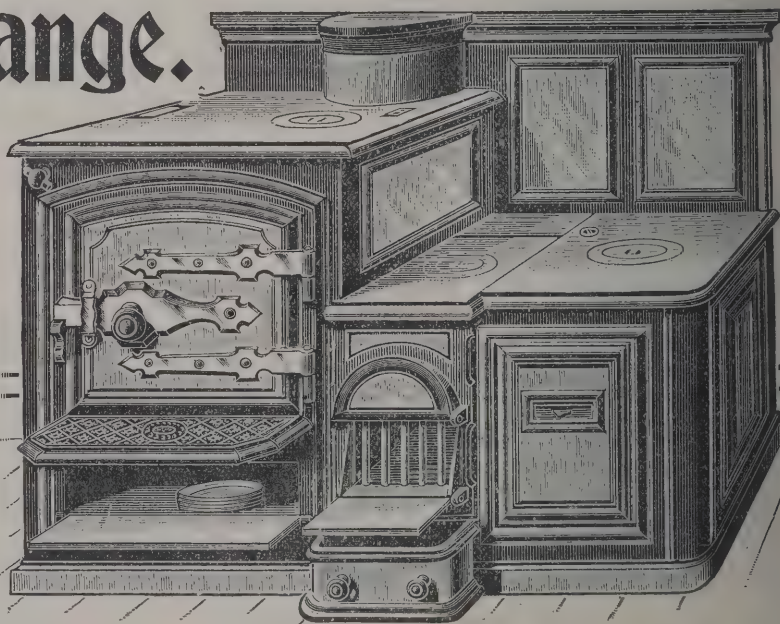
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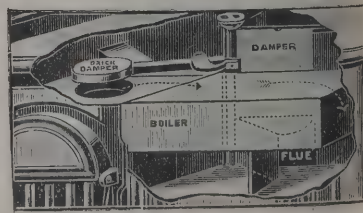
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ELECTRIC LIGHTING IN LEEDS.

THE Leeds Corporation are making extensive preparations for dealing with the increasing demand for electric light and power.

When the new buildings now in progress adjoining the existing generating station in Whitehall Road are completed, the works will cover an area of a couple of acres, and there will be accommodation for engines aggregating 29,700 indicated horse-power, or more than eight times the capacity of the plant when the works were taken over from the House-to-House Electricity Company in December 1898. The plant already installed and on order is equal to an output of 8,740 kilowatts, which will provide for more than double the present demand.

It is expected, says the *Leeds Mercury*, that a large proportion of the increased output will be utilised as motive power. Hitherto the use of electric motors in Leeds has been very limited, due to an impression that prevailed up to recently that the single-phase alternating current was unsuitable for motive purposes.

There have lately been great improvements in alternating motors, and it is now found possible to use this form of current for most purposes. In Leeds single-phase motors can already be seen doing a great variety of work, among which may be mentioned wood turning, cloth finishing, coffee grinding, type setting, printing, copper depositing, lathe driving, coppering, corn milling, driving sewing machines, &c. The large new bakery of the Leeds Industrial Co-operative Society is operated entirely by electrical power, and the printing offices of the *Leeds Mercury* are being fitted with electric motors throughout. The demand for current as motive power has indeed trebled within the last eighteen months.

With a view to meeting the comparatively few cases in which single-phase motors are not the most desirable, the Corporation decided some time ago to provide plant on the "two-phase" system, by which a form of current is supplied that is suitable for all motive purposes. Three engines and alternators (each of 1,000 horse-power) are being erected at the Corporation works, and two-phase current is now available in Whitehall Road, Globe Road, Water Lane, Marshall Street, Manor Road, Victoria Road and other streets in that vicinity.

The great advantage to an electric-supply undertaking of a demand for motive power lies in the fact that such a demand continues for much longer periods than the hours of artificial lighting, and that it keeps the generating plant employed at times when it would otherwise be idle. It is thus possible to

supply current for such purposes at low prices, and the more constantly the motors are used the lower the price that can be accepted. In Leeds the price ranges from 1½d. to 2d. per unit, the lowest price being charged to the customers who use power sixty hours per week and upwards. The maximum of 2d. per unit is only in force in cases where the use is less than twenty hours per week.

The price of current for lighting purposes is also being reduced. At the end of the present month it will be reduced from 5d. per unit to 4d. per unit, the somewhat perplexing scale of discounts hitherto in force being substituted by this uniform method of charge. There is a discount of 5 per cent. for prompt payment, and the charges for connecting, meter rents and other imposts have from time to time been abolished.

As a result of this policy and the extensions of mains in industrial and outlying districts, the use of electric light is spreading rapidly. The Leeds School Board are installing electric light in some of their new schools, and large installations are also being made at the Kirkgate markets, the railway goods yards and other important establishments, whilst the reconstructions of property in the centre of the city have resulted in a large accession of business to the electric-lighting department, which has doubled its output in the last two and a half years.

THE AUCHENCORTH TUNNEL.

A REPORT has been prepared by Mr. Hill, consulting engineer, Manchester, on the tunnel works in connection with the new supply of water from Talla to Edinburgh, and in particular the Auchencorth tunnel, which has shown signs of defects. Mr. Hill has presented an interim report dealing specially with the condition of the damaged tunnel, and reserves his full report until he has had time to examine all the other tunnels in connection with the scheme. As regards the Auchencorth tunnel, Mr. Hill points out that where the failure in the concrete lining has occurred he had advised Mr. Tait, the engineer to the Water Trust, that the work should be opened out from the surface and that the present lining should be replaced with brickwork of 18 inches, with curved and radiated sides and invert. The invert might be formed of three rings of brickwork. This work could be proceeded with at once. The length to be placed is about 100 yards. Mr. Hill is further of opinion that where the tunnels pass through clay and heavy ground the invert should be put in at the same time as the sides

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and arches, and immediately following the driving of the tunnel. It was the most important part of the structure, and ought not to be left out even temporarily. The tunnel at Auchencorth appeared to be the only one which had given way, and he should like to point out that in spite of the work having been suspended for about two years, with the invert omitted and water lying on the bottom and softening the foundations of the side walls, the failure had only just occurred. He observes that the work should not have been subjected to such severe conditions, which were, of course, not contemplated by the design, and adds that the work in the neighbourhood of the Auchencorth tunnel appeared to be satisfactory so far as it had been completed. He strongly recommends that the invert in all cases should be put in without delay, and, of course, where specially bad ground was met with the strength of the work must be increased. The committee directed the engineer to proceed at once to carry out Mr. Hill's recommendation. With reference to probable cost of making good the defects in the Auchencorth tunnel, Mr. Tait reported that having consulted the contractor he was of opinion that a sum of about 4,000*l.* would be required. The work of reconstructing the damaged portion is to be done open cast, which involves a cutting of from 45 feet to 50 feet.

BIRMINGHAM WATERWORKS.

At the Engineering Congress in Glasgow Mr. Mansergh read a paper, in which he said the city of Birmingham, with the district around it which the Corporation supplied with water, was an area of 130 square miles. The present sources of supply were six wells in the red sandstone and four or five small springs. The largest of the reservoirs held over a million gallons. At present the demand was for 19 million gallons a day, but during the last dry season they had to supply 24 million gallons a day. They were, however, in terrible straits, and did not go a year too soon to Parliament for powers to construct works. It was curious that thirty years ago, when he was engineer on the railway passing through the district, he spotted the area from which he was now drawing the water and put it on paper. When in 1890 the Corporation of Birmingham asked him to advise them, it was therefore a very small thing to prepare a scheme. The source of the supply was the river Elan, a tributary of the Wye. The Elan formed the boundary between Breconshire and Radnorshire. From the lowest

reservoir to the centre of Birmingham was just about 80 miles; while to the reservoir outside Birmingham the distance was 74 miles, which was pretty equally divided between tunnel and cut and cover on the one hand and iron and steel pipes crossing valleys on the other. The mean rainfall at the watershed was about 55 inches, and they expected to get 27 million gallons a day, besides giving off a similar quantity as compensation water. The dam, which was being constructed in a narrow gorge at the lowest level of the watershed, would impound over 4,000 million gallons, and there would be provided a supply which would last 180 days. In the course of his remarks Mr. Mansergh stated that at one place, when the dam was completed, an old church would be covered by about 100 feet of water, while in the same district a house which Shelley at one time lived in would also be submerged. They had, of course, a large staff of workmen employed on the works, and they had erected a village with an infectious diseases hospital. New arrivals were lodged in a doss-house for a week, where they were practically in quarantine. By this means they had entirely prevented the outbreak of any infectious diseases. Limelight views were used by Mr. Mansergh to illustrate his description of the works and the natural difficulties which had to be overcome.

Mr. T. Harpur said it had been his privilege to visit these works once a year, and it was his opinion that the doss-house was one of the finest ideas, from a sanitary point of view, that could be conceived; and it had resulted, as they had heard, in entirely preventing disease. The village was also a model one.

In replying, Mr. Mansergh said they had no parliamentary powers to imprison the men in the doss-house, but he thought they all enjoyed it. As they knew, navvies tramped all over the country, and they had men coming and working for them for four or five months and then going elsewhere. Then they came back to the valley, which was about the only place where they got a good clean. All the work was being done without a contractor under the Corporation administration. After he got his committee to agree to that, he told them that they must provide for the housing of the workmen. After disgusting his committee with a description of the usual methods of housing navvies, somewhat emphasised, he got them to agree to provide decent premises. Each of the navvies had a cubicle to himself, and the cubicles were in groups of eight. The result was that they kept constantly on the job a nucleus of good, steady men on whom they could rely. They had huts of five different types for the different ranks of workmen.

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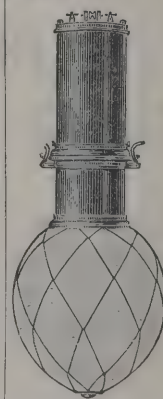
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METROPOLITAN ASYLUMS BOARD.

At the meeting of the Metropolitan Asylums Board on the 7th inst. a letter was read from the Local Government Board stating that, with much hesitation, owing to the large cost involved, but relying on no moneys being expended on any unnecessary work, and on the estimated expenditure (284,312*l.*) not being exceeded, they were prepared to approve the plans of the Southern Hospital, and asking for copies of the plans. Mr. E. White, replying to Sir E. Galsworthy and Mr. W. Crooks, said that the reason the buildings were so costly was that the Local Government Board themselves had insisted that the unit of accommodation in the cottages which were to form the hospital should be smaller than it had hitherto been. The accommodation would be only twelve persons per cottage, although the managers had asked that it should be increased to fifteen, and that had necessitated the construction of a larger number of cottages. The original estimated cost had been reduced as much as possible, having regard to efficiency. The managers accepted the tender of Messrs. J. Parsons & Sons, 118 Church Road, Hove, for the erection, at the sum of 17,228*l.*, of four seaside homes for children at Rustington, near Littlehampton, in accordance with the plans and specification prepared by Mr. Rowland Plumbe, architect, and the seal of the Board was affixed to the contract.

ELECTROLYSIS OF GAS PIPES.

A PAPER was read by Dr. Leybold, Hamburg, on "Electrolysis of Gas Pipes, &c.," at the Engineers' Congress in Glasgow. He said that the durability of gas pipes varied from twenty-five to fifty years. In a few cases, from particular causes, quicker destruction took place. In recent years a new and previously unthought-of enemy of our gas pipes had showed itself, viz. electrolysis. It was known that by the electric current, in the presence of saline solutions of different kinds, metals could easily be dissolved. In Hamburg the pipes were protected with canvas and boiled tar. On examination it was found that in some places the tar as well as the canvas had fallen off and the pipes were eaten through in parts to the size of a centimetre. In removing the covering it was found that the corrosion existed in every stage from the beginning until

complete penetration. Apparently the wrapping with boiled tar and canvas favoured destruction, for in the blisters which were found under the tar it quietly went on, while with a direct bedding of the pipes in the earth without any covering the earth would have absorbed the fluid. These pipes were taken up and replaced by others all covered, but after the expiration of seven or eight months the pipes were found to be again destroyed, penetrated with holes. Every endeavour must be made to reduce the currents passing into the pipes; and when laying down electric tramways great care must be taken to prevent the current flowing into the earth. This could be done in one way by the laying of well-conducted rails, the rails having sufficient transverse section and the points of contact well joined together by soldered copper wire. A further method was by fixing insulated return transmission cables in many places in order to direct the current back from the rails to the electricity works.

THE BRITISH ASSOCIATION.

ON Wednesday the meeting of the British Association at Glasgow was commenced. The president, Professor A. W. Rücker delivered an address, in the course of which he said this meeting of the British Association is not only remarkable as being the first in a new reign. It is also the first in a new century. It is held in Glasgow at a time when your International Exhibition has in a special sense attracted the attention of the world to your city, and when the recent celebration of the ninth jubilee of your University has shown how deeply the prosperity of the present is rooted in the past. What wonder, then, if I take the chair to which you have called me with some misgivings? Born and bred in the South, I am to preside over a meeting held in the largest city of Scotland. As your chosen mouthpiece I am to speak to you of science when we stand at the parting of the centuries, and when the achievements of the past and present, and the promise of the future, demand an interpreter with gifts of knowledge and divination to which I cannot pretend. Lastly, I am President of the British Association as a disciple in the home of the master, as a physicist in a city which a physicist has made for ever famous. Whatever the future may have in store for Glasgow, whether your enterprise is still to add wharf to wharf, factory to factory, and street to street, or whether some unforeseen "tide in the affairs



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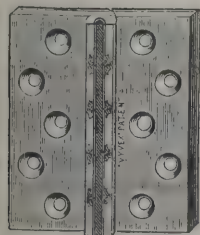
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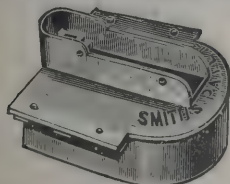
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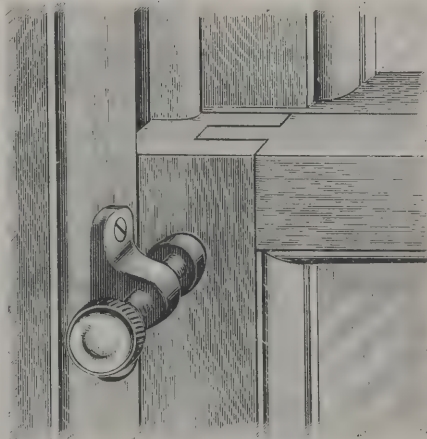
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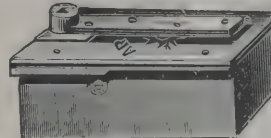
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It is the less necessary to dwell at length upon all that he has done, for Lord Kelvin has not been without honour in his own country. Many of us who meet here to-night met last in Glasgow when the University and city had invited representatives of all nations to celebrate the jubilee of his professorship. For those two or three days learning was surrounded with a pomp seldom to be seen outside a palace. The strange Middle Age costumes of all the chief universities of the world were jostling here, the outward signs that those who were themselves distinguished in the study of nature had gathered to do honour to one of the most distinguished of them all.

Lord Kelvin's achievements were then described in addresses in every tongue, and therefore I will only remind you that we assembled here to-night owe him a heavy debt of gratitude; for the fact that the British Association enters on the twentieth century conscious of a work to do and of the vigour to do it is largely due to his constant presence at its meetings and to the support he has so ungrudgingly given. We have learned to know not only the work of our great leader, but the man himself, and I count myself happy because in his life-long home, under the walls of the university he served so well, and at a meeting of the Association which his genius has so often illuminated, I am allowed, as your President, to assure him in your name of the admiration, respect, nay, of the affection, in which we all hold him.

I have already mentioned a number of circumstances which make our meeting this year noteworthy. To these I must add that for the first time we have a section for education, and the importance of this new departure, due largely to the energy of Professor Armstrong, is emphasised by the fact that the chair of that section will be occupied by the vice-president of the Committee of Council on Education, Sir John Gorst. I will not attempt to forecast the proceedings of the new section. Education is passing through a transitional stage. The recent

debates in Parliament, the great gifts of Mr. Carnegie, the discussion as to University organisation in the North of England, the reconstitution of the University of London, the increasing importance attached to the application of knowledge both to the investigation of nature and to the purposes of industry, are all evidence of the growing conviction that without advance in education we cannot retain our position among the nations of the world. If the British Association can provide a platform on which these matters may be discussed in a scientific but practical spirit, free from the misrepresentations of the hustings and the exaggerations of the partisan, it will contribute in no slight measure to the national welfare.

But amid the old and new activities of our meeting the undertone of sadness, which is never absent from such gatherings, will be painfully apparent to many of us at Glasgow. The life-work of Professor Tait has ended amid the gloom of the war cloud. A bullet, fired thousands of miles away, struck him to the heart, so that in their deaths the father and the brave son, whom he loved so well, were not long divided. Within the last year, too, America has lost Rowland Viriamu Jones, who did yeoman's service for education and for science, has succumbed to a long and painful illness, and one who last year at Bradford seconded the proposal that I should be your president at Glasgow, and who would unquestionably have occupied this chair before long had he been spared to do so, has unexpectedly been called away. A few months ago we had no reason to doubt that George Francis FitzGerald had many years of health and work before him. He had gained in a remarkable way not only the admiration of the scientific world, but the affection of his friends, and we shall miss sadly one whom we all cared for, and who, we hoped, might yet add largely to the achievements which had made him famous.

The Science of the Nineteenth Century.

Turning from these sad thoughts to the retrospect of the century which has so lately ended, I have found it to be impossible to free myself from the influence of the moment and to avoid, even if it were desirable to avoid, the inclination to look backward from the standpoint of to-day.

Two years ago Sir Michael Foster dealt with the work of the century as a whole. Last year Sir William Turner discussed in greater detail the growth of a single branch of science. A third and humbler task remains, viz. to fix our attention on some of the hypotheses and assumptions on which the fabric of

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modern theoretical science has been built, and to inquire whether the foundations have been so "well and truly" laid that they may be trusted to sustain the mighty superstructure which is being raised upon them.

The moment is opportune. The three chief conceptions which for many years have dominated physical as distinct from biological science have been the theories of the existence of atoms, of the mechanical nature of heat and of the existence of the ether.

Dalton's atomic theory was first given to the world by a Glasgow professor—Thomas Thomson—in the year 1807, Dalton having communicated it to him in 1804. Rumford's and Davy's experiments on the nature of heat were published in 1798 and 1799 respectively; and the celebrated Bakerian lecture, in which Thomas Young established the undulatory theory by explaining the interference of light, appeared in the "Philosophical Transactions" in 1801. The keynotes of the physical science of the nineteenth century were thus struck, as the century began, by four of our fellow countrymen, one of whom—Sir Benjamin Thompson, Count Rumford—preferred exile from the land of his birth to the loss of his birthright as a British citizen.

Doubts as to Scientific Theories.

It is well known that of late doubts have arisen as to whether the atomic theory, with which the mechanical theory of heat is closely bound up, and the theory of the existence of an ether have not served their purpose, and whether the time has not come to reconsider them.

The facts that Professor Poincaré, addressing a congress of physicists in Paris, and Professor Poynting, addressing the Physical Section of the Association, have recently discussed the true meaning of our scientific methods of interpretation; that Dr. James Ward has lately delivered an attack of great power on many positions which eminent scientific men have occupied, and that the approaching end of the nineteenth century led Professor Hæckel to define in a more popular manner his own very definite views as to the solution of the "Riddle of the Universe," are perhaps a sufficient justification of an attempt to lay before you the difficulties which surround some of these questions.

To keep the discussion within reasonable limits I shall illustrate the principles under review by means of the atomic theory, with comparatively little reference to the ether, and we may also at first confine our attention to inanimate objects.

The Construction of a Model of Nature.

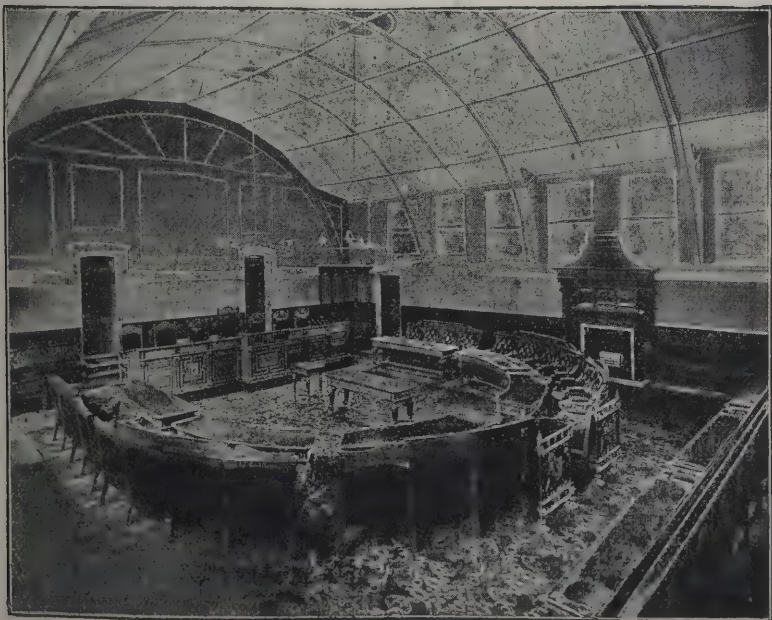
A natural philosopher, to use the old phrase, even if only possessed of the most superficial knowledge, would attempt to bring some order into the results of his observation of nature by grouping together statements with regard to phenomena which are obviously related. The aim of modern science goes far beyond this. It not only shows that many phenomena are related which at first sight have little or nothing in common, but in so doing also attempts to explain the relationship.

Without spending time on a discussion of the meaning of the word "explanation," it is sufficient to say that our efforts to establish relationships between phenomena often take the form of attempting to prove that, if a limited number of assumptions are granted as to the constitution of matter or as to the existence of quasi-material entities, such as caloric, electricity and the ether, a wide range of observed facts falls into order as a necessary consequence of the assumptions. The question at issue is whether the hypotheses which are at the base of the scientific theories now most generally accepted are to be regarded as accurate descriptions of the constitution of the universe around us, or merely as convenient fictions.

Convenient fictions be it observed, for even if they are fictions they are not useless. From the practical point of view it is a matter of secondary importance whether our theories and assumptions are correct, if only they guide us to results which are in accord with facts. The whole fabric of scientific theory may be regarded merely as a gigantic "aid to memory," as a means for producing apparent order out of disorder by codifying the observed facts and laws in accordance with an artificial system, and thus arranging our knowledge under a comparatively small number of heads. The simplification introduced by a scheme which, however imperfect it may be, enables us to argue from a few first principles, makes theories of practical use. By means of them we can foresee the results of combinations of causes which would otherwise elude us. We can predict future events, and can even attempt to argue back from the present to the unknown past.

But it is possible that these advantages might be attained by means of axioms, assumptions and theories based on very false ideas. A person who thought that a river was really a streak of blue paint might learn as much about its direction from a map as one who knew it as it is. It is thus conceivable that we might be able, not indeed to construct, but to imagine, something more than a mere map or diagram, something which

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might even be called a working model of inanimate objects, which was nevertheless very unlike the realities of nature. Of course, the agreement between the action of the model and the behaviour of the things it was designed to represent would probably be imperfect, unless the one were a facsimile of the other, but it is conceivable that the correlation of natural phenomena could be imitated, with a large measure of success, by means of an imaginary machine, which shared with a map or diagram the characteristic that it was in many ways unlike the things it represented, but might be compared to a model in that the behaviour of the things represented could be predicted from that of the corresponding parts of the machine.

We might even go a step further. If the laws of the working of the model could be expressed by abstractions, as, for example, by mathematical formulæ, then, when the formulæ were obtained, the model might be discarded, as probably unlike that which it was made to imitate, as a mere aid in the construction of equations, to be thrown aside when the perfect structure of mathematical symbols was erected.

If this course were adopted we should have given up the attempt to know more of the nature of the objects which surround us than can be gained by direct observation, but might nevertheless have learned how these objects would behave under given circumstances.

We should have abandoned the hope of a physical explanation of the properties of inanimate nature, but should have secured a mathematical description of her operations.

There is no doubt that this is the easiest path to follow. Criticism is avoided if we admit from the first that we cannot go below the surface, cannot know anything about the constitution of material bodies, but must be content with formulating a description of their behaviour by means of laws of nature expressed by equations.

But if this is to be the end of the study of nature, it is evident that the construction of the model is not an essential part of the process. The model is used merely as an aid to thinking, and if the relations of phenomena can be investigated without it so much the better. The highest form of theory—it may be said—the widest kind of generalisation is that which has given up the attempt to form clear mental pictures of the constitution of matter, which expresses the facts and the laws by language and symbols which lead to results that are true, whatever be our view as to the real nature of the objects with which we deal. From this point of view the atomic theory becomes not so much false as unnecessary; it may be regarded

as an attempt to give an unnatural precision to ideas which are and must be vague.

Thus, when Rumford found that the mere friction of metals produced heat in unlimited quantity, and argued that heat was therefore a mode of motion, he formed a clear mental picture of what he believed to be occurring. But his experiments may be quoted as proving only that energy can be supplied to a body in indefinite quantity, and when supplied by doing work against friction it appears in the form of heat.

By using this phraseology we exchange a vivid conception of moving atoms for a colourless statement as to heat energy of the real nature of which we do not attempt to define; and methods which thus evade the problem of the nature of the things which the symbols in our equations represent have been prosecuted with striking success, at all events within the range of a limited class of phenomena. A great school of chemists, building upon the thermodynamics of Willard Gibbs and the intuition of Van t'Hoff, have shown with wonderful skill that, if a sufficient number of the data of experiment are assumed, it is possible, by the aid of thermodynamics, to trace the form of the relations between many physical and chemical phenomena without the help of the atomic theory.

But this method deals only with matter as our coarse senses know it. It does not pretend to penetrate beneath the surface.

It is, therefore, with the greatest respect for its authors, and with a full recognition of the enormous power of the weapons employed, that I venture to assert that the exposition of such a system of tactics cannot be regarded as the last word of science in the struggle for the truth.

THE STREETS OF SYDNEY.

THE mayor of Sydney, Sir James Graham, lately commissioned Mr. W. H. Warren, Challis Professor of Engineering at the University of Sydney, to "report on the construction and maintenance of the streets of Sydney." The report has been prepared. The Mayor's instructions were that the following subjects were to be considered:—(1) In what respects the streets of Sydney differ from the streets of the best cities in Europe and America; (2) the present condition of the Sydney streets; (3) the methods of construction adopted and the materials used in the Sydney streets; (4) the best methods of

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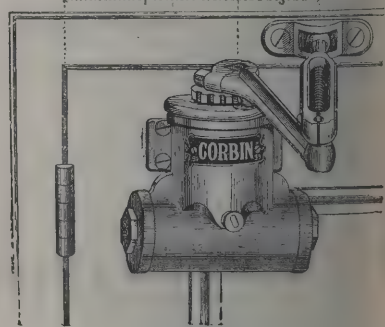
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constructing and maintaining the streets of Sydney; and (5) the efficiency of the department entrusted with the construction and maintenance of the streets. The report dealt with the matters in this order:—(1) Macadamised pavements; (2) wood block pavements; (3) asphalt pavements; (4) brick pavements; (5) stone-set pavements; (6) pavements of various materials; and (7) the efficiency of the staff entrusted with the construction and maintenance of the streets.

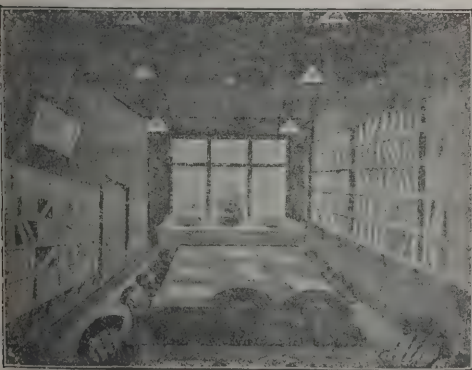
(1) The macadamised roads of the city of Sydney, taken as a whole, have not been constructed and maintained in a satisfactory manner, and they do not compare favourably with those of the principal cities of Great Britain, Europe and America subject to similar traffic conditions. (2) The primary cause of the unsatisfactory state of the streets of Sydney is due to the neglect in supplying them regularly with sufficient road metal of suitable quality for their efficient maintenance. (3) The diminution in the quantity of road metal supplied each year from 1892 to 1899 accounts most fully and completely for the gradual deterioration of the streets during the periods referred to. (4) The responsibility of the policy of starving the streets during the periods referred to rests absolutely with the City Council. No portion of the responsibility can be attached to the city surveyor, as in his letters and reports to the Council he clearly pointed out the effect of the policy adopted, and urged the City Council to vote the necessary supplies of road metal to enable him to maintain the streets in a proper manner. (5) The necessity of supplying the streets with a sufficient quantity of road metal for their efficient maintenance is now fully admitted by the City Council, and the supplies voted recently greatly exceed those during the last ten years. (6) Considerable improvements must be made in the methods of construction and maintenance, in order to bring the streets up to the standard of the principal cities in Great Britain, Europe and America. (7) In regard to foundations, although the streets have been allowed to deteriorate, in consequence of the policy referred to, and in many cases the traffic has worn more or less into the sandstone foundations, I do not consider it wise to reconstruct the foundations in all cases. The large, wide sandstone pitchers, such as those now being used in the Darlinghurst Road, are too costly, besides being inferior as a foundation to narrower pitchers, similar to those adopted in the Telford roads, or a bed of sandstone broken to a gauge of 4 inches laid 8 inches deep may be advantageously used. The old road surface, if properly cleansed and scarified, in some cases before

spreading the road metal, would make a better foundation, and a shallow trench excavated on each side of the road, defining the width of the portion over which the metal is to be spread, would prevent it spreading under the roller. In regard to the quality of the road metal supplied, I find by various tests and observations that the material is very variable, but the specimens supplied were not properly prepared, and consequently the results do not warrant me in expressing anything more definite than what is contained in that portion of the report referring to this matter. In regard to the size of the broken stone, the specified gauge of $2\frac{1}{2}$ inches is too large for the top course, but even this is exceeded in the road, whereas all experience shows that better results are obtained with suitable metal when the maximum gauge for the top course is 2 inches, with sufficient screenings to just fill the interstices and insure thorough consolidation under the road-roller. The streets of Sydney have not been sufficiently rolled, consequently the road metal is not properly consolidated. Ten times as much rolling is necessary to make a durable road, and each layer of not more than 4 inches, preferably 3 inches, should be thoroughly consolidated before the second layer is spread, using a road roller weighing from 15 to 20 tons, passing from fifty to seventy-five times over every portion of the road from the sides towards the centre. During the process of rolling the metal should be abundantly watered. The binding material should be free from clay or other material liable to form mud when watered, and should consist preferably of the sweepings and scrapings of macadamised roads. The binding material should be spread on the top of each layer after it has been partially consolidated with the roller, but only a small quantity should be used, not exceeding 10 per cent. to 12 per cent. of the thickness of the metal, which should be rolled in until the metal is thoroughly consolidated, and the surface brought to a hard, smooth and uniform condition. (8) In regard to maintenance. It will not be possible to establish a proper system of maintenance in the first instance until the streets have been brought up to a uniformly better condition. When this has been done they will be more economically and efficiently maintained by periodical re-sheeting or recharging with road metal, accompanied by partial repairs or patching during the intervals. Experience shows that in city streets this method is preferable to the system of minute and constant repairs usually adopted on country roads in France subject to light traffic. The intervals between recharging will depend upon the traffic and corresponding

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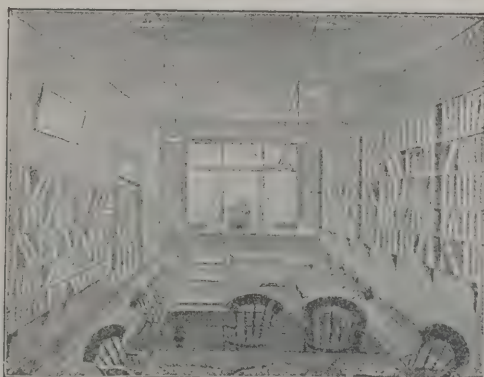
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wear, and will vary from two to five years in Sydney. In patching defective portions care should be taken to thoroughly cleanse the surface and pick round the portion to be patched before depositing the metal, so as to insure a union between the old and the new materials. Small patches should be consolidated with the rammer, and, as far as possible, the surface should be properly restored before the traffic is allowed to pass over it. The recharging or resheeting need not always be extended over the entire surface of the road, as the greatest wear may be in the centre, but in any case a furrow should be excavated defining the width of the metal in the manner referred to in clause VII. (9) The streets should be swept periodically at least once a week, and the mud removed whenever it is found necessary to do so, the material thus obtained being used for binding in the construction of the new and the maintenance of old roads. The sweeping would be more effective if the street surfaces were in a better condition. The watering of the streets should be more carefully regulated according to the weather, so as just to lay the dust, and not so much as to cause the road to be muddy half the day. If a hose is used care should be taken not to injure the road surface or remove the binding material. The system of cleansing, watering and maintenance should be thoroughly reorganised under the supervision of the city surveyor, assisted by competent officers and overseers possessing experience in street maintenance. In view of the impossibility of economically maintaining macadamised streets in an efficient manner when subjected to a traffic exceeding 25,000 tons per yard width per year, no matter how perfectly they are constructed, all such streets should be paved with wood on a concrete foundation where this traffic is exceeded, either with new blocks or old ones which have been cleaned and recut, according to the traffic and the character of the street in regard to value of property, gradient, &c. Careful records should be kept as to the nature and amount of traffic passing over the principal Sydney streets and the results reduced to tons per yard in width; also the cost of maintenance, more especially in macadamised roads. The method described of calculating the annual cost of a street will show whether a particular method of paving is the most economical under the circumstances.

(10) The close-jointed timber pavements in Sydney are at least as good as the best in any city in the world, and their use should be extended as far as possible whenever justified by the weight of traffic passing over the street, or the annual cost of the macadamised street, provided that the gradient is not

excessive. (11) Flushing the wood-paved streets at night is an excellent way of cleansing them, and during the summer months they become dry before the heavy traffic commences; but during the four winter months, from April to July inclusive, they should not be flushed, as they remain wet during nearly a whole day and require sanding. This is especially noticeable in such streets as Park, Bathurst and Market Streets. The wood pavements should be sanded when they become slippery after wet weather to give a better foothold for horses, more especially when the gradient is steep, as in Liverpool Street.


(12) In regard to tarred metal:—The use of tarred metal in secondary streets of light and moderate traffic should be continued, but proper attention should be given to boiling the tar and incorporating it thoroughly with the metal.

In regard to footpaths:—Tarred metal footpaths are not good enough for the principal streets of a city; they may, however, be used for secondary streets of light traffic. (13) The best material for footpaths for a city like Sydney is asphalt, either a gritted mastic, compressed powder, or slabs of compressed asphalt. Asphalt should be used in preference to any kind of stone slab, and asphalt squares appear to be the best suited for the principal streets, as they can be lifted and relaid in case of repairs to pipes more easily than a monolithic pavement. It is desirable that all pipes, &c., under the pavements of the footpaths should be laid in subways, so that they may be repaired without disturbing the surface. It would be a great advantage to the City Council if a dépôt were established for laying asphalt pavements and storing the material, similar to the one in Kent Street for wood pavements, as the first cost of machinery and appliances would not exceed 6,000/., and would have sufficient capacity to lay 600 square yards in twenty-four hours, or about 200 yards of footpaths 12 feet wide.

After careful investigation and consideration of the subject Professor Warren submitted the following recommendations:—

1. That great care and vigilance be exercised in street construction and maintenance in accordance with the principles and practice described and discussed in this report. That all the details as to quality of materials, gauge and proportion of screenings and binding, rolling, watering and cleansing be rigidly enforced.
2. That a dépôt be established for laying asphalt footways with mastic, compressed powder or asphalt slabs, provided with the necessary machinery and appliances for preparing the material, conveying it to the site and laying the pavement.
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made in connection with the staff engaged in street construction and maintenance as will enable the foregoing recommendations to be effectively and economically carried out.

CONSTRUCTION IN RELATION TO INSURANCE.

THE Underwriters' Association of Canada at a recent meeting decided to extend to the towns and smaller cities throughout the country the rule under which buildings are classified for insurance purposes according to the character and surroundings of the building. This system has been employed for some time in Toronto, and is generally acknowledged to be the most equitable one. It is obviously unfair that the owner of a building belonging to a certain class who takes precautions to guard against its destruction by fire should be obliged to pay insurance at the same rate as another owner in the same class who takes no such precautions. The situation and surroundings of a building also have much to do with its desirability or otherwise as a fire risk. These circumstances ought to be taken into account by the insurance authorities when fixing the rate of insurance to be paid. The more strictly this system is applied the more general will become the construction of fire-resisting and fire-proof buildings. It is said, on the authority of prominent insurance firms, that during the last five years the rate of insurance on this class of building in Toronto has been reduced by 50 per cent., which should certainly offer a strong inducement to persons proposing to build to employ fireproofing methods and materials. Care should be taken, however, to see that when these materials are employed, the system of fireproofing is carried far enough to place the building in the favoured class. Prominent buildings have been erected in Toronto within the last three years in which the ceiling and floors have been fireproofed while the stairways have been left open to act as flues and cause the destruction of the building in case of fire. A partial system of fireproofing like this which disregards essential features, such as those mentioned, is valueless, and the money expended on expensive materials wasted. The record of fires in Toronto last year is very gratifying. The total number of fires was 686. For 328 no losses occurred, and for 221 the loss in each case was less than 100 dols. The losses above insurance totalled only 13,289 dols., and the losses without insurance to only 9,434 dols. Only one fire extended beyond the building in which it started,

which would seem to point to a high standard of efficiency of the fire department. To what extent improved methods of building construction contributed to this excellent showing is not known, but it may reasonably be presumed that some credit is due in this direction. The record of fire losses in the United States for the first six months of the present year shows the total losses to have been 88,935,000 dols., as compared with 103,299,000 dols. for the corresponding period of last year.

SUGGESTIONS FOR USING PORTLAND CEMENT.

KEEP the cement perfectly dry until ready to use it in mortar.

Use dry, clean, sharp sand, and use the least amount that will fill the voids. Increasing the percentage of sand reduces the strength and slows the setting. Wet up only so much mortar at one time as can be used before setting commences.

Do not permit the finished work to dry out quickly; after it has commenced to harden cover with wet sand or burlaps and keep wet for a fortnight. Concrete ditches, flumes and reservoirs should be washed over with a thin cement, grouting fast as built. After the mortar has set a day or two it is well to flood it and keep the water standing stagnant a fortnight.

If the finished work cannot be kept covered as above, keep wetting it by daily sprinkling. Water is the life of Portland cement mortar.

When concrete is laid in large bodies it is allowable to imbed irregularly throughout its mass as many large stones as is consistent with their being well bonded together by the mortar.

In concrete it is desirable that the aggregates should be graduated in size, then they pack closer and require less cement mortar to fill the voids. The stone should be hard, angular and free from dust.

Do not mix lime with cement, it tends to make the mortar crack.

In masonry the stone or brick should be thoroughly wet before laying.

In sidewalks, as fast as the concrete is tamped to a surface the top coat should be spread on in order to bond the two layers together.

Ordinary lampblack injures cement mortar, mineral colours do not; sienna, Prince's metallic, Venetian red, Prussian blue, ground coal or oxide of manganese are good.

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Before laying concrete the ground should be saturated with water and rammed to prevent absorption of moisture from the mortar or setting.

The longer a Portland cement is kept the slower setting it becomes, provided it is not kept in an airtight package.

Portland cement factories can usually furnish either a slow or quick-setting cement if allowed sufficient time to meet the requirement.

The better the ultimate quality of concrete the slower it is in hardening.

The aggregate used in making concrete, whether it be crushed stone or gravel, should be clean, hard, angular and durable. If crushed stone be used it must be freed from the dust that adheres to it in passing from the crusher. This can be done by turning water on it. The stone should also be screened, not to secure a material of uniform size, but to keep the sizes between maximum and minimum limits.

No parts smaller than coffee beans or larger than $1\frac{1}{2}$ inches in any direction should be used. All dust should be screened or washed out.

The amount of water needed will depend upon the percentage of voids between the particles, and should be sufficient to completely fill the spaces and bond the stones together.

Good gravel affords a cheap and durable material, for concrete, the difficulties are that it is liable to be dirty the pebbles are not angular, and as used it often contains an excess of sand.

THE SANITARY REGULATIONS OF NEW BUILDINGS.

At the meeting of the Sanitary Association of Scotland a paper on "Some Moot Points in the Sanitary Regulations of New Buildings," was read by Dr. A. Campbell Munro, Paisley, officer of health for Renfrewshire. In a damp, rainy climate the question of the prevention of dampness in dwelling-houses was one, he said, of primary importance. There was no doubt that residence in damp houses predisposed one to rheumatism, consumption and lung disease. And of the elements in the prevention of dampness none was of greater importance than the material of which the damp-course was principally composed. Now he was advised by the most competent architects that in our wet climate the Caithness flags or lead (which, however, were seldom used) should be required in

the case of all main walls. Just a few days ago he was present at a committee meeting, at which the operations for the enlargement of a building, erected six years ago, were under consideration, and the architect reported, as a result of an examination of three separate points where the walls had been taken down to the foundation, that there were no damp-courses in the walls. Now he (Dr. Munro) had been able to assure the meeting that when the building was being erected he had seen the damp-courses laid. Yet those damp-courses laid only six years ago had absolutely disappeared; they had been made of "an asphaltic composition." Dealing with ventilation, he argued that every habitable apartment should have a fireplace and chimney flue, the next best thing being an upcast shaft. After pointing out the dangers of the concealed bed, he spoke of the necessity of good back court ventilation, and the advantages of back lanes for ventilation purposes, whilst the lanes could also be used for the passage of drains leading to the houses, thus obviating the present objectionable arrangement of carrying drains under closes, a system which often led to sewer gas finding its way from the drains under the close into the houses. In reference to all drains, and the entire sanitary fittings of houses, these should be carefully and most accurately examined, whilst internal soil-pipes should be avoided and the pipe placed out from the wall naked and unashamed.

Dr. Munro moved—"That the Sanitary Association again place on record its approval of the movement for the registration of plumbers as being calculated to promote the sanitary condition of dwellings by securing efficiency in their drainage and plumbing work, and advises the council of the Association to support the Plumbers' Registration Bill when that measure is reintroduced into Parliament."

The resolution was carried.

HOUSING THE SCOTTISH LABOURING CLASSES.

At the Congress of the Sanitary Association of Scotland in Paisley Mr. Peter Fyfe, sanitary inspector, Glasgow, read a paper on "The Advantages and Disadvantages of Housing the City's Labouring Classes in Areas outside the City." When he spoke of the housing of the poor he meant the housing of a man or woman who did not earn on the average more than 25s. per week, or of a household whose earnings did not exceed 30s. It would assist them in the consideration of the matter if

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they agreed that persons in households making more than these sums per week were excluded meantime from their calculation. Then how best could they house comfortably and sanitarily the thousands who come within the figure, and under what conditions was it practically possible to suitably accommodate them with the best economy to themselves and with the least burden to the general community? Manifestly there were two methods—(1) To acquire land in the country and build cheap dwellings there, providing for them rapid transit at very low rates; (2) to acquire sites in the town and erect three or four-storey blocks at distances convenient to their spheres of labour. There were very high authorities who saw in the first proposition the only solution of the problem, particularly as it was set in such cities as London, Glasgow, Liverpool and Manchester. There were others who condemn in no measured terms such proposals as quite utopian, as Mr. Hunter, of the London County Council, who stated to that august body that "he knew these people man to man, and that it was mere folly to say that they—the casual labourers, who had to follow their work day and night at all hours—could go and live in the suburbs." Mr. Fyfe then pointed out the advantages of the country as compared with town residence. In this connection he instanced the facilities given by the railway companies to working men for cheap travelling, the companies taking working men seven miles to Clydebank or Paisley for 1s. per week. It was reasonable to think that if the companies could carry men that distance for 1s. they might carry them, say, to Tollcross from the city for 6d. per week. With a reduction such as this, many might be induced to abandon their city haunts, but without it the allurements and the acknowledged conveniences of a city would outbalance in the mind of the labourer the hygienic advantages of green fields and fresh air. But, setting aside sentimental and family reasons, and looking simply at the financial side of the question, it seemed to him impossible to expect any solution of the problem by acquiring ground in the country until Parliament takes the whole question of railway and tramway rates for the poorer classes into serious consideration. It was obvious, looking at the table of railway rates and the corresponding distances travelled, that there was a want of system. The zone system was not in operation in Glasgow, for a poor person had as much to pay in order to travel from Glasgow Cross to Partick as to go on to Clydebank, and while he could get from Glasgow to Paisley and back for 2d. per day, he had to pay 4d. per day to get to Barrhead, practically the same distance. Mr. Fyfe then gave

statistics showing the cost of erecting working-men's houses in Glasgow, London, Manchester and Liverpool, and whilst so doing he emphasised the fact that both in town and country most dwellings for poor people were not, either in size or structural requirements, suitable as healthy houses. In concluding, he said that his general conclusions were that—(1) Wherever the price of land exceeds 30s. per square yard the housing of the poor upon such land cannot be accomplished so as to meet the requirements of sanitation and the necessities of sound finance; (2) before the erection of labourers' dwellings in suburban areas on cheap ground can be undertaken with economic safety to the municipality or other undertakers it is essential that railway and tramway companies shall reduce their fares to poor persons to about 1d. per day for the return journey, or 6d. per week; (3) in cases where ground in a town is dearer than 30s. per square yard, or the cost of transit to and from suburban areas is not considerably less than 1s. per week, the housing of the poor cannot be accomplished in accordance with healthy conditions, without great risk of loss to the undertakers, or otherwise without laying a burden on the general rates; (4) where ground within a city or town can be secured at less than 30s. per square yard, the municipalities may erect blocks of sanitary dwellings for the poor and rent them without necessarily incurring financial loss, or causing undue risk to the health of the tenants.

Mr. Fyfe said he would like to follow up what he had now stated by moving a motion:—"That in the opinion of this Congress of the Sanitary Association of Scotland the problem of the housing of the poor in suburban areas, or in the country, cannot be solved until the rates charged for transit to or from the city or town are so reduced as to make the country rents, plus travelling expenses, lower than town rents are presently charged in modern sanitary dwellings."

After discussion, the subject was referred to the council of the Association for consideration.

THE WORKMEN'S COMPENSATION ACT.

A SPECIAL committee of the Trades Union Congress, after considering the ten notices of motion with respect to the necessity for amending the Workmen's Compensation Act, recommended that the parliamentary committee should urge upon the Government and Parliament the desirability of amending the Workmen's Compensation Act 1897, in the



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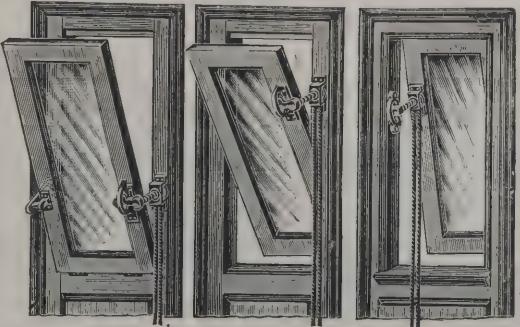
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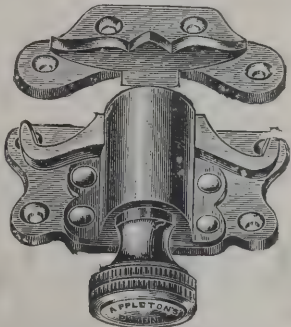


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following particulars:—"That the basis of claim be fixed on the average wage per hour as representing a week's earnings instead of the average week, as at present. That all work-people, of whatever trade or calling, be brought within the operations of the Act, and that compensation be paid for all injuries sustained in the course of their employment. That the 30 feet limit, as regards buildings, &c., be deleted from the Act; and also that the fourteen days' limit, as regards liability, be abolished and the compensation be paid as from the date of the injury. That Schedule 1 (B) be amended so as to read as follows:—Where total or partial incapacity for work results from the injury there shall be a weekly payment during the incapacity of not less than 50 per cent. of the recognised rate in the trade or calling to which the injured person may belong, but in no case shall the compensation paid fall below 10s. (ten shillings) per week for persons over eighteen years of age. Young persons under the age of eighteen permanently injured in the course of their employment shall have their compensation fixed on prospective earnings; and in the case of adults permanently injured a judge shall have power to grant a lump sum as compensation. In no case shall a person who is in receipt of compensation be compelled to undertake any work other than that in which he was engaged when he met with the injury.' Also that subsection (C) of section 2, which reads, 'If it is proved that the injury to a workman is attributable to the serious and wilful misconduct of that workman, no compensation claimed in respect of that injury shall be allowed' be deleted."

HOUSES FOR THE LABOURING CLASSES.

At the Engineering Congress, Glasgow, a paper was read on "The Problem of the Housing of the Labouring Classes, with Special Reference to Suburban Districts," by Mr. A. H. Campbell, engineer and surveyor, East Ham Council. He said his Council had secured Government approval of a scheme for the erection of fully 540 separate houses, and the scheme, including outlays for land charges, formation of roads and contingencies, would cost 120,000*l.* The question of transport was of very great importance in dealing with this problem. If abundant, cheap and ready means of transport were not provided, then the labouring classes would continue to crowd together in the hearts of the cities, and because of its importance as a factor in the problem it was one among many weighty reasons for the municipalisation of the tramway service. It might be assumed,

the author thought, as a rule that any inclusive rent exceeding 1*s.* a day became burdensome to the class of tenant sought to be catered for by a public authority, who was supposed to be in receipt of a maximum wage of 30*s.* per week. He submitted that the workman's ideal house should have an entrance and an exit independent of any other house, and should have the following accommodation:—(1) Kitchen of 144 superficial feet; (2) scullery with small range, copper and bath, of 70 feet; (3) parlour, usable as a bedroom, of 125 feet, and (4) bedroom of 96 feet; making a total of 435 superficial feet, together with arrangements for coals, water-closet, clothes closets and larder. This was the class of houses at East Ham. On plans such as these there might grow up around the outskirts of our great cities ranges of plain, substantial, well-appointed labourers' cottages, fulfilling the ideal of homes for the rearing of healthy offspring, untainted by evil and squalid surroundings.

The chairman (Mr Mawbey) asked if it was not a fact that poor people, earning from 25*s.* to 30*s.* a week, had to go into lodgings or to go two families into one such house as Mr. Campbell had described.

Mr. Campbell: We do not permit two families in a house, nor lodgers either, at East Ham.

The Chairman said it was just a question whether it was not advisable to have some two-roomed tenements at a less rent, perhaps at 1*s.* 6*d.* a room per week. It appeared to him that that was the great necessity of large cities.

Mr. J. Lobley, Hanley, said it seemed to him that the working-class tenants wanted municipalities to provide houses worth 7*s.* per week, but for which the tenants would have to pay only 3*s.* 6*d.* What was wanted was the class of houses that would be suitable for the people living in the slums when they were forced to remove owing to public improvements and for other reasons. Private enterprise made no provision for these people, and he should like to have seen some feasible plan suggested by which that want could be met. The nearest approach to what he desiderated he had seen in Edinburgh, where suitable houses had been erected by the Corporation, but the rents there were higher than in Hanley. To provide houses such as those suggested by Mr. Campbell would result in the creation of a privileged class, which for many years at least would be a minority. They would have a house of a market value considerably greater than their neighbours who would be paying the same rent, and the ratepayers would have to provide the difference.

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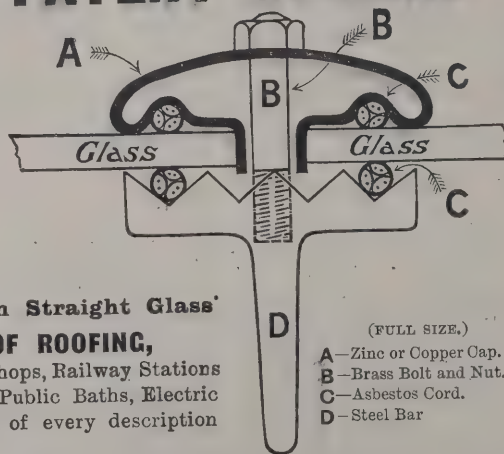
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Mr. Munse, Belfast, maintained that the mistake in planning these workmen's houses was that the gentlemen who designed them were more used to planning mansions than working-class dwellings. The workmen's houses in some parts of the country were too substantially and permanently built, and were too well finished. If some gentlemen would get rid of the big ideas they had and try to build for the working people and not for the aristocracy they would find that they would suit the people far better.

Mr. Campbell, in replying, said Mr. Munse's observations applied to Belfast, but they were not correct as applied to the Metropolis.

ST. BENET'S MINSTER.

THE first portion of St. Benet's Minster, Beccles, was opened with considerable pomp on the 4th inst. The edifice forms a very handsome addition to the architectural features of the town. The position of the buildings in existence prior to the commencement of the Minster rendered it impossible that the Minster should be orientated, consequently it lies north and south; the chancel, which is not yet built, being to the south. The material employed for the interior is Bath stone, and for the outside Ancaster stone with Bath stone dressings. The Minster when completed will consist of nave and aisles, with west porch, a baptistery to the east, central tower and transepts, sanctuary and lady chapel beyond, the aisles being continued round the sanctuary. Up to the present the nave and aisles, together with the foundations of the west porch up to the plinth line, are all that are completed. Above the arches of the nave are the triforium and clerestory. The confessionals are at the south end of the west aisle, and the organ—which is the same one as used in the temporary church—is placed in the west aisle. West of the choir aisle will be the sacristies and statio. The main entrance is on the north from St. Mary's Road, being 12 feet 6 inches above the crown of that road, and is approached by steps and terraces. The north porch is formed from the thickness of the wall, and has a depth of 8 feet 6 inches. The extreme interior length from lady chapel to the north porch will be 182 feet. The dimensions of the nave are 84 feet in length, consisting of seven bays, with a height of 40 feet and width of 21 feet. The aisles, which are designed merely for processional purposes, are 84 feet long by 7 feet wide, and 16 feet in height. The tower will be 25 feet square externally, and will rise to a height of 81 feet above St.

Mary's Road. The floor of the sanctuary will be 3 feet above that of the nave, and there will be another rise of 3 feet in the lady chapel. The roof of the nave is barrel-shaped inside, lathed and plastered. The bay over the temporary altar is handsomely decorated in gold, with shields containing sacred emblems. The arches of the nave are supported by massive piers. Against these are semicircular shafts, which rise to the spring of the clerestory windows, where they end in a cap. Here the principals of the roof begin, and to them are mortised ribs, which are carried over the nave, forming circular arches to each bay. The nave is not benched, and the floor is of cement. The pulpit, which is presented to the church by the architect's father, Mr. F. Banham, is of Caen stone with marble columns with handsomely carved caps, and although not quite in keeping with the Norman style of the building, is a very effective piece of work. On the right hand side as the west porch is entered is the chapel of the patron saint, St. Benedict, in which is a miniature copy of the statue of St. Peter at Rome. On the left hand side of the entrance to the monastery and cloister is a statue of the Sacred Heart; on the right the statue of St. Anthony of Padua, whilst on the right hand side of the altar rail is a statue of St. Joseph. The special feature of the east aisle is the shrine of Our Lady of Good Counsel, made beautiful with gold and colouring, and containing a copy of the miraculous picture at Genazzano. On the right of this, close to the pulpit, is a facsimile of the statue of the Holy Child of Prague. The interior will be lighted by gas, incandescent burners being used. The style of architecture is that of the Norman period shown in the massive piers of the nave, 4 feet 6 inches across, and the outer walls 2 feet 6 inches. Finally, the general plan of nave and aisles would remind those who have seen it of the beautiful Norman church of Blyth, on the borders of Yorkshire. The north façade might recall ideas of Kirkstall and Landisfarne, and the transepts and south end Ramsey. Iffley, in Oxfordshire, pays its contribution in the tower, and old historic Benedictine Glastonbury gives its support to the fabric in the buttresses of the lady chapel and baptistery. The architect is Mr. F. E. Banham, of Beccles, and the contractors are Messrs. Allen, of the same town, whilst Mr. W. Gibbs (Beccles) has been responsible for the glazing, painting and gasfitting. The present temporary church of St. Benet's will be altered so as to form the cloister and hall for social and parochial purposes. It must be added that a handsome high altar and tabernacle are now being designed, the cost of which—500*l.*—is being met by

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an anonymous donor. To complete the Minster, another 8,000*l.* or 9,000*l.* is required, and it is estimated that the total cost will be about 16,000*l.* or 17,000*l.*

BUILDING RITES.

A BOOK has been published in America on Foundation Rites, &c. Apropos of it, a writer in *Stone* says:—

When the master masons and builders in the dim ages of antiquity erected their elaborate temples and fanes they doubtless imagined that the structures of solid stone would stand until the end of time as monuments of their taste and industry. But the storms of the centuries beat down upon them and the sands of the deserts pitilessly pelted them, and they crumbled into decay. Many of them have passed wholly out of the ken of man; others are revealed only in disjointed fragments by the spade of the tireless archæologist, while a few survive as hoary ruins that scarcely reveal their original intent and purpose. If the builders, then, could realise what had become of their handiwork, wrought in eternal stone, would they credit the fact that the ceremonials with which they hedged about the erection of the walls would actually survive the masonry and laborious carving itself? All about us, in the present enlightened age, are customs and ceremonials connected with building that had their origin in the far back pagan days. They have been handed down from generation to generation like the unwritten rituals of a great secret order. When our public buildings are dedicated, and public functionaries lay the corner-stone with silver trowels, we are simply following out the customs of our forefathers, with such modifications as the advance of civilisation has made necessary. In the olden days, when life was cheaply held and superstitions were rampant on every side, it was the invariable custom to immure a living being in the walls of a building or to crush him beneath the foundation-stones. The purpose was doubtless to propitiate the evil spirits or to give the building a spirit of its own.

In Alaska, before the United States began to govern it without its consent, human foundation sacrifices were common. The site of the fireplace was marked, and postholes were dug at the four corners. A blindfolded slave was made to lie down, face uppermost, on the spot chosen for the fireplace. A sapling was laid across his throat. At a signal the two nearest relatives of the house-owner sat, one on one end, the other on the other end of the sapling, choking the poor wretch to death.

Four more blindfolded slaves were brought forward. Each was made to stand in a posthole and was clubbed to death "with a club ornamented with the host's coat-of-arms." Among the Dyaks of Borneo, when a house was to be built, a big hole was dug for the first post, which was suspended over it. A slave girl was dropped into the hole and crushed to death. In 1881 the King of Ashanti put to death fifty girls and mixed their blood with the mud wherewith he repaired the royal palace. The kings of Burmah buried four human beings alive at the corners of the capital, that their spirits might keep watch and ward off invasion. In the Japan of the seventeenth century, when a great wall was to be built, a slave would voluntarily lie down in the trench and be crushed to death by great stones lowered upon him. Human skeletons are often found in walls of old buildings and foundations of old bridges. Many times in Asia there have been popular panics caused by the fear that the old foundation customs were to be revived. As the Siberian railroad drew near the Chinese frontier there was a great hullabaloo in Peking. It was rumoured that the Russian Ambassador had asked her Humanity, the present Chinese Empress, for a couple of thousand children to bury under the rails. There was a similar scare in Calcutta when the Hooghly Bridge was building. The natives got it into their heads that after long refusal Mamma Ganges had agreed to be bridged on condition that each pier should rest on a layer of children's heads.

Ultimately animals and animal and vegetable products were offered instead of human beings. That Naples is built on an egg is known to all readers of the Mediæval legends about the great enchanter, Virgil. A tallow candle was built into the wall of St. Osyth's, Essex. A chicken, cock, lamb and so on takes the place of a slave or other human victim. A living blind dog buried under a stable threshold will keep the cattle from straying. The burial of a live dog is also a good remedy for quicksands. There is a Russian folk-belief that the first person to enter a new house will die within the year unless an animal is killed and buried when the first stone is laid. Or at the first axe stroke the carpenters must call out the name of some bird or beast, which beast or bird will positively die during the year. "In modern Greece," Mr. J. G. Fraser tells us, "sometimes, instead of killing an animal, the builder entices a man to the foundation-stone, secretly measures his body or a part of it, or his shadow, and buries the measure under the foundation-stone; or he lays the foundation-stone upon the man's shadow. It is believed that the man will die within the year. In the island of Lesbos it is deemed enough if the

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builder merely casts a stone at the shadow of a passer-by; the man whose shadow is thus struck will die, but the building will be solid. A Bulgarian mason measures the shadow of a man with a string, places the string in a box, and then builds the box into the wall of the edifice. Within forty days thereafter the man whose shadow was measured will be dead and his soul will be in the box beside the string, but often it will come forth and appear in its former shape to persons who were born on a Saturday." In these cases the shadow is the life, soul or strength, according to a common article of primitive faith, no harder to believe, perhaps, than most other things are.

But let us borrow a Roumanian folk-tale from Mr. Burdick. Radu the Black had promised Manoli and the other masons gold in piles and titles to burn if they would build him the fairest palace ever seen; but if it was not up to specifications he swore that the bunglers should be walled up in his monastery. Four days the masons worked, there being no union to prevent them. Four nights all that they had built tumbled down, toppled over, we may believe, by the walking delegates of the devil. On the fourth Manoli had a dream of dread. A voice had sounded in his ear that every night would undo the toil of the day if the masons didn't build, living, into the wall the first woman that should come upon them. Manoli told his dream to his fellow workmen. All took oath to obey the voice. The next morning Manoli, full of black presentiment, stood upon the scaffold and watched the country round about. His wife, Flora the Beautiful, was coming with his breakfast. He held her in his arms while the wall of death was rising around her. When she could be seen no more he could just hear her moaning faintly:—"Manoli, Manoli, the wall is pressing on me and my life is dying out." And now the palace stood solid. Soon it was finished, magnificent, a wonder of the world. The masons stood upon the scaffolding awaiting Radu and the glorious wage.

By the prince's command the props of the scaffolding were knocked away and the masons dashed to death. Manoli clutched a projecting carving and would have saved his life had he not heard just then from beneath the wall the feeble, moaning voice:—"Manoli, Manoli, the cold wall is pressing on me; my body is crushed; my life is dying out." So down among the dead men let him lie; and serve him right. The bridge of Arta trembles like a flower stalk because the master builder's wife cursed it, when following an evil dream he made her don her best clothes and go down to the central pier and there be buried.

There are some ceremonials still followed in building in America that it would be worth while to study closely. Such, for instance, is the custom that obtains in all parts of the country of fastening up the "roof-tree" when the framework of the roof is finally in place. We have heard it said that the symbolic meaning of this ceremonial is that the framework of the house is supposed to have made use of the trunk of the tree, and consequently the topmost crown of the tree itself is hoisted up to occupy its old place once more. If this was the origin of the custom it was doubtless a rite of propitiation. In this prosaic age, however, the purpose of the ceremonial is evident. It is an invitation from the builders to the owner to recognise the progress that has been made by a donation of liquor or cigars. It is a hint that is almost always efficacious and that brings out the expected reward. A particularly interesting feature of this ceremonial is the modification that has come about with changed conditions in building. The "roof-tree" is not confined to wooden houses, but it is changed into a flag in the great steel structures that are erected in our cities.

In this connection it is interesting to note the important part that donations of liquor have played in building in the American colonies, especially in those which had a large proportion of Dutch settlers. It was long a standing complaint that the most onerous part of the expense in church building was the enormous bill for liquors for the workmen. Fortunately we have some exact records. A detailed example of the imperative furnishing of liquor to workmen is found in the bills that have come down to us for the erection of the first stone house in Albany in 1656. This was a Government house or fort, and it cost 12,213 guilders in wampum, or about 3,500 dols. Jan de la Montague, the vice director of the fort, was the official in charge of construction. Although of stone, it might almost have been floated in the liquor that it took to build it. When the old wooden fort on the site was torn down a tun of strong beer was furnished to the workmen. When the first stone of the new edifice was laid an anker (33 quarts) of brandy and 32 guilders' worth of other liquor were called for by the workmen and duly served. So much as a start for the masons; the turn of the carpenters came when the cellar-beams were laid. They were satisfied with two barrels of strong beer, three cases of brandy and 72 florins worth of small beer. This satisfied them until the second tier of beams was laid, when they had two more cases of brandy and a barrel of beer.

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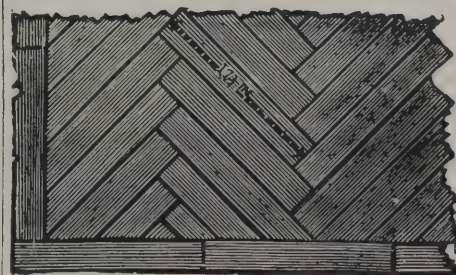
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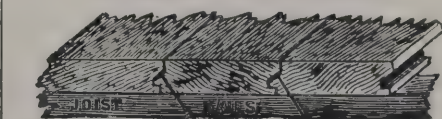
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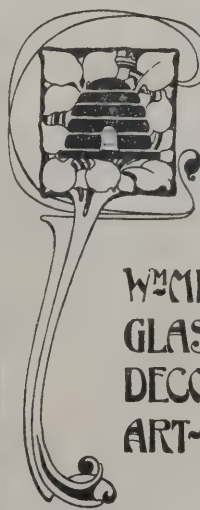
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they had all been "wet" previous to laying. They were stacked up without the walls, and were brought inside one by one by eight men as they were wanted. For each beam carried these men were given half a barrel of beer, and there were thirty-three beams in all. All of the teamsters, wood-carriers, carpenters, stone-cutters and masons had a daily allowance of a gill of brandy and three pints of beer apiece at dinner, besides the special treats they forced out of Jan de la Montague. This did not satisfy them, however, and they "struck" for another daily pint of beer. Every man who was even remotely connected with the building had to be taken care of in the matter of liquid refreshment. The carters who brought the wood from the forests and the sawpits, and the boatmen who floated spars down the river had access to the liquor barrels of the fort.

When the roof-tree was set in place the carpenters were satisfied with a half barrel of beer, surely a most modest demand. Under the name of "tiles beer" a half barrel went to the tile setters. A winding staircase was a feature of the fort, and when this was finished five guilders' worth of liquor gave the workmen the necessary winding gait to test it.

Perhaps there were other drinks "on the side," although the records do not specifically mention them. When the fort was finally completed the workmen loudly demanded a kraeg, or housewarming, of both food and drink for all the workmen and their wives and families. But the patience of Jan de la Montague was exhausted, and he incontinently refused to pay out another stiver for drinks. Perhaps he had just been figuring up his bills for liquid refreshments, for when he presented his report no less than 716 guilders were set down for the cost of drinks. One-eighteenth of the cost of the building went down the throats of the workmen. What a noble thirst there was in the old days. Fortunately, the building customs have changed from those strenuous times, or only brewers would be able to build houses.

THE AUSTRALIAN HARD WOODS.

THE use of the two Australian hard woods, Jarrah and Karri, especially for wood-paving, is dealt with in an article in the "Bulletin of Miscellaneous Information" (November and December 1899), which is issued as an occasional publication from the Royal Botanic Gardens, Kew. The article embodies

a report upon the forests of Western Australia by Mr. J. Ednie Brown, the conservator of forests for the colony, who is since deceased. As illustrating the adaptability of Jarrah wood for all kinds of outdoor work, Mr. Ednie Brown remarked that in the office of the department "there are specimens which have been obtained from piles and girders sixty years old. These were driven and used in local harbours and bridges. When obtained for the department the timber appeared to be perfectly sound and free from any signs of decay whatever; if anything, the wood seemed to be harder, more solid and apparently more durable than freshly-cut timber. At all events, it seems capable of standing wear and tear for 100 years longer. From its immersion in water it certainly appeared darker in colour compared with newly-cut timber, but no decay whatever is apparent." Karri has very much the appearance of Jarrah; indeed, so like are the two that it takes a good judge to distinguish them. It is hard, heavy, elastic and tough, but cannot be wrought so easily. For underground or waterworks, Mr. Ednie Brown says, "The timber is certainly inferior to some other kinds, especially to Jarrah; there can be no doubt about this fact, which has been demonstrated time after time in the colony. Still, it is only fair to say that instances have been brought under my notice where posts and slabs of the timber have been known to have been in the ground for thirty and forty years with only an ordinary amount of decay. This is certainly very puzzling, and makes one doubtful in regard to the conclusions generally which have been arrived at in regard to this timber. However, as may be seen from the comparative tests which have been made in regard to its tensile, crushing and breaking strength, it is a timber of a very high order. We must therefore, pending other and more general experiments, look upon the Karri timber as one best suited for superstructural works. For bridge planking, shafts, spokes, felloes and large planking of any sort, flooring, general waggonwork, beams, it is unequalled in this colony. In lateral strength it is very much stronger than Jarrah, and for works requiring the bearing of considerable weights, such as bridges, floors, rafters, beams of various kinds, it is of great value. In our railway sheds the wood is now much in use for the construction of waggons of all sorts. It shrinks laterally, but not to any great degree in a longitudinal direction. Altogether, the timber is a most valuable one. For street blocking it is most valuable, and for this purpose seems to be equal to, if not better than the Jarrah, in that its surface by the wear caused by the traffic does not render it so slippery for the horses' feet."

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THE WEEK.

THE Select Committee of the House of Commons recommend an expenditure of 30,000*l.* on improving the accommodation for members. Of that sum 13,300*l.* is required in connection with the smoking-room, which at present is always inconveniently crowded, and being over the kitchen is very hot. It is proposed that the present members' smoking-room be used as the strangers' dining-room, that the middle dining-room be reserved for members only, and that the third dining-room, next the House of Lords, be used as a smoking-room. But as one room is insufficient, the report says it is possible, by making a few other reappropriations, to construct beyond the present strangers' smoking-room a series of three large rooms of the size of the last-named, each measuring about 47 feet by 25 feet and 13½ feet high, fronting the Terrace. These rooms would form a suite separated by doors, with access also to each from a corridor running the whole length of the library corridor above. The two nearer rooms should be appropriated for members' smoking-rooms, and the furthest or most northern room for a members' reading-room. Improvements in the ventilation and alterations in the kitchen will cost 950*l.* Enlarging the refreshment-room for ladies in the gallery and providing a refreshment-room for witnesses, who sometimes number 1,800 a day, with rooms for the chaplain, clerks, &c., will require 1,550*l.* Inconvenience is often caused by the defective ventilation of the committee-room, and it is recommended that the whole of the suites should be dealt with without further delay, so that the improvements may be completed before another session. Time has not enabled the committee fully to inquire into the general system of ventilation employed in the building, and they suggest that this would be a fitting subject for further inquiry at an early date.

In a paper read at Glasgow on the "Real Incidence of Local Rates," by Mr. CAMERON CORBETT, M.P., it was explained that the incidence of local rates is fundamentally influenced by the question as to whether the area affected by them is fully built up or is affected by a practical chance of additional accommodation being provided within it. If it be fully built up, then the rate falls on the owner except in so far as the cause of the rates is calculated to affect the rents beneficially; that is to say, the burden of wasteful administration would fall upon him. In the cases where a higher rate affects an area where building can be influenced by it, the burden falls on the tenant in the same way as the burden falls on the consumer of a manufactured article, production being checked thereby. The proposal, after taxing building and land together, to put a special second burden on land values would raise the price of houses to buyers, and consequently the rent to tenants. The reduction of four years' purchase in the selling price of ground rents which has taken place during recent years has amounted in many instances to more than the whole cost of the land, and has therefore affected the production of houses unfavourably for the occupiers in these cases as if the cost of the land had been doubled. It is quite evident that land values being exposed to a special rate would affect the buyers and tenants of houses very severely, for the builders would require to get as much additional inducement from the buyer of the house as would counter-balance the lessened amount they would receive from ground-rent buyers.

It is interesting to learn that England is not exempted from seismological movements, but as they are infinitesimal we cannot say ignorance is bliss. There are observers who are watchful of all indications of change, but nature will not, to gratify them, depart from the ordinary course. According to the last report on the subject, at the end of March Professor H. H. TURNER, F.R.S., visited Shide, in the Isle of Wight, where, in conjunction with Mr.

JOHN MILNE, the secretary, he measured the stiffness of various piers employed to carry seismographs. To make a measure of this description a rope was tied round the column to be tested about 2 inches from its top. A spring balance was attached to this, and a pull of from 5 to 30 lbs. was exerted, with the result that the column was deflected. These deflections were measured by an astronomical level standing on the column, and in certain instances also by the deflection of the boom of horizontal pendulums. The stiffest column tested was a 12-inch earthenware drain pipe 3 feet in length. The apparent deflection was 0.09 inch per 1-lb. pull. A brick column 6 feet in height and in cross-section 3 feet by 1 foot 6 inches had per lb. pull a deflection angle in directions parallel to its sides of 0.192 inch and 0.05 inch, the latter referring to its greatest width. At Shide the piers rest upon the disintegrated outcrop of beds of chalk, which form the east and west backbone of the Isle of Wight. There are records of 31 or 33 movements at Shide, but the sum of the amplitudes in seven cases was worked out 17.3 millimetres, or a little over half an inch in all. The amount in a single case is so small as to be beyond analysis. It is no wonder the tremors have been ascribed to the firing of heavy guns. People who possess capital need not be deterred by apprehension of earth movements from investing their money in new buildings, for this week's Scottish experience is exceptional, although even in Inverness there was no collapse.

THERE is not much sentiment in engineering, but it would be regrettable if the name of STEPHENSON ceased to represent a builder of locomotives. When "Old GEORDIE" succeeded in making one there was no fine distinction between mechanical and civil engineers; he therefore considered he was acting rightly in constructing a line of railway for "Puffing Billy" to run along. He set up a factory for locomotives in Newcastle-on-Tyne, and he was willing at the same time to lay out lines in all parts of the country. The firm of ROBERT STEPHENSON not only continues to exist, but the demand for their engines has so increased, it has been found necessary to establish new works in Darlington, a town that must be mentioned in every history of English railways. A large area of land has been purchased at Springfield, and in addition to the works, about five hundred houses will have to be erected for the accommodation of the staff and workmen. The plans have been prepared by Mr. W. NORMAN, and the contractors are Messrs. SANT & SONS, of Newcastle-on-Tyne. The erecting shop will measure 140 feet by 220 feet, and provision has been made for enlargement. The offices have a frontage of about 160 feet. It is needless to say electricity will be used not only for lighting, but for motive power.

M. GAUTIER, who has gained reputation as a technical journalist in Paris, has proposed that the roads and ground over which the French troops will pass when reviewed by the CZAR should be saturated with oil on the American system, in order that the Imperial visitor may not be incommoded by dust. As the friendship of France and Russia is based on finance, it is suggested that if the oil were derived from Russian sources it would be more agreeable in odour to the CZAR. English road surveyors, or rather the authorities they serve, have yet to learn the advantages of petroleum as a material for keeping roads in good condition. In some parts of the United States its use is common. A board of inquiry lately visited Southern California, which is partial to oiled tracks, and found that the oil is heated to 180 degrees Fahr. for the first application and to 230 degrees or more for the second, and it may be transported for 10 miles in the steel tank of the sprinkling waggon without detrimental loss of heat. In other districts, where the oil is applied cold, the cost is about two-thirds as much, but the result is not so good. In one county, a public heating plant has been built which supplies three districts, and another is under construction. On one line of road about 200 barrels were used at each application, but that is double the usual quantity. The board recommended the oiling of existing macadam roads and then covering them with sand or decomposed granite.

SCIENCE IN ENGLAND.

FOR anyone who might be disposed to believe that England is a "nation of shopkeepers," there could not be a better corrective than the reports of the Glasgow meeting of the British Association. Shopkeeping has become so universal, the English people can no longer be supposed to be described by NAPOLEON'S saying. Indeed, the emperor and his army tried hard to make war profitable to themselves, and the penalties which were imposed on various countries for the privilege of having been invaded by Frenchmen were only another name for profits. Still it is assumed, or pretended to be, that in this country trade is omnipotent, and pursuits which elsewhere are followed unselfishly are with us degraded into money-making transactions. One reason, no doubt, for the belief is the parsimony shown by the State in the support of science, art and literature. So few instances of generosity on the part of the State can be recorded, it is natural that foreigners should suppose the indifference of successive Governments corresponds with the indifference of the people, and that intellectual pursuits are only valued in proportion as they can be made to pay. The reports of the Glasgow meeting should serve as a refutation of such a fallacy.

The truth is that this year the majority of the addresses and papers treated of subjects which were "caviare to the general." The manufacturers and merchants of Glasgow will sustain a comparison for knowledge with their foreign rivals, but we fancy they would not hesitate to declare that they could not find much to appreciate in any of the sections, with the exception, perhaps, of the engineering. It might be imagined that the authors of papers had become acquainted with the President's address, and endeavoured to be in accord with its spirit. Professor RÜCKER'S disquisition on "Atoms" was, apart from the mystery of the subject, enough to deter the "practical man" from the pursuit of science, for, as he explained, it is not of much consequence whether theories are built on fact or fiction, for they are only aids to memory like the figures which are introduced in celestial charts. From what was said about atoms, we seem to be nearing the time predicted by FARADAY when it shall be ascertained by our ultimate analysis that atoms are not particles, but infinitesimal amounts of force. Such a discovery would not, however, lead to immediate profit in a financial sense, but as force cannot be seen by human eyes, although they can perceive its operation, the atomic theory will then be regarded, as Dr. RÜCKER supposes, "as an attempt to give unnatural precision to ideas which are and must be vague."

Mathematical science has proved its utility in manufactures, but its truths were not evolved in the expectation that aid of that sort would be rendered. Not only in the theory of numbers, but in other parts the method has been more important than the immediate result. Men, however, occasionally arise who are capable of devoting themselves to a single branch of the science without asking *Cui bono?* and they should be encouraged. There is so close and irrefragable a connection between all sections of the science, we need not wonder at the undervaluing of specialists. Major MACMAHON, the president of the Mathematical Section, cannot be considered as one of the specialists, but he had the good sense to say that "What we require is not the disparagement of the specialist, but the stamping out of narrow-mindedness and of ignorance of the nature of the scientific spirit and of the life-work of those who devote their lives to scientific research. The specialist who wishes to accomplish work of the highest excellence must be learned in the resources of science and have constantly in mind its grandeur and its unity."

It is not uncommon to hear matured men declare that if they had to recommence life they would select chemistry as their profession in preference to all others. It not only can become as fascinating as any hobby without being so costly, for there is always the expectation during experiments of discovering secrets which nature had concealed—

Deep truths, to others unrevealed,
And mysteries from mankind sealed.

There is besides the possibility, and one not to be despised by a follower of science, that in the course of an investigation a process may be arrived at which will be

valuable in a commercial sense. Industrial chemistry often brings substantial rewards to its votaries. But from the address of Professor PERCY F. FRANKLAND it becomes evident that a large number of the younger chemists in England are less desirous of gain for themselves than for the increase of knowledge with gratitude "from that immortal part of us which we call posterity." As in mathematics, the State does little to reward chemical research, but when we find men willing to accept teacherships in polytechnical institutes and science schools in order to have occasional opportunities for investigation, it is evident the science is followed with the noblest aims. Indeed it would appear at the first glance as if Government support was fatal to chemistry. Professor FRANKLAND, as becomes a good chemist, is statistical. He has analysed the *Chemical Society's Journal*, and out of seventy-five original communications in one volume he finds that only thirteen came from Government laboratories and four from the "ancient seats of learning." In 1849 there were in all twenty-nine original communications to the Chemical Society; in 1900 the number rose to one hundred and twenty-seven. It is evident there is no lack of industry, and the difference must in a large measure be ascribed to the spirit which arose after the opening of new colleges, but not always immediately, for the desire to make chemistry subservient to trade was an obstacle to progress. Professor FRANKLAND says:—

That these new institutions should have so immediately borne fruit in the manner I have indicated cannot fail to be surprising to those who have been associated with the early years of almost any of these colleges, for when a faithful record of the experiences of their first professors is written the extraordinary obstacles which these pioneers had to encounter, and which in so many cases they successfully overcame, should afford material for a most remarkable, instructive and even amusing volume. The worthy founders and their executors or trustees appear in general to have supposed that it was only necessary to provide a spacious building, and then appoint a staff of professors who were to do the rest, whilst the necessity of funds for annual upkeep, for libraries and for assistants was almost overlooked.

It has indeed been learnt by bitter experience that the cost of efficiently maintaining institutions of this most ambitious character is enormously greater than was supposed in this country twenty-five years ago, and that founding a college, far from resembling the inauguration of a remunerative business, is very like entrance into the bond of matrimony, with its attendant annually increasing demand upon the pecuniary resources of the paterfamilias.

It would not indeed be surprising if some of these modern colleges had been long debarred from contributing directly to the progress of scientific investigation in this country, for this was often assuredly considered amongst the least of the many arduous duties imposed upon their first professors. Ascertained capacity to enrich science was in some cases almost a presumptive disqualification for their chairs, or, at any rate, took a back seat beside enthusiasm for evening classes and faith in the efficacy of that mysterious panacea "technical instruction." It is indeed lamentable to think of the valuable years of productive work lost to the country through so much of the energy of these early professors having been sacrificed to these venial fetishes of our would-be educational reformers.

Teaching occupies many hours a day of a chemical professor in a technical institute, yet, according to Professor FRANKLAND, many of those who hold appointments return to their laboratories with the ardour which other men find in rushing to the golf links, cricket field or race-course. The results of their researches are seldom of the kind which brings wealth, and can only be appreciated by men like themselves; still, on those conditions the number of workers continues to increase.

In the whole of Mr. HORNE'S address to the geological section there is not one reference to the industrial applications of the science. The subject treated is "Some of the permanent advances in the solid geology of Scotland during the last quarter of a century." The discoveries were mainly by officers of the Geological Survey, a body of men who labour for little more than a nominal salary. When the Survey was first constituted Sir H. T. DE LA BECHE, the director, announced that he engaged J. BEETE JUKES, "a very fine fellow, who loved knowledge for its own sake," at 9s. per diem, and, it was added, "he seems to care very little on what terms so that he comes." *Good, this.* After—

wards, when JUKES was offered the surveyorship of New South Wales, he preferred to remain on the English Survey rather than accept the far more lucrative colonial appointment. That is the spirit which is still dominant, and when gentlemen of high scientific attainments, for no others are tolerated on the Survey, are willing to work for a less salary than clerks, it cannot be said that geology is without self-sacrificing devotees.

Geography is less fortunate. Although so many travellers are produced in England who could criticise the shortcomings of maps from their own experience, the Germans excel us in map-making and in geographical knowledge. The science has failed to attract amateurs among us, and therefore it is in a backward state. Dr. MILL, as president of the Geographical Section, said that—

Amongst the not inconsiderable number of teachers of geography in the universities and colleges of Great Britain there is not one man who receives a salary on which he can live in decent comfort so as to devote all his time, or a substantial part of it, to geographical research; and the same is true of every official of all the geographical societies. Not one is paid an income sufficient to enable him to devote the time not occupied by mechanical routine to any other purpose than supplementing his income by outside work—writing text-books, correcting examination papers, perhaps even practising journalism. If by an effort and the sacrifice of some of the comforts considered necessary by most people of the professional classes he devotes a few odd hours now and then to some original research, he finds very few to consider it seriously; some friendly expressions of opinion possibly, but scarcely a reader; and it counts for nothing, save, perhaps, in enhancing the reputation of his country in other lands where scientific work, no matter in what department, is valued in a due degree. All this must be changed before much progress can be made. No doubt a giant of genius would ignore all obstacles and pursue his work regardless of recognition, but such giants are not to be looked for many times in a century. It should be made possible for a man of fair abilities to receive as much opportunity, encouragement, recognition and reward for good work in geography as for good work, let us say, in chemistry or electricity. That is all that can reasonably be asked, and that is what is freely accorded in other countries where the status of the man of science is higher than it is with us.

What can be done by geographers who do not claim to be professionals is shown by the effort of the late Mr. FRED PULLAR, in co-operation with Sir JOHN MURRAY, to make a survey, showing soundings, of the fresh-water lakes of the British Isles. Mr. LAURENCE PULLAR has made over a sufficient sum of money to enable the survey to be thoroughly carried out. The Ordnance Survey ought to supply the information, but the expense has been a prohibition.

Statistics cannot be universally recognised as science. There is an abundance of amateurs, but their work, we suppose, originated the statement about statistics being able to prove anything. Yet Sir ROBERT GIFFEN deplored at Glasgow the absence of statistical education among our public men.

The proper study of mankind was declared to be man, and anthropology permits the amateur to seize a position which is not possible with physiology. It is true that at Glasgow the president of the section, Dr. CUNNINGHAM, delivered an address which might have been prepared for the Physiological Section, as it dealt with the structure of the brain. But the papers relating to the discoveries in Crete, Silchester, &c., form evidence of what can be done by amateurs. Indeed, it is becoming difficult to discriminate between archæology and anthropology, but in both the non-professional student has his place, and can render useful service.

From what we have said it will, we trust, be evident that in science, as represented by the British Association for its advancement, there are two great divisions, which depend upon the character of the votaries. Those with whom engineering and mechanical science holds first place must differ in training and the pursuing of knowledge from students who gather and arrange statistics or ponder over the education problem. The Association has a place for all classes, from the man who spends the best years of his life in determining the qualities of a dye—like the chemist at one meeting who apologised for the prematureness of his paper because he had occupied only thirty years over one

colour—or one class of vegetation, to the humble devotee who records his or her observations in a railway cutting or a pond. The Glasgow meeting was a success in upholding science, although the papers were of a less popular character than many read at preceding meetings. By applying the Baconian test of "fruit" it should be considered as productive, and it demonstrated that the scientific power of the city was not exhausted by the various meetings which were held during the season.

MEMORIES OF THE LOUVRE.

A LITTLE paragraph appeared last week in some of the Paris journals which gave more satisfaction to lovers of French architecture and French history than all the columns which were devoted to the arrangements for the CZAR'S visit, or all the speculations as to whether His Majesty would be allowed to come to the capital. It simply stated that the Pavillon Marsan had been cleared of the heaps of documents accumulated by the Ministry of the Colonies, and that M. REDON, the architect, having obtained possession of the building, would be able to insure the safety of the Louvre at a point where there was a liability of danger through fire. The pavillon itself is not of much historical interest. It formed part of the Tuileries rather than of the Louvre, and it owes its name to a lady who was governess to the royal children.

The buildings of the Louvre which the pavillon menaced hold a place in the minds of Frenchmen unlike that of any group of buildings in Europe, with the exception perhaps of the Vatican. In the Louvre many kings have lived, but for several years it was tenanted also by so many varieties of artists as to become a true Bohemia. It has been stated in many English journals, which owing to the dearth of topics took up the life of BOULLE, that the furniture-maker stood so high in royal favour, he was assigned a part of the Louvre as if he were a prince. BOULLE, however, only shared the apartments with a miscellaneous company of tenants. The dervish who described the Persian palace as a caravanserai would be justified in applying the same term to the Louvre. But on that account it has been popularised, and the humblest Frenchman who gazes on the variety of statues adorning the exterior must feel a sense of proprietorship in the buildings. Since the memorial of the grocer's son, LÉON GAMBETTA, was set up the palace has been, if possible, brought nearer to the people, for the imperial additions appear to be only a frame for the figure of the eloquent but briefless lawyer.

In fact, whatever kind of associations is most in keeping with a visitor's mind can be aroused in some part of the building. The modern painter can recall that the early Salons were in the Louvre. A part of the beautiful Apollo Gallery was given up to art students, and before they were able to hire ateliers they were allowed to produce works in the palace. The Académie des Inscriptions and the Académie des Sciences were quartered in the Louvre, and during a part of the eighteenth century the public assemblies of the Académie Française were held in one of the galleries. When the Académie d'Architecture existed the members had to be content with a few of the worst rooms. Another gallery was devoted to models of ships. The sculptors were able to obtain possession of some of the finest rooms on the ground floor. BOUCHARDON, ADAM, PUGET, LE FLAMAND, SLODZ, FALCONET, LE MOYNE were among the fortunate artists who secured ateliers as well as stores for their marble. The painters were more easily accommodated, for they required less space. Their academy was to be found in the Louvre. BOUCHER, COYPEL, VAN LOO and many more were granted local habitations in it without any cost to themselves.

The artists who were engaged on various works connected with the palace comprised the ablest native and foreign painters, sculptors and architects. It is believed that in the thirteenth century ROBERT DE LUZARCHES, PIERRE DE MONTEREAU, THOMAS DE CARMONT, Eudes DE MONTREUIL, JEAN DE CHELLES and ETIENNE DE BOUNVILLE, all memorable in the history of Gothic architecture, co-operated in the works of the Louvre. In the next century RAIMOND DU TEMPLE was master of the works for the additions ordered by CHARLES V. The names

of several contemporary painters and sculptors are also recorded. It must have been a halcyon time for artists, for the king, who was an able amateur, found pleasure in their company.

Less than two centuries afterwards another lover of the arts reigned in France. FRANCIS I. was not satisfied with the rebuilding of Fontainebleau. He resolved to enlarge and embellish the Louvre. How many of the army of artists he brought from Italy worked on the Paris buildings cannot be determined. According to DU CERCEAU, the king was dissatisfied with the plainness of the interior, and he despatched PRIMATICCIO to Italy to purchase works of art. It is related that the artist was able to secure 124 antique statues, besides several busts. Some of them still remain in the galleries. A casting was made in metal of Trajan's Column, which, we suppose, was intended to be erected in one of the courts; it has long disappeared. PHILIBERT DE LORME and LESCOT were the architects who were charged with the demolition of all the parts of the old Louvre which were considered inadequate, and the erection of more suitable buildings. JEAN GOUJON was among the sculptors who adorned the new works. According to the legend, while engaged he was shot, but there is no satisfactory evidence of the murder, although many innocent men were undoubtedly slain on St. Bartholomew's Day.

HENRI IV. was eager to endear himself to the people among whom he was to reside. He proposed the construction of a grand gallery by the side of the Seine which would unite the Louvre and the Tuileries, as well as other important works. The commission was given to a brother Huguenot, ANDROUET DU CERCEAU. The architect for some unknown reason left France in 1598, and he was succeeded by ETIENNE DU PERAC, who does not appear to have long held his appointment. Another architect engaged was CLEMENT MÉTÉZEAU. HENRI IV. was able to complete the Palace of the Tuileries, which CATHERINE DE MEDICIS had commenced from the plans of PHILIBERT DE LORME and JEAN BULLANT, and he inscribed over the entrance the following words:—"Perennitati invictissimi principis de bello et pace triumphantis." HENRI IV. merits remembrance not only for his courage, tolerance and other kingly virtues, but for setting the example of sharing his palace with painters, sculptors, goldsmiths and jewellers, to whom the Louvre became a school of art, and a reward for distinguished merit in art. In the next reign it was RICHELIEU who was master of France. An equestrian statue of HENRI IV. was erected, and, according to HÉNAULT, it was the first of that class to be set up in Paris. The works at the Louvre were resumed under the direction of JACQUES LE MERCIER, and he proposed to make it four times as large as was shown on LESCOT's design, but so ambitious a scheme was not realised.

When LOUIS XIV. came to the throne his ambitious mind found a congenial subject in the unfinished buildings. LE VAU was appointed successor to LE MERCIER, but it is needless to say that he did not respect the designs of his predecessor or LESCOT's. COLBERT, who at all costs wished to have the king gratified, was not satisfied with any existing plan, and a competition was arranged, in which Dr. CLAUDE PERRAULT succeeded in pleasing the King and his Minister. Then the plans were sent to Rome, but the contempt with which they were received annoyed LOUIS, and the skill of BERNINI was invoked. The sculptor came to France, where he was received like a prince. But the witticisms of Paris were not compensated by a triumphal march, and he left in disgust with a liberal pension for a viaticum. BOILEAU's wicked doctor was recalled, and the works went on under his direction. But before the buildings were complete COLBERT and PERRAULT passed away. LOUIS was captivated with the project of a palace at Versailles, and so little respect was shown to the Louvre that a house for the ducal superintendent was built against PERRAULT's colonnade, and for others sites were found within as well as without the walls. When LOUIS XV. succeeded it was gravely proposed by the Ministers to demolish the palace in order to save useless expenditure, and to sell the materials.

In the middle of the eighteenth century the appearance of the Louvre would have startled any of its ancient architects

and decorators. Shops were opened in various parts, and in the fine columns holes were made to fix the wood-work. The Parisians protested against the vandalism. TURGOT proposed to purchase the buildings on condition that the part near the Seine, which was without a roof, should be converted into a hôtel de ville. The governor of the city and some of the ministers at length were able to have the works resumed. The Marquis DE MARIGNY was appointed director-general of buildings, and under him GABRIEL and SOUFFLOT served as architects. But there were so many plans partly executed, it was difficult to determine what should be done with the unfinished buildings, and the resignation of the marquis was turned to account for suspending the works.

There was consequently a legacy in the Louvre awaiting the unfortunate LOUIS XVI., which on a small scale corresponded with the whole of France. If money were forthcoming the buildings might be completed, but no director-general could discover it. There were always people ready to pounce on the vacant chambers, and they became private residences, ateliers, &c.

It was remarkable that amidst so much degradation the connection between the Louvre and the arts was not altogether ignored. It was proposed to convert the largest gallery into a musée of painting and sculpture. In 1781 the Apollo Gallery was restored, and when the revolutionary army carried off the noblest examples of art to be found in Italy, they were exhibited in the appartements which had been occupied by ANNE of Austria.

In 1800 an additional number of rooms were put in order for the exhibition of spoils from various parts of Europe. Under the Empire PERCIER and FONTAINE became the architects, and it was decreed that the buildings should be completed. NAPOLEON decided that the work already existing should be respected. Three of the façades were to be completed according to PERRAULT's designs and the fourth according to LESCOT's, but the arrangement could not be accomplished. Between 1800 and 1806 the outlay had been about 600,000 francs yearly, but it was decreed that afterwards the expenses were to be debited to the civil list. Whatever was the cost, the uncertainty of the distribution of the rooms was not easily overcome. New requirements had to be met. Models were prepared to facilitate a decision, and NAPOLEON must often have been irritated by the difficulties which arose. In 1810 no less than forty-seven plans were discussed for the connection of the Louvre and the Tuileries. On the fall of NAPOLEON the colossal work had not come to an end, although the efforts made during his reign were most praiseworthy, and the warrior had proved his possession of the ancient regal belief that architecture was the most fitting memorial of a reign.

At the restoration there was a continuation of the works, but they were mainly of a decorative class. The acquisition of works of art also engaged the attention of the Government. There was not, however, sufficient courage to devote the whole of the buildings to public galleries. The ceremony of opening the Chambers was performed in the Grand Salle. The Council of State obtained possession of several large rooms which were decorated with appropriate paintings. It was often an advantage to have ministers and councillors near the Tuileries, and the Louvre accordingly became the region of the highest officialdom of France. That arrangement was also the least expensive, and under LOUIS XVIII., CHARLES X. and LOUIS PHILIPPE there were no extraordinary votes for building at the Louvre.

The Third NAPOLEON was not neglectful of the opportunity which the inequality of the buildings afforded to revive the efforts which his uncle had commenced. Unlike him he did not propose to make them all serve as a sacred city to be consecrated to art and literature. NAPOLEON I. wished to have the Opera House and the Bibliothèque Nationale transferred to it, but the conditions of the new reign did not allow of a revival of projects which seemed to be inspired by Mediæval Italy rather than modern France. Under VISCONTI, who was a son of the First NAPOLEON's conservateur des antiques, buildings were erected in a style so grandiose as to eclipse those of an older date which are near them. The destruction of the Tuileries, however, has changed the character of the grouping, and few now care to

realise what was the aim of so many architects and kings when they endeavoured to bring the great blocks of buildings which seem to unite past and present into architectural unity, an aim which would support those etymologists who maintain that Louvre signifies *l'œuvre*, the greatest work in France.

STUDY OF MATHEMATICS IN ENGLAND.*

IT is interesting, in this the first year of the new century, to take a rapid glance at the position that mathematicians of this country held amongst mathematicians a hundred years ago. During the greater part of the eighteenth century the study of mathematics in England, Scotland and Ireland had been at a very low ebb. Whereas in 1801 on the Continent there were the leaders Lagrange, Laplace and Legendre, and of rising men, Fourier, Ampère, Poisson and Gauss, we could only claim Thomas Young and Ivory as men who were doing notable work in research. Amongst schoolboys of various ages we note Fresnel, Bessel, Cauchy, Chasles, Lamé, Möbius, v. Staudt and Steiner on the Continent, and Babbage, Peacock, John Herschel, Henry Parr Hamilton and George Green in this country. It was not indeed till about 1845 or a little later that we could point to the great names of William Rowan Hamilton, MacCullagh, Adams, Boole, Salmon, Stokes, Sylvester, Cayley, William Thomson, H. J. S. Smith and Clerk Maxwell as adequate representatives of mathematical science. It is worthy of note that this date, 1845, marks also the year of the dissolution of a very interesting society, the Mathematical Society of Spitalfields; and I would like to pause a moment and, if I may say so, rescue it from the oblivion which seems to threaten it. In 1801 it was already a venerable institution, having been founded by Joseph Middleton, a writer of mathematical text-books, in 1717.[†] The members of the society at the beginning were for the most part silk-weavers of French extraction; it was little more than a working-man's club at which questions of mathematics and natural philosophy were discussed every Saturday evening. The number of members was limited to the "square of seven," but later it was increased to the "square of eight," and later still to the "square of nine." In 1725 the place of meeting was changed from the Monmouth's Head to the White Horse in Wheeler Street, and in 1735 to the Ben Jonson's Head in Pelham Street. The subscription was six-and-sixpence a quarter, or sixpence a week, and entrance was gained by production of a metal ticket which had the proposition of Pythagoras engraved on one side and a sighted quadrant with level on the other. The funds, largely augmented by an elaborate system of fines, were chiefly used for the purchase of books and philosophical apparatus. A president, treasurer, inspector of instruments and secretary were appointed annually, and there were, besides, four stewards, six auditors and six trustees. By the constitution of the Society it was the duty of every member, if he were asked any mathematical or philosophical question by another member, to instruct him to the best of his ability. It was the custom for each member in rotation to lecture or perform experiments on each evening of meeting. There was a fine of half a crown for introducing controverted points of divinity or politics. The members dined together twice annually, viz. on the second Friday in January in London in commemoration of the birth of Sir Isaac Newton (this feast frequently took place at the Black Swan, Brown's Lane, Spitalfields), and on the second Friday in July "at a convenient distance in the country in commemoration of the birth of the founder." The second dinner frequently fell through because the members could not agree as to the locality. It was found necessary to introduce a rule fining members sixpence for letting off fireworks in the place of meeting. Every member present was entitled to a pint of beer at the common expense, and, further, every five members were entitled to call for a quart for consumption at the meeting. Such were some of the quaint regulations in force when, about the year 1750, the Society moved to larger apartments in Crispin Street, where it remained without interruption till 1843. It appears from the old minute books that about the year 1750 the Society absorbed a small mathematical society which used to meet at the Black Swan, Brown's Lane, above mentioned, and that in 1783 an ancient historical society was also incorporated with it. By the year 1800 the class of the members had become improved, and we find some well-known names, such as Dolland, Simpson, Saunderson, Crossley, Paroissen and Gompertz. At this time lectures were given in all branches of science by the members in the

Society's rooms, which on these occasions were open to the public on payment of one shilling. The arrangements for the session 1822-23, included lectures in mechanics, hydrostatics and hydraulics, pneumatics, optics, astronomy, chemistry, electricity, galvanism, magnetism and botany, illustrated by experiments. On account of these lectures the Society had to fight an action-at-law, and although the case was won, its slender resources were crippled for many years. In 1827 Benjamin Gompertz, F.R.S., succeeded to the presidency on the death of the Rev. George Paroissen. From the year 1830 onwards the membership gradually declined, and the financial outlook became serious. In 1843 there was a crisis; the Society left Crispin Street for cheaper rooms at 9 Devonshire Street, Bishopsgate Street, and finally in 1845, after a futile negotiation with the London Institution, it was taken over by the Royal Astronomical Society, which had been founded in 1821. The library and documents were accepted, and the few surviving members were made life members of the Astronomical Society without payment. So perished this curious old institution; it had amassed a really valuable library, containing books on all branches of science. The Astronomical Society has retained the greater part, but some have found their way to the libraries of the Chemical and other societies. An inspection of the documents establishes that it was mainly a society devoted to physics, chemistry and natural history. It had an extensive museum of curiosities and specimens of natural history presented by individual members, which seems to have disappeared when the rooms in Crispin Street were vacated. It seems a pity that more effort was not made to keep the old institution alive. The fact is that at that date the Royal Society had no sympathy with special societies, and did all in its power to discourage them. The Astronomical Society was only formed in 1821 in the teeth of the opposition of the Royal Society.

Reverting now to the date 1845, it may be said that from this period to 1866 much good work emanated from this country, but no Mathematical Society existed in London. At the latter date the present Society was formed, with De Morgan as its first president. Gompertz was an original member, and the only person who belonged to both the old and new societies. The thirty-three volumes of proceedings that have appeared give a fair indication of the nature of the mathematical work that has issued from the pens of our countrymen. All will admit that it is the duty of anyone engaged in a particular line of research to keep himself abreast of discoveries, inventions, methods and ideas which are being brought forward in that line in his own and other countries. In pure science this is easier of accomplishment by the individual worker than in the case of applied science. In pure mathematics the stately edifice of the Theory of Functions has, during the latter part of the century which has expired, been slowly rising from its foundations on the Continent of Europe. It had reached a considerable height and presented an imposing appearance before it attracted more than superficial notice in this country and in America. It is satisfactory to note that during recent years much of the leeway has been made up. English-speaking mathematicians have introduced the first notions into elementary text-books; they have written advanced treatises on the whole subject; they have encouraged the younger men to attend courses of lectures in foreign universities, so that to-day the best students in our universities can attend courses at home given by competent persons, and have the opportunity of acquiring adequate knowledge, and of themselves contributing to the general advance. The Theory of Functions, being concerned with the functions that satisfy differential equations, has attracted particularly the attention of those whose bent seemed to be towards applied mathematics and mathematical physics, and there is no doubt, in analogy with the work of Poincaré in celestial dynamics, those sciences will ultimately derive great benefit from the new study. If, on the other hand, one were asked to specify a department of pure mathematics which has been treated somewhat coldly in this country during the last quarter of the last century, one could point to geometry in general, and to pure geometry, descriptive geometry and the theory of surfaces in particular. This may doubtless be explained by the circumstance that, at the present time, the theory of differential equations and the problems that present themselves in their discussion are of such commanding importance from the point of view of the general advance of mathematical science that those subjects naturally prove to be most attractive.

As regards organisation and co operation in mathematics, Germany, I believe, stands first. The custom of offering prizes for the solutions of definite problems which are necessary to the general advance obtains more in Germany and in France than here, where, I believe, the Adams Prize stands alone. The idea has an indirect value in pointing out some of the more pressing desiderata to young and enthusiastic students, and a direct importance in frequently, as it proves, producing remarkable dissertations on the proposed questions. The field is so vast that any comprehensive scheme of co-operation is

* From the address to the Mathematical and Physical Section of the British Association by Major P. A. MacMahon, D.Sc., F.R.S.

† Its first place of meeting was the Monmouth's Head, Monmouth Street, Spitalfields. This street has long disappeared. From a map of London of 1746 it appears to have run parallel to the present Brick Lane and to have corresponded to the present Wilks Street.

scarcely possible, though much more might be done with advantage.

It is, I think, undoubted that science has been neglected in this country, and that we are reaping as we have sowed. The importance of science teaching in secondary schools has been overlooked. Those concerned in our industries have not seen the advantage of treating their workshops and manufacturing as laboratories of research. The Government has given too meagre an endowment to scientific institutions, and has failed to adequately encourage scientific men and to attract a satisfactory quota of the best intellects of the country to the study of science. Moreover, private benefactors have not been as numerous as in some other countries in respect of those departments of scientific work which are either non-utilitarian or not immediately or obviously so. We have been lacking alike in science organisation and in effective co-operation in work.

It has been attempted to overcome defects in training for scientific pursuits by the construction of royal roads to scientific knowledge. Engineering students have been urged to forego the study of Euclid, and, as a substitute, to practise drawing triangles and squares; it has been pointed out to them that mathematical study has but one object, viz. the practical carrying out of mathematical operations; that a collection of mathematical rules of thumb is what they should aim at; that a knowledge of the meaning of processes may be left out of account so long as a sufficient grasp of the application of the resulting rules is acquired. In particular, it has been stated that the study of the fundamental principles of the infinitesimal calculus may be profitably deferred indefinitely so long as the student is able to differentiate and integrate a few of the simplest functions that are met with in pure and applied physics. The advocates of these views are, to my mind, urging a process of "cramming" for the work of life which compares unfavourably with that adopted by the so-called "crammers;" for examinations; the latter I believe to be, as a rule, much maligned individuals, who succeed by good organisation, hard work and personal influence, where the majority of public and private schools fail; the examinations for which their students compete encourage them to teach their pupils to think, and not to rely principally upon remembering rules. The best objects of education, I believe, are the habits of thought and observation, the teaching of how to think, and the cultivation of the memory, and examiners of experience are able to a considerable extent to influence the teaching in these respects; they show the teachers the direction in which they should look for success. The result has been that the "crammer" for examinations, if he ever existed, has disappeared. But what can be said for the principle of cramming for the work of one's life? Here an examination would be no check, for examiners imbued with the same notion would be a necessary part of the system; the awakening of the student would come, perhaps slowly, but none the less inevitably; he might exist for awhile on his formulæ and his methods, but with the march of events, resulting in new ideas, new apparatus, new designs, new inventions, new materials requiring the utmost development of the powers of the mind, he will certainly find himself hopelessly at sea and in constant danger of discovering that he is not alone in thinking himself an impostor. And an impostor he will be if he does not by his own assiduity cancel the pernicious effects of the system upon which he has been educated. I do not, I repeat, believe in royal roads, though I appreciate the advantage of easy coaches in kindred sciences. In the science to which a man expects to devote his life, the progress of which he hopes to further, and in which he looks for his life's success, there is no royal road. The neglect of science is not to be remedied by any method so repugnant to the scientific spirit; we must take the greater, knowing that it includes the less, not the less, hoping that in some happy-go-lucky way the greater will follow.

EXPLORATIONS AT ZAKRO.

IN a paper read before the British Association Mr. D. G. Hogarth, M.A., wrote:—The excavation at Zakro in East Crete has been concluded so recently that I must confine myself to a plain statement of the raw material rendered available for study thereby. In estimating the final result it will be necessary to take account of positive and negative evidence not yet to hand from two other East Cretan sites lately excavated, Praesos and Gorynia. Zakro lies in the south-eastern angle of the island, and was chosen for research because it falls in the Eteocretan country, anciently reputed to be inhabited by aborigines, and because its safe bay must always have been a main port of call for craft sailing between the Aegean coasts and Africa. The small plain of Zakro, entirely hemmed in by rugged hills, is full of early remains, beginning in the later pre-Mycenæan period and ending with the close of the age of bronze. No implements of iron were found in it at all and no Hellenic pottery. The town therefore

owed its existence to a commerce which ceased or passed elsewhere from the Geometric age onward. The earliest settlement was on a rugged spur, and although almost all trace of its structures have disappeared, it has left abundant evidence of itself in the contents of a pit about 18 feet deep. This was found half-full of broken vases in stone and clay, largely of the singular "Kamâres" class, not previously found in Eastern Crete. These, however, are mainly of a highly developed technique, and their commonest schemes of ornament reappear unchanged on vases of distinctively Mycenæan fabric. In fact, Kamâres shapes and decoration are more closely related to Mycenæan at Zakro than had been suspected. But the absence of both Neolithic antecedents and the earlier kinds of painted ware from this site suggests that its civilisation did not develop on the spot, but was brought by colonists, perhaps partly Cretan, partly foreign. The fine quality of ware in this pit and the fact that, though of various periods, it was apparently all thrown in at one moment leads me to suspect that the pit contained the clearings of an early shrine.

At a later period the settlement extended over a lower spur nearer the sea, and there very massive and large houses were erected and inhabited till the verge of the Geometric period. Their outer walls are cyclopean, but their inner partitions are of bricks of unusual size. Complete plans were obtained of two of the largest houses, and parts of several others were explored, including the lower portion of what was probably the residence of the local chief or governor. These yielded a great deal of pottery, ranging from the acme of the Mycenæan period to its close, and the types furnish a better criterion of date than we have possessed hitherto in Crete. Numerous bronze implements were found, but these yield in interest to those from Gorynia. Two tablets in the linear "Cretan" script show that this system was known, though probably little used, and not indigenous, in East Crete. None were found couched in the pictographic system so often represented on East Cretan gems. Finally a hoard of 500 clay impressions of lost signet gems was brought to light. These display 150 different types and afford a priceless record of Mycenæan glyptic art and religious symbolism. Monstrous combinations of human and bestial forms occur in great variety, half a dozen, which are bull-headed, suggesting varieties of the Minotaur type. The comparison of all this mass of new material with the symbols of Egyptian, Mesopotamian and other cults, which cannot fail to be fruitful, has yet to be made. Cist burials were discovered in caves further inland, whose grave furniture seems to support certain negative evidence obtained in the Upper Zakro district and at Praesos, in showing that the aboriginal civilisation of East Crete was independent of both the "Kamâres" and Mycenæan civilisations. If these last were foreign to the Eteocretan country, it seems improbable that the Eteocretan language, as represented by the Praesos inscriptions, will prove to be that expressed by the linear script on the Knossian tablets, and the hope that these will be deciphered becomes fainter.

THE CHURCH OF ST. MARY, PULHAM.*

THERE is a certain amount of local evidence that there was Roman influence in this place. I am told that Roman coins have been dug up in a neighbouring field, and from time to time we unearth in the northern part of the churchyard pieces of pottery, which the late Canon Manning thought, from a cursory examination, might be British or Roman. At any rate they are evidence that our graveyard dates back to pre-Christian times, while there are a few bricks in the northern part of the church wall which experts would decide whether or no they are Roman. We are near enough—two miles—to the great Roman road from Colchester to Caister to be influenced by it. Blomefield tells us that in early times this manor belonged to one Waldchrist, a Saxon; that he forfeited it to King Edmund, from whom it passed as a royal possession to his brothers, Eldred and Edgar, who succeeded him as kings. In the time of King Edgar (958-75) lived Ethelwold, the great Bishop of Winchester, a pupil of St. Dunstan. This Ethelwold was keen on restoring religious houses devastated by the Danes, and especially that of St. Etheldreda at Ely. He therefore purchased the Isle of Ely from King Edgar, and among other manors thus of Pulham, for which he paid the king 40*l*. He made this property over to monks of Ely, and the church, advowson and manor remained a portion of St. Audrey's dower for nearly 700 years. This explains the presence of the arms of Ely (three crowns) being conspicuous on the porch and in more recent adornment. Pulham had to provide three days' supplies per annum to the monks of Ely. In her first year Queen Elizabeth practically stole Pulham from Ely, together with thirteen other manors, during the episcopate of Bishop Cox, and it remained in the

* From a paper read by the Rev. C. C. Wakefield, the rector, at the visit of the Norfolk and Norwich Archaeological Society.

hands of the Crown till 1631, when the manor was sold by Charles I. to certain London merchants to pay his son's debts, the advowson alone being retained. Our largest land-owners are now the trustees of Christ's Hospital. In 1244 it appears that there was a weekly market on Wednesdays, evidently at what is now Pulham Market. This market was ultimately removed to Harleston, but a trace of it remains in a fair which is still held at Whitsuntide. How long there have been two parishes of Pulham I cannot say. In 1250 St. Mary Magdalen is spoken of as a parish annexed. The two parishes were held together until 1858, the rectory house being in the mother parish. Since then each parish has properly had its own rector. Considering the high position held at the time, or, subsequently, by some of its rectors, Pulham must have been considered a benefice of some importance.

The first rector known was Henry de Wengham, appointed in 1257 Bishop of London. In the previous year he had refused Winchester, and was Lord Chancellor of England and Chamberlain of Gascoigne. In 1301 came Simon de Walpole, brother to Ralph de Walpole, Bishop of Ely, and before that Bishop of Norwich. In 1341 came Michael de Northburgh, who was consecrated Bishop of London in 1354. In 1357 was appointed William of Wykeham, who in time became Bishop of Winchester, Chancellor of England, the builder of Windsor Castle and the founder of Winchester College and of New College, Oxford. He resigned in 1361. He was never rector of Pulham as a priest, for it was only in the year of his resignation that he was ordained acolyte, between which and the priesthood came the lesser orders of sub-deacon and deacon. Whether Wykeham designed our beautiful south porch, as tradition affirms, I leave experts to judge. He might have done it for his successor and friend, Andrew de Stratford, for whom he obtained the benefice from the king, and who held it for twenty-three years. In 1465 the rector was Thomas Howes, who had been chaplain to Sir John Fastolf, and in accordance with whose will he spent much money on this church, inserting stained-glass windows, and, perhaps, building the tower. Much was done to the church in the time of John Morton, Bishop of Ely, in 1479, and afterwards Archbishop of Canterbury and Cardinal. He is said to have been connected with the parish by birth or family. Other rectors were Andrew Perne, D.D., in 1550, Dean of Ely, Master of Peterhouse, and afterwards chaplain to Archbishop Parker; Henry May, sometime Dean of St. Paul's and afterwards Chancellor of Ely; William Starkey, jun., buried in the chancel under a slab—his first wife was granddaughter of Bishop Hall, of Norwich. Wm. Broome, LL.D., was rector 1728-47. He was a great friend of the poet Pope, and wrote much of the poetry attributed to the latter, especially Books 8, 11, 12, 16, 18 and 23 of the Odyssey. The tradition is that Pope was often here the guest of Broome, and used to sit writing under the ancient mulberry tree still standing in the rectory garden. William Clagett, bishop successively of St. Davids and Exeter, was rector here in 1717, and the Hon. Edward Townshend, Dean of Norwich, in 1749.

The church speaks architecturally for itself, and better than I can describe it. It contains an almost complete sequence of the various styles of architecture, beginning with the Norman aumbry on the north side of the sanctuary, and continuing with the somewhat rare instance of so early a double piscina. Then follow the lancet windows in the north of the chancel, and so on until we come to the late Perpendicular window, with transoms, in the nave—a later insertion. The indented slab before the altar is to the memory of Simon de Walpole, rector in 1301. The beautiful panels in the screen were painted over with three coats of paint in 1804, at which time the chancel arch was filled in, as also the lower arches of the screen, in which act of vandalism was spent some 30*l*. The screen was recently restored in memory of Archbishop Trench, of Dublin. The window nearest the screen on the north side of the nave is, I am told, a valuable one, as showing the transition from Decorated to Perpendicular work. The stone altar slab still remains embedded in the floor at the east end of the south aisle, and two crosses are visible. I am anxious that it should be raised from its present unworthy position, and be again used as a side altar. The holy-water stoup in the porch always seemed to me to be unworthy of so beautiful an erection, until I obtained from the Augmentation Office an inventory of church furniture existing here in 6 Edward VI., when it appears that there was a stoup of bell metal inserted in the wall. On the north side of the church outside are remains of very early arcade work, probably from an older building. The north side door—devil's door—common to all East Anglian churches, is fifteenth-century, and from its marks of carpenters' tools and wheels was probably presented by a guild of wheelwrights. Where the vestry now stands was formerly the guild chapel of St. James the Apostle. Until discovered at the late restoration, the lancet windows and south door were built up and forgotten. The Guildhall stood in the field adjoining the churchyard on the north, and until early in the nineteenth

century was the parish playground, or "camping" field. In 1814 it was purchased by the then rector, and added to the glebe. Old people in the parish have told me he objected to the use of the field for the game of "camp" on Sundays. At the north end of the church, under the east window, is the tomb of Mrs. Watt, daughter and sole heiress of the notorious William Dowsing, the spoliator, who is said to be buried in Pulham Market. At the east end of the south aisle are to be seen remains of the consecration crosses or marks.

PETERBOROUGH CATHEDRAL.

THE restoration of the central gable of the west front of Peterborough Cathedral is now being proceeded with. It will complete the work over which there was so much controversy when the late Dean Ingram took it in hand. It has not been found necessary to take the gable down as was the case with the north and south gables. Auxiliary scaffolding has been erected right up to the great cross, by which means the huge statue of St. Peter, which for nearly eight centuries has overlooked the city, can be critically examined. It is in wonderful preservation, the right hand merely being missing. The outer label of the great arch is much withered, as are various fittings of Alwalton marble, all of which will be renewed. A radical restoration will have to be carried out also in the spokes of the great wheel window. On the whole, though there will have to be several renewals both of the inner and outer masonry, the central arch does not exhibit anything like the weakness which marked the sister arcading and gables, which, it may be remembered, were taken down and rebuilt stone by stone. The work has been entrusted to Messrs. John Thompson & Co.

THE NATIONAL PHYSICAL LABORATORY.

PLANS of the new institution now being erected at Bushey were exhibited to the members of the British Association by Dr. Glazebrook, the superintendent of the National Physical Laboratory, who gave a short history of the building, and described the objects with which it has been founded. The main building consisted of a substantial central block about 70 feet square standing on a vaulted basement. At each corner there was a large wing practically single-storeyed; the rooms in these were being fitted up for various special purposes. In the central building itself would be two general laboratories. There would be a large entrance-hall arranged as an apparatus room, and a library. The basement contained six rooms of fair size; the floor had been covered with a thick layer of concrete. The walls were very thick, so that they were extremely steady, and the temperature and conditions all favourable for steady work. In addition there were other smaller rooms on the basement; two of these were entirely surrounded by thick interior walls and arrangements would be fitted to maintain a steady temperature throughout the year. At the back was another wing containing a number of rooms suited for special researches, and there a lift had been fitted and also a mercury column having a height of about 50 feet. For the more delicate physical work the ground floor and basement of the old house afforded ample accommodation. For the engineering work a room, 80 feet by 50 feet, had been built, lighted from the north by a weaving shed roof. It was divided longitudinally into two bays by a series of rolled steel pillars. The one bay would contain a light travelling crane; along the other ran a line of shafting for driving the machinery and for experimental purposes. Adjoining this laboratory was a drawing office, while the engine-house and boiler-rooms were close at hand. Power obtained from a 60-kilowatt Parsons turbine would be distributed electrically to various parts of the laboratories; this form of engine was chosen for the express purpose of avoiding vibration as far as possible. The necessary tools were on order and in course of installation. The work which the committee hoped to attack in the first instance was that which had already been under the consideration of the alloys research committee of the Mechanical Engineers. Apparatus for the photo-micrographic examination of steel rails was being set up, and machines for testing the elastic properties of alloys were in course of construction. Pressure gauges and steam indicators would also be tested. The height of the building would not allow the mercury column, now being erected, to measure more than 200 lbs. to the square inch, but apparatus was being constructed for pressure in excess of that amount. Considerable attention was to be given to high temperature thermometry, the testing of platinum thermometers and the measurement of electrical quantities. Before the end of the year the committee hoped the laboratory would be fully and usefully occupied. Acknowledgment was made of the generosity of Sir Andrew Noble, who had given an excellent comparator, a dividing engine and some measuring apparatus of the highest class to the laboratory.

NOTES AND COMMENTS.

THE riverside buildings in Cologne are not all picturesque, and from some points of view the appearance of the city is, in consequence, unsatisfactory. It is also found that the full effect of the Cathedral, of which all are proud, is not everywhere manifest. It was lately decided to invite German architects to compete in the design of a building which the judges would consider as typical of what is required on sites near the Rhine. No less than 119 designs were sent in. The first prize has been awarded to Herr KARL ROTH, of Darmstadt, who suggests the late German Renaissance style as most suitable. The second prize was gained by the Brothers SCHAUPMEYER, of Cologne, who have combined the characteristics of more than one Renaissance period. Supplementary prizes were given to Herren THYRIOT, of Cologne; SCHMITZ & WIRTZ, of Trier; and WIGGERT, of Breslau. Herr PFLAUME, of Cologne, and Herr WEIMANN, of Duisburg, were awarded third prizes. The gainers of fourth prizes were Herren KUSTER, of Cologne; SCHUTTE, of Barmen; and KREMER, of Frankfurt. Taken as a whole free Renaissance was considered to be most eligible, but in some designs Gothic was utilised.

It is fortunate for Scotland that the difficulty about secondary schools which now disturbs educationists is there unknown, for when the system was first established there was no doling of knowledge. According to Mr. ADAMS, "public school" means in Scotland any school, whether primary or secondary, that is under the management of a School Board. By the Education (Scotland) Act, 1872, eleven schools were scheduled as higher class public schools. There are now thirty such schools, all of them placed entirely under the control of School Boards, "with a view to promote the higher education of the country." The fundamental difference between these and all the other public schools of Scotland is that the higher class schools are debarred from earning the annual Parliamentary grant. All the other public schools are usually referred to as "grant-earning." Voluntary schools are also grant-earning, since they receive all the grants of the ordinary public schools, with the addition of an annual grant of 3s. per pupil in average attendance. The higher class public schools are supported by contributions from the municipal authorities of the district, according to ancient custom, by certain endowments varying with each case, by fees and by the rates. If need be the School Board may charge all the expenses of a higher class school on the rates, except the salaries of teachers. The Board has great freedom in dealing with the higher class schools. It determines the qualifications to be demanded from the teachers, and has the power of causing candidates for the post of teacher to be examined. This power is rarely, if ever exercised. The qualification demanded is usually the possession of a university degree. These schools are examined annually by examiners appointed by the Board. As to the subjects studied, however, there is no rigid line marking off the grant-earning schools from the others. The tradition of the Scottish parish school is that each school is fit to prepare a lad to go direct from school to university, and in the north-east of Scotland—thanks to the DICK and MILNE bequests—the tradition is justified to this day.

THE horse-trough in Verona, which used to be shown as the sarcophagus of JULIET, was enough to take all the poetry out of SHAKESPEARE'S tragedy, for in Italy something which is beautiful is expected to be associated with a heroine. But the people who were shocked in Verona were satisfied when a big stone was pointed out to them at Helsingfors, on which the words "HAMLET'S GRAVE" were inscribed. That HAMLET was slain by LAERTES at Elsinore was recorded in the tragedy, and it was not difficult to imagine he was also buried there. Vague notions about rude stone monuments arose in visitors' minds, and it was not asked how long the stone had been supposed to be one of the most interesting of memorials. Care was taken of late years to prevent the removal of chip-pings, but several other stones were available for that purpose, and it was easy to suppose that, although they bore no inscription, they once formed part of the monument. The stone was not recognised as marking HAMLET'S grave until

modern times, and was, it is believed, dignified with that office in order to make a suburb of Helsingfors attractive to a class of visitors who are supposed to spend money freely. The local authorities have at last disclaimed all connection with the deception, and it is believed that those who have profited by the stone will try the experiment of removing it to another position.

At the Russian Imperial stone-polishing works of Jekaterinburg, in the Ural Mountains, a sarcophagus is now in preparation which has a tragic interest. It is made of the finest green jasper that can be procured in the territory. The sarcophagus is to be placed in the Atonement Church of St. Petersburg, and will contain the paving-stones on which ALEXANDER II. fell when he was assassinated on March 13, 1881. The stones are stained with the blood of the CZAR who abolished serfdom throughout his Empire. The church was commenced soon afterwards, and it is expected to be completed next year. The style is Russian. It will have a high bell-tower, besides six cupolas.

THE Brighton Town Council, having acquired possession of the Aquarium, propose to borrow 25,000*l.* to be expended in works that are almost equal to a rebuilding of the premises. For some time past the buildings have presented that poverty-stricken appearance which betokens the unsuccessful place of entertainment, especially at sea-side resorts. Now that the Aquarium is the property of the Corporation, they must assume a different character. It is agreed that the following works shall be undertaken, viz. the reconstruction of the concert-room; the reconstruction of the fernery and waterfall; the renewal of the roof; renewing ventilation and warming, and the installation of the electric light; the improvement of the tanks, besides general repairs and redecoration. The works will be under the direction of Mr. A. H. TILTMAN. When they are completed it will be necessary to make the collection attractive. It should be admitted that aquaria have ceased to be novelties, and if they are to become profitable it will be necessary to collect something else besides examples of commonplace fishes.

ILLUSTRATIONS.

FOYER, GREAT QUEEN STREET (PENLEY'S) THEATRE.

FRIEZE, THE CENTURY THEATRE.

CATHEDRAL SERIES.—CHICHESTER: NORTH AISLE, LOOKING WEST.

SALISBURY HOUSE, FINSBURY, E.C.

UNITARIAN CHURCH, BIRKENHEAD.

THIS new church, for the Unitarians of Birkenhead, is about to be erected on land adjoining their present premises on Bessborough Road. The plan consists of nave, transepts and chancel. By placing the side aisles next the outer walls uninterrupted view of the preacher is assured for the whole of the congregation. Access to each pew can be obtained from either end, and by placing the radiators under each window in these side aisles no cold air can find its way into the body of the church without passing over them, and thus the chilled feeling which so often occurs where the seats are brought up to the outer walls will be entirely obviated. The unusually large waiting hall or vestibule near the main entrance was desired by the congregation, and over it is a small gallery reached by a stair from the vestibule. Externally the building will be built of 2½-inch red Ruabon wire-cut bricks with thick white joints, and the stone dressings will be of local red freestone from Heswall quarries. The roof will be covered with small green Cumberland (Tilberthwaite) slates.

The interior will be faced with the same local freestone as the exterior in parts, and the rest plastered, whilst the roof and woodwork will be pitch-pine.

The work was submitted to competition amongst a limited number of local architects, and the first place was secured by Mr. J. JOSEPH TALBOT (WILSON & TALBOT), of Commerce Court, Liverpool, and Central Chambers, Bolton.

The exterior view, which was in this year's Academy, was published in our last week's issue.

TEMPLE BRUER.

IN a volume published in 1719 is the following entry:—
 "A Temple on an Heath. Here seems to have been a Preceptory of the Knights-Templars, for there is to be seen the ruinous Walls of a demolished Church, not unlike those of the New Temple in London."

The Rev. G. Oliver, in 1837, described the place, and the following extracts from the book appear in the *Lincolnshire Chronicle*:—

The tower of Temple Bruer, where the haughty knights of the Temple once had their princely residence, and were protected by a numerous train of armed retainers, the intermediate space being dotted by farmsteads, accompanied with the substantial appendages of barns and granaries and streets of corn stacks, all bespeaking opulence and comfort and exciting in the mind a train of ideas declaratory of Old English happiness, cemented by the exercise of British hospitality. I confess I gazed with admiration when I first beheld this scene, and stern reality for a moment gave way to poetic thoughts and pastoral musings, but the blissful delusion was soon at an end, and I passed on under the reflection that it was something to have enjoyed even a moment's unalloyed happiness.

The Preceptory of Temple Bruer was founded in the twelfth century by Matilda de Caux, or by the first William d'Esseby, for the testimonies in favour of both these claimants are very conflicting and uncertain. The latter, however, was one of its early benefactors, as was also Robert de Everingham, whose ancestor had succeeded to considerable property in this neighbourhood by marriage with one of the daughters and co-heirs of Geoffery Alselin, which he himself had further augmented by marriage with the grand-daughter and heir of the above Matilda de Caux. Great improvements were soon introduced on the estates with which the Temple had been endowed. Buildings rapidly arose and spread over the barren waste, a circular church was built on the model of the Holy Sepulchre at Jerusalem, with a tower towards the east, and a town rose rapidly on the extended heath. Royal charters were obtained for a weekly market, which was held first on a Thursday and subsequently on Wednesday, and an annual fair in the month of May. (Rot. Chart. 43 Hen. III. m. 4, for "maner' mercat' et feria.") And the disorders which preceded the reign of Edward I. made a patent necessary for fortifying the exterior gate of the Temple. The situation of this gate is still pointed out by two mounds where the flanking towers stood, and they go by the name of the "Bar Gates" to this day.

In the years 1832 and 1833 Mr. Chas. Chaplin, of Blankney, placed some workmen under my direction for the purpose of excavating the foundations which had been undisturbed on the north and west of the tower. The first excavation was made at the tower, as I confidently expected to find a vault in that situation, because the floor of the lower storey is elevated 5 feet above the ancient surface of the ground. Whatever space might formerly have existed here, it had been filled in, but we came to a narrow subterranean passage, which appeared to take its rise in this vault, and issuing under the north door by a winding direction eastward, passed on to the buildings in that quarter, the very foundations of which have disappeared. The walls of this passage are coated with plaster. There is a footnote to this effect:—"I am told that another passage exists in its primitive state. It is described as being formed of brick, about 4 feet in diameter and 6 in height, and arched over; perfectly clean and dry, and of sufficient capacity to admit a single person. It runs in a north-westerly direction, and is said traditionally to reach as far as Wellingore, a distance of two miles, but this is scarcely probable, although about six-and-thirty years ago it was opened and explored, and one of the workmen proceeded in with a candle to a considerable distance, until fear compelled him to return, after an expedition of more than an hour. We attempted to find the entrance of this passage from the recollections of those who saw it at the above period, but without success."

In our researches on the site of the church, continues the author, we discovered in a perfect state the ancient circular plinth and 4 feet of wall, but buried under a vast accumulation of rough and squared stones, a large number of them handsomely carved and polished. Norman columns and capitals, zigzag and other mouldings, earth and cement, and the tangled roots of large trees which grew amongst the foundations. These beautiful details of the original building, consisting of most of the varieties of Norman enrichments, were soon scattered over the Temple yard in great profusion, and the spectator possessing any portion of antiquarian feelings, on viewing these relics would be unable to repress the train of reflection arising in his mind on the primitive sanctity of the place, the peculiar order of the men who were its inmates, and the utter desecration to which it was ultimately consigned at the final dissolution of the military order to which it belonged.

The circular church is 52 feet in diameter within, and appears to have been supported by a peristyle of eight cylindrical columns, with massive bases and capitals, from which

sprang a series of circular arches profusely ornamented with bold zigzags and other Norman enrichments, occupying, together with the aisle or space thus formed, exactly one-half of the diameter. The outer face of the plinth which supports these columns is the segment of a circle, and measures 4 feet 6 inches; while the inner face is only 3½ feet, and the circular impost at the base of the column is 3 feet 2½ inches in diameter, and the column itself 3 feet 2 inches. A portion of the aisle on the north side had been used as a private chapel, in which were a tomb, an altar and a stone bench for the officiating priest. On the west was the principal door of entrance, with an ascent of stone steps and a magnificent porch, the foundations of which remain perfect; and in the floor are two coffin-shaped stones, one plain and the other charged with a cross bottonny fichée in relief. No interments, however, were found beneath them. A communication was formed beneath the church and the lower storey of the tower by means of cloisters; and this small apartment, which could have admitted but few persons as it is only 17 feet square, was fitted up for performance of high mass, and was probably used as a choir or chancel. Inserted in the wall on the east side of the south window are a pair of arches springing from cylinders with foliated capitals and surmounted by a crocketed canopy, which contain a piscina. On the other side of the window are two stone stalls to correspond; and in the west wall is a beautiful arcade of five massive retiring arches, handsomely finished with a rich and tasteful display of the torus moulding, now much dilapidated, and supported on cylinders having capitals ornamented with the trefoil leaf. Under each of these arches is a stone seat.

This tower owes its preservation to the taste and good feeling of Mr. Charles Chaplin, of Blankney, who has furnished it with a new roof, and otherwise effectually secured it against further dilapidations. It has four stages separated by string-courses, and stands on a massive basement, to which its preservation amidst the wreck of the main buildings may be in some degree attributed. The east side has a lancet window in each of the second and third storeys, and in the south a large window of three lights trefoil under a pointed arch and drip-stone resting on blank shields; above this is a plain circular-headed window, and the upper storey containing a square on each face. In the north face of the tower is an ancient doorway, with a circular arch over a large transom stone, placed as if intended to aid the arch in support of the superincumbent pressure, and on this account it is conjectured by King to be of Saxon workmanship; but it is now walled up, and to the eastward are a pair of small arches in the wall. At the north-west angle is a clustered column, from which a groined roof has evidently sprung, and about the centre of this face, at the same elevation, a bracket or impost remains, which has probably been inserted for the same purpose. At the north-west angle of the tower within is a capacious stone staircase much worn, which mounts to the rooms in the second and third storeys, as well as to the battlements.

Over the cloisters above-mentioned were dormitories, which appear to have been enlarged from their original dimensions at some subsequent period, probably when the establishment was transferred to the Hospitallers, the older works having evidently been removed to make way for the more recent, for there appear marks in the tower indicative of two separate roofs, the one a pitch roof, the other a shelving, and both of a date more modern than the tower itself, as is probable from the existence of an original window in this face, across which the added roof has taken its course so as to divide it into two unequal portions, the lower part being included in the chamber over the cloisters.

On the floor at the east end of the church was an encaustic pavement, and several glazed tiles have been thrown out, of diversified shapes and colours; some are triangular, some square and others oblong, and they were doubtless laid in such a manner as to compose some harmonious pattern. Beneath the church and tower was a perfect labyrinth of vaults and dungeons and intricate passages, arched over with stone, branches of which run under the doors of the church and tower and below the pavement of the cloisters.

The churchyard or cemetery was on the north side of the west porch, and the graves were placed in lines round the outside of the building. They are very numerous, and those which were unavoidably opened by the process of excavation contained skeletons, but no relics of coffins. The bottom of the grave was the surface of the limestone rock, the sides were lined with flat stones taken from the neighbouring quarry, and the whole was covered down with a rough stone of greater dimensions. They were, in fact, legitimate kistvaens. In these graves were found arrow-heads of iron, small ornamental brass buckles, and an instrument resembling the blade of a dagger, all corroded with the rust of time and damp; several silver coins of the early Edwards and Henries, one of Henry VIII. and another of Elizabeth; some Roman copper coins, one of which is a Theodosius, with several Nuremberg and Lombardic tokens; a gold ring set with emeralds; the head of a rosary

made of ebony; a small bell, which was probably fixed, with many others of the same kind, according to the custom of the time, to one of the knight's horse furniture. We also took up an antique Sheffield thwitel of great beauty, with an ornamental haft and a blade inlaid with silver in elegant devices, both on the sides and back, which latter is of great thickness; and two large keys of curious construction, the one plated with silver, the other with gold.

On the south side of the porch are several small rooms and narrow passages, which adjoined the church wall, and these appear to have been offices, for one of the rooms, which measures 14 by 14½ feet, was filled with pure lime. The walls of this part of the buildings are uniformly 2½ feet in thickness, while those of the church and porch are more than 4 feet; and the latter are built of stone, rough as when taken from the quarry, and entirely coated with plaster inside and out, except the plinth, which is handsomely squared and moulded.

THE NEOLITHIC SETTLEMENT AT KNOSSOS.

ACCORDING to a paper communicated by Mr. A. J. Evans, M.A., to the British Association, the hill of Kephala at Knossos, which contained the remains of the palace of Minos and early houses going back to the pre-Mycenæan or Kamáres period of Crete, proves to have been the scene of a much earlier and very extensive Neolithic settlement. The exploration of this by the author, in addition to the work on the later remains of the "Minoan" Palace, has been greatly aided by the grant from the Association in 1900. The remains were contained in a stratum of light clay underlying the later prehistoric buildings, and which seems to have been formed by the disintegration of successive generations of wattle and daub huts and their clay platforms. This clay stratum, which had been a good deal reused for later foundations, showed a mean thickness on the top of the hill of about five metres. In some places it was over seven metres thick and went down to a depth of about ten metres below the surface. It contained an abundance of primitive dark hand-made pottery, often punctuated and incised, and with white chalky inlaying, more rarely chrome-coloured. The ornamentation was angular and of textile derivation. Stone implements abounded of greenstone, serpentine, diorite, hematite, jadeite and other materials. Among these were over 300 celts or axes, besides chisels, adzes, hammers and other implements. The most characteristic implements, however, were the stone maces, the occurrence of which was especially important as bringing the Cretan Stone Age into near relation with that of Anatolia, and indeed of Western Asia in general, where, as in the early deposits of Babylonia, stone maces formed a marked feature. This characteristic was shared by predynastic and protodynastic Egypt. Another interesting feature among the remains were the small human images of clay and marble which supplied the ancestors and prototypes of the stone images found in the early Metal Age deposits of Crete and the Cyclades. Their Anatolian analogies were pointed out, and reasons were adduced for their ultimate derivation through intermediate types from clay figures of a Babylonia mother-goddess, such as those lately found in the very ancient deposits at Nippur.

The Neolithic settlement of Knossos was the first settlement of that period yet explored in the Greek world, and in many ways threw an entirely new light on the beginning of civilisation in that area. The contents showed a marked contrast to the earliest Metal Age remains, such as those from the deposit of Hagios Onuphrios in Crete, the date of which was approximately fixed by their association with Egyptian relics and the indigenous copies of them from 2800 to 2200 B.C. There were here no later vase-forms of the high-necked and spouted class, no traces of painted pottery or metal and no single example of the spiraliform decoration which in the early Metal Age deposits is found fully developed. This negative phenomenon strongly weighed in favour of the view that the Ægean spiral system was introduced during this later period with other decorative types from the Egypt of the Middle Kingdom, where it had already attained a high development.

The Neolithic stratum of Knossos itself actually underlay later buildings belonging to three distinct prehistoric classes:—(1) The "Kamáres," or Early Metal Age Period of Crete, illustrated by the contents of some of the earlier houses. The painted pottery in these was in some cases a mere translation into colour of the incised and punctuated Neolithic designs. This period is approximately dated from the relics found in the Hagios Onuphrios deposit and the Cretan vase fragments found in Egypt in a twelfth dynasty association from c. 2800 to 2200 B.C. (2) The Transitional Period, between the "Kamáres" age and the Mycenæan. It is probable that the earliest elements of the palace itself belong to this period, including an Egyptian monument ascribed to the close of the twelfth or early thirteenth dynasty, c. 2000 B.C. (3) The Mycenæan period proper, the flourishing epoch of which is approximately

fixed by the correspondence of some of the wall-paintings with those representing the Keftiu on Egyptian tombs, c. 1550 B.C.

Considering the distinct gap in development which still separates the latest elements of the culture represented by the Neolithic stratum of Knossos from the fully developed Kamáres style, it would be rash to bring down the lowest limits of the settlement later than about 3000 B.C. On the other hand, the great depth of the deposit must carry its higher limit back to a very much more remote date. The continued exploration of the Neolithic remains of Knossos is necessary for the full elucidation of many of the problems suggested by these discoveries.

MECHANICAL EXHIBITS IN THE GLASGOW EXHIBITION.

A PAPER by Mr. David Home Morton, C.E., on "The Mechanical Exhibits in the Glasgow Exhibition," states that to those who had studied the contents of previous great exhibitions on the continents of Europe and America, the first tour round the Machinery Hall and through the pavilions and spaces devoted to mechanical exhibits might produce a feeling of disappointment, not because the exhibits were lacking in number or variety, but because in many departments the international character to which the Exhibition, as a whole, laid claim was entirely wanting, because some of the most important developments of recent years were illustrated inadequately or not at all, and because, taking the Exhibition merely in its local aspect, the representation, magnificent in some departments, failed in others to give any full idea of the magnitude and variety of those enterprises which had made the city of Glasgow, with its surroundings within a radius of 30 miles, one of the world's great centres in metallurgy, mechanical engineering and shipbuilding. Nevertheless, there was abundance to provide the visitor with all the hard work, physical and mental, of which he was capable during all the time he could afford to give to the study of mechanical exhibits. The exhibition of ship models, historical and contemporary, in the Grand Avenue, was probably the finest demonstration of British, or, more correctly, Clyde naval architecture and shipbuilding which had ever been seen, and the four locomotive engines at the north end of the Machinery Hall, near the entrance, were almost perfect examples of their builders' art. Nevertheless, the dominant exhibits were the trophies in steel. The Exhibition might, indeed, be said to mark the triumph of steel, and particularly of cast steel. Having made an exhaustive criticism of the iron and steel exhibits, he passed on to the engineers' machine tools. The British tools displayed were worthy of their makers' reputation, but, in his opinion, they failed to convey any just idea of what was being done, either in the establishments of those who had exhibited or of those who had refrained. Another point he emphasised was that in an Exhibition erected practically adjacent to some of the most noted marine engineering establishments in the world, it was a matter for regret that marine engineering should be so inadequately represented. In view of the great developments in electrical traction, a more representative display of tramway material and equipment might also have been anticipated.

EXPLORATIONS IN CRETE.

A REPORT of the committee, consisting of Sir John Evans, K.C.B., F.R.S. (chairman), Mr. J. L. Myres (secretary), Mr. A. J. Evans, Mr. D. G. Hogarth, Professor A. Macalister and Professor W. Ridgeway, has been presented to the British Association. In order to present the results of the season of 1901 in their proper bearings the committee introduces its report with a retrospect of British exploration in Crete.

The Cretan Exploration Fund was formed in 1899 with the object of assisting British explorers and the British School at Athens to investigate the early remains of the island, which from indications already apparent seemed likely to supply the solution of many interesting questions regarding the beginnings of civilisation in Greece. To the furtherance of this work, begun in the spring of 1900, the grant of 145£ was made last autumn by the British Association.

Already in 1894 Mr. Arthur Evans had secured a part ownership (completed last year) in the site of Kephala at Knossos, which evidently contained the remains of a prehistoric building. Excavations, to which the fund has largely contributed, begun by him in 1900 on this site and continued during the present year, have brought to light an ancient palace of vast extent, which there is every reason to identify with the traditional house of Minos, and at the same time with the legendary "Labyrinth."

The result of the excavations of 1900 was to unearth a considerable part of the western side of this great building, including two large courts, the porticoes and entrance corridors, a vast system of magazines, some of them replete

with huge store jars, and a richly-adorned room, where between lower benches rose a curiously-carved gypsum throne, on which king Minos himself may have sat in council. The second season's work has uncovered a further series of magazines, the whole northern end of the palace, including a bath-chamber and an extensive eastern quarter. It was only towards the close of this year's excavations that what appear to have been the principal state rooms first came into view. A triple flight of stone stairs, one flight beneath another, here leads down from an upper corridor to a suite of halls, showing remains of colonnades and galleries. It was at this interesting point that, owing to the advanced season, Mr. Evans was obliged to bring this year's excavations to a close.

Apart from the architectural results already gained, the finds within the walls of the palace have been of such a nature as to throw an entirely new light on the art and culture of prehistoric Greece. Partly still clinging to the walls, partly on the floors of the chambers, were found the remains of a whole series of fresco-paintings. Among these the full-length figures of the cup-bearer supply the first real portrayal of a man of the Mycenaean age, while the miniature groups representing court ladies show a liveliness and expression far beyond any work of the kind in contemporary Egypt. Allied to this branch of art are the painted reliefs in *gesso duro*, showing a force and naturalism for which no parallel can be found till the great days of Greek sculpture some ten centuries later. To the remarkable bull's head discovered last year the more recent excavations have added parts of human figures, in which the muscles and even the veins are reproduced with a singular mastery of execution.

The marble mouth of a fountain in the shape of a lioness's head and a triton shell of alabaster, together with many other beautiful stone vessels and architectural ornaments, also evidence the high level already attained in the sculptor's art. Among the minor arts represented is that of miniature painting on the back of crystal and intarsiawork of ivory, rock-crystal, enamel and precious metals, of which a splendid example has been found this season in the remains of a royal draught-board. Other finds illustrate the connections with ancient Egypt and the East. Part of a small diorite statue from last year's excavations bears a hieroglyphic inscription fixing its date about the beginning of the second millennium B.C., while a more recently discovered alabaster lid bears the cartouche of the Hyksos king, Khyan. A fine cylinder of *apis lazuli*, mounted with gold and engraved with mythological subjects, bears witness to the early connection with Babylonia.

But of all the discoveries made within the palace of Knossos the most interesting is the accumulated evidence here for the first time afforded that there existed on the soil of prehistoric Hellas a highly developed system of writing some eight centuries earlier than the first written Greek monuments, and going back six or seven centuries, even before the first dated record of the Phœnician script. A whole series of deposits of clay tablets has come to light, many of the most important of them during last season's excavations, engraved with a linear script, often accompanied by a decimal system of numeration.

That these documents largely relate to the royal stores and arsenals is seen by the pictorial illustrations with which the inscriptions are often accompanied. Others, in which signs representing men and women frequently recur, probably contain lists of slaves or officials. Others again of a different class may, perhaps, ultimately reveal to us fragments of contemporary records or the actual formulas of Minoan laws.

Besides these linear tablets there was discovered a separate deposit of clay bars and labels containing inscriptions of a more hieroglyphic class. Although contemporary with the linear tablets, the script on these is apparently of quite distinct evolution, and in all probability in a different language. The characters answer, in fact, to the sign-groups already observed in certain seal-stones mostly found in the east of Crete. The hieroglyphs themselves present many parallels to the presumed pictorial prototypes of Phœnician letters.

Beneath the palace itself and the adjoining houses, and underlying the whole top of the hill, was also a very extensive Neolithic settlement. The relics found, such as the small human figures of clay and marble, supply the antecedent stages, hitherto wanting, to the Early Metal Age culture of the *Ægean Islands*.

In addition to the assistance given to Mr. Evans in his work at Knossos, the Cretan Exploration Fund has contributed towards various works of exploration in the island undertaken under the auspices of the British School at Athens. In 1899 the late director of the school, Mr. D. G. Hogarth, excavated a series of prehistoric houses in the lower town of Knossos. He found in these many remarkable painted vases, showing that a highly developed ceramic art flourished here already before the days of the civilisation known as Mycenaean. A large number of similar houses await exploration; in fact, the whole plan of the early town could probably be recovered. Mr. Hogarth further successfully explored the great cave of

Zeus on Mount Dicta, discovering remains of a prehistoric sanctuary and large deposits of votive bronze figures and other objects, among which the double axe, the symbol of the Cretan and Carian Zeus, was specially conspicuous.

During the present year Mr. R. C. Bosanquet, the new director of the British School, has carried out an exploration of the site of Praesos, in the easternmost region of Crete, in historic times the chief civic centre of the original Eteocretan element of the island. The remains on the actual site of Praesos proved to belong to the Geometrical and later periods. A remarkable inscription was found, however, the second of its class, written in Greek characters of the fifth century B.C., but composed in the old Eteocretan language. Two sanctuaries with votive deposits also came to light, and the remains of a large public building of Hellenistic date, which may have been an "Andreion" of the kind in which the Cretan citizens met for common meals.

This season Mr. Hogarth has also been enabled by a grant from the fund to explore an ancient site at Zakro in the extreme east of the island. He has there uncovered a small Mycenaean town with well preserved remains of the lower part of the houses and magazines, and a pit containing fine examples of early pottery. But the most important discovery was a deposit of clay impressions of Mycenaean gems and signets containing 150 types, some of them throwing a new light on the early cult of Crete. Among other subjects represented was the Minotaur, which also occurs on a seal impression recently discovered in the palace at Knossos. Furthermore, some interesting cist-graves were found in caves about Zakro. These yielded incised and painted pottery of the pre-Mycenaean age, including types novel in Crete but familiar in Cyprus and Egypt. The general result has important bearing on the origin and history of Mycenaean civilisation in Crete.

Other interesting sites, already previously secured for British excavation, remain to be explored. The executive committee of the Cretan Exploration Fund, however, are of opinion that, before devoting any sums towards breaking new ground, a sufficient amount shall be raised to enable Mr. Evans to complete his excavation of the palace of Knossos, a considerable part of the cost of which has already fallen on the explorer's shoulders. The large scale of the work, on which throughout the whole of last season 200 workmen were constantly employed, makes it necessarily costly, and in this case, in addition to many other incidental items of expenditure, a great deal has to be done towards the conservation, and in some cases even the roofing-in, of the chambers discovered. It is estimated that a sum of between 1,000*l.* and 2,000*l.* will be necessary for the adequate completion of this important work. The unique character of the results already obtained is, however, so widely recognised that the committee confidently trust that no financial obstacles will stand in the way of this consummation.

PROTECTION OF BUILDINGS FROM LIGHTNING.

A PAPER by Mr. Killingworth Hedges was read before the British Association, in which it was said that the last time the subject was brought before the members was at the Bath meeting in 1888, when a joint discussion of Sections A and G was held; but there has been no official report as to the effect of lightning stroke upon buildings protected by conductors since the Lightning Rod Conference of 1882. Interest in the subject has been again revived, first, by the *Electro-Technische Verein* of Berlin, who have this year published a set of rules; and, secondly, by the establishment in this country of the Lightning Research Committee, organised jointly by the Royal Institute of British Architects and the Surveyors' Institute. The author compared continental and American practice, and gave an account of his rearrangement of the system used at St. Paul's Cathedral, where the conductors, erected as recently as 1872, were found to be totally inefficient, both as regards the conductivity of the joints and the resistance of the earth connections. In the plan recommended, both for that installation and for the more recent one at Westminster Abbey, the number of ordinary conductors from air to earth has been greatly increased, and, besides these, horizontal cables are run on the ridges of the roofs and in other prominent positions so as to encircle the building, being interconnected to the vertical conductors wherever they cross one another. The horizontal cables are furnished at intervals with aigrettes, or spikes, which are invisible from the ground level, and are designed to give many points of discharge. At the same time they, in conjunction with the cables, would receive any side flash which might occur should any portion of the building receive a direct stroke of lightning.

The unreliability of soldered joints for conductors, whether of cable or tape, has led the author to design a special joint box, which can be applied for uniting any portion of the system together in such a manner as to give great mechanical strength.

as well as good electrical contact; at the same time any box can have points inserted so as to form an aigrette in any desired position. Owing to the difficulty of sinking an earth plate of sufficient area, on account of old foundations, a special form of tubular earth has been designed which takes up little space and has the advantage that if a suitable moist ground is not obtainable the desired low electrical resistance is attained by leading a tube in connection with the rain-water pipes, so that a portion of the rainfall is diverted to the tubular earth.

The author alluded to the immense amount of damage to property annually occurring which might be prevented if efficient conductors were installed. He mentioned that instead of every church having its lightning conductor not 10 per cent. are so provided; and in the case of other public buildings the percentage is not much larger, the reason in the case of the former class of buildings being that a vicar wishing to safeguard his church has usually to pay the cost out of his own pocket.

Architects, according to Mr. Killingworth Hedges, as a rule treat the question of lightning conductors in a very brief manner, and in their specifications seldom say anything as to the way in which they are to be run, or the necessity for good joints and good earth connections.

PREHISTORIC PALESTINE.

AMONG the papers read before the Anthropological Section at the meeting of the British Association was one by Mr. R. S. Macallister on the recent excavations in Palestine. During 1899 and 1900, he said, these excavations had been carried out by Dr. Bliss and himself, on behalf of the Palestine Exploration Fund, in four cities on the borders of the ancient territory of the Philistines. The main purpose of the excavation was the recovery of the long-lost city of Gath. Though this hope was disappointed, a large amount of archaeological material was accumulated, and much new light was shed on the culture of the inhabitants of Palestine at various periods. The historical period of Palestine was of such unique interest that it absorbed the attention of all who visited the country, so that hitherto the traces of the prehistoric period had not been sought for. The early pre-Israelite, the late pre-Israelite, the Jewish and the Selucidæ now demanded attention. He described the sites excavated, the chief of which was at Tel-es-Safi, a height overlooking the ancient valley of Elah, famous in Biblical history as the scene of David's victory over Goliath. He gave an account of the character of the buildings and of the remains found, which consisted largely of pottery. At a depth of 14 to 18 feet at Tel-es-Safi they found a building strongly suggestive of a place of religious worship, whose walls were afterwards adapted for domestic purposes, and there seemed every reason for regarding it as one of the "high places" frequently mentioned in the Book of Kings. It was difficult to draw a line of demarcation between the pre-Israelite and the Jewish periods in point of time, though differences were obvious. The Jewish people and the defeated Canaanite tribes seemed for a long while to have lived together, and probably the Jewish nomads utilised to the full the superior culture of the natives whom they conquered. But whether the change took place at the period of Joshua's conquests or at the chaotic period of the Judges, it was certain that a time came when pre-Israelite civilisation was practically annihilated. This was specially marked in the disappearance of coloured ornament on pottery and in the clumsy shape of the vessels. One of the most curious results of the excavations was the scarcity of objects of personal adornment. Hardly anything except beads were found. In their richest mine, but whose objects were not earlier than 500 B.C., beads in agate and other pretty coloured stones were found. In the whole period from pre-Israelite to Jewish they found only two objects of gold—one a little ring, apparently an earring, and an iron finger-ring or thumb-ring, with a layer of gold leaf. Writing made its appearance during this period. It was entirely confined to potters' stamps. Of greater interest were the stamps bearing a figure of a flying scarabeus, with above it a word signifying "To the King," and below it the name of a town, Hebron Ziph Shocho, mentioned in the Bible, and Memsbath, of which nothing is known. Some light was thrown on the pre-exilic religion of Palestine. Jars, bearing potters' stamps, some of them showing names like Azariah, Shebamah, compounded with the name Jahweh, were found side by side with terra-cotta plaques bearing naked goddess figures, or with yet grosser emblems of Phœnician nature worship.

Professor G. A. Smith testified to the value of the work done by Dr. Bliss and Mr. Macallister, and urged the importance of proceeding with excavation in Palestine as speedily as possible. He himself had just been back in the country on the east of the Jordan after a ten years' absence, and he found that most of the sites best adapted for the purpose of excavation had been robbed in the manner Mr. Macallister had described.

The site of the ancient Gadara in 1891 still had the amphitheatre well preserved, the people who lived in caves to the east not interfering with it. Within the last two years all had been changed. A village had sprung up on the site, and the ancient amphitheatre was fast being pulled to pieces. The sooner therefore the mounds of Palestine were explored the better. Every year the loss was becoming irreparable.

THE WIDENING OF PICCADILLY.

THE following letter from Mr. J. Wolfe Barry appears in the *Times* :—

Sir,—Owing to absence from London I have been unable to ask your leave to reply to some of the criticisms which have from time to time appeared in your columns of my proposal for a subway at Hyde Park Corner, as explained in my letters to you of August 5.

Nothing which has yet been said alters my view that any widening of Piccadilly must fail in relieving the congestion of traffic at the spot in question. It does not, in fact, touch the root of the matter, which is to be found in the two highly-important streams of traffic impinging on one another at right angles at the south end of Hamilton Place; and I see that the Chief Commissioner of Police has reported that at certain times of the day about one-half of the traffic passing between Hyde Park Corner and Hamilton Place turns into Hamilton Place. No widening will alter these facts; and, though an increase in the width of Piccadilly opposite Hamilton Place might afford more space in which the police could pack the rows of opposing vehicles while waiting for each other, one stream must still cross the other, however broad the street be made.

We have seen by experience that the bell-mouthed widening at the upper end of Constitution Hill, made in 1882, for which Mr. Shaw Lefevre, who was then First Commissioner of Head Office of Works, is responsible, though it cost a great deal of money, had simply the effect of clearing the way to Hyde Park and Knightsbridge from Grosvenor Place, and effected but little relief of the congestion of Piccadilly. It removed the block of vehicles from the north end of Grosvenor Place to the south end of Hamilton Place, where it is as bad as ever.

The proposed widening of Piccadilly at the south end of Hamilton Place will do still less, for it affords no new route for any description of traffic; and I therefore venture to prophesy that it cannot be even so beneficial as what Mr. Loftie in his letter to you of August 7 somewhat irreverently terms "Mr. Shaw Lefevre's clever imitation of Hampton Court maze," which, at any rate, enables carriages to enter and leave Hyde Park more easily.

As for the widening of Piccadilly by taking land from the Green Park eastward of Down Street, it must be by now obvious to any one who knows London that it is uncalled for. The roadway and footpaths are there ample, and this is specially the case as there are houses on one side only of the thoroughfare. Thus we are brought to the comparative advantages and disadvantages of the County Council scheme, limited to a widening opposite only to Hamilton Place, which has the powerful support of Mr. Shaw Lefevre as chairman of the improvements committee, and to the *pros* and *cons* of my proposal. With these general considerations I approach the points raised by various correspondents in their letters to you in criticism of my suggestion.

Before replying to the semi-official pronouncement of Mr. Shaw Lefevre, may I point out to your correspondent "Offside" that, as my proposed sunken road and subway would become the main arterial roadway east and west, there would be no crossing of the road for any but comparatively little traffic to get to its proper side, and this, of course, would be done by means of the existing roads, which would be undisturbed? The main stream, as I have said, would be by the sunken road, and would flow along it just as it now does, though by a new route and at a lower level. Consequently at its west end the only crossing would be traffic from Knightsbridge seeking Grosvenor Place or Constitution Hill, which, in fact, has now to cross all traffic coming from the east; and the only crossing at the western end would be traffic coming from the south side of Piccadilly and going into Hyde Park, which, again, has now to cross all traffic coming from the west. Neither of these sources of traffic is comparable in importance with the main north and south streams of vehicles between Park Lane, Mayfair and Paddington on the north, and Westminster and Belgravia on the south, which the main Piccadilly stream has now to encounter at Hamilton Place. With regard to another critic, Mr. Hume Williams, who fears congestion opposite Wilton Place, where he lives, may I suggest that my scheme doubles the width of the roadway opposite Wilton Place, and that it is unreasonable to suppose that doubling the width of a road will in itself make a block of vehicles? So far as he demands the extension of

he widening westward into Knightsbridge, I am entirely with him; but, as Mr. Rudyard Kipling says, that is another story, and it has nothing to do with the sunken road. For the rest of your correspondents I can only say that I recognise with great satisfaction that many of them, though their ideas differ as to the mode of cure, admit the truth of my proposition that the only effectual mode of relieving the congestion of London traffic at crowded spots like Hamilton Place is by crossing the opposing streams of vehicles and pedestrians over or under each other. I begin to hope that before long it will be realised generally that this necessity is a matter quite apart from the widening of arterial thoroughfares, which have become too narrow for the requirements of the present day.

I now come to Mr. Shaw Lefevre's remarks on my proposal, and here let me say first that I am pleased to see that he at least considers it practicable, as it certainly is. But he couples it with an alternative scheme for a subway, pointing north and south from the north end of Hamilton Place to Grosvenor Place, which I beg leave to observe is rather like trailing a red herring across the scent. A north and south subway differs in essentials from one which would point east and west. For, as I pointed out in my original letter to you, the levels of Piccadilly, which fall rapidly in both directions from the gateways of Hyde Park, are extremely favourable to the subway which I suggested, whereas the gradients of a north and south subway are distinctly unfavourable, seeing that Hamilton Place rises towards the north, so that any road carried thus under Piccadilly must rise with a long and steep gradient before it can join Park Lane. Moreover, a sunken road from the north end of Hamilton Place must involve important interference with private property of the most valuable description, whereas my proposal does nothing of the kind. By mixing up the two suggestions Mr. Shaw Lefevre is able to throw at our heads an estimate of 250,000*l.* for the north and south subway, which he prefers for some undisclosed reason; and though he admits that the east and west subway would not be so expensive he gives no corresponding estimate of it. I should have thought that this might have been possible for him, as he says that my scheme (foreshadowed by me two years ago at the Society of Arts) was before his improvements committee last year. At any rate, it seems probable from what he says about the levels that my proposal must have been examined in a perfunctory way at Spring Gardens. Many of the public who have read Mr. Shaw Lefevre's letter have no doubt run away erroneously with the idea that something like 250,000*l.* would be involved in the cost of my suggestion. Mr. Shaw Lefevre merely says it would be extremely costly, and twits me with not having considered this matter. I submit, on the contrary, that the cost will be moderate compared with its utility, consisting wholly of works and not involving claims for property or compensation, and that I had carefully in view these circumstances when I made the proposal.

When it comes to naming a trustworthy estimate it is necessary to prepare detailed studies from which to take out quantities, both of which are somewhat lengthy processes at any time, but especially during the vacation. However, since I wrote to you last month I have made these more detailed studies of a subway with inclined roads of a width of 60 feet, which on full consideration seems to be ample; with the result that I find that I can greatly improve the original sketch, and can shorten the subway to a length of 210 yards, that the length of the inclined roads will be less than I indicated, that the gradients can be at least as favourable as those which I described, that there is ample room for water and gas mains above the subway (another difficulty suggested by Mr. Shaw Lefevre), and, lastly, that the cost need not exceed 110,000*l.*

I think these explanations answer the engineering criticisms of Mr. Shaw Lefevre, and we may now consider his æsthetic objections. Mr. Shaw Lefevre says "deep open cuttings would be very unsightly and objectionable for many reasons," and Mr. Akers-Douglas in Parliament repeated the cry against deep open cuttings and brick walls, and suggested engineering monstrosities. With regard to the "many reasons," I take it from what followed that Mr. Shaw Lefevre supposed that the levels which I quoted were wrong; which, as I have explained, is not the case. And so we come back in both cases to "deep open cuttings" being the real cause for æsthetic protests. From the words used it seems probable that both gentlemen had in their mind's eye something like an ordinary railway cutting, of which I do not know what depth, either with unsightly slopes or brick-retaining walls, made without the slightest attempt at artistic treatment. But there is nothing so easy as to raise a bogey, and not only affect to be frightened at it, but to try also to frighten other people. The sunken road which I proposed can scarcely be called deep, as it would not be more than 19 feet at its deepest part, and would be level with the street at its other end. It would be entirely different from a railway cutting, as the sides would be upheld by retaining walls faced ornamentally with stone, panelled, arched, or pilastered, and white glazed bricks might be used in the panels if found to be architecturally congruous.

I have never heard that the retaining walls of Trafalgar Square or New Palace Yard are ugly, and, in fact, they are not. At any rate, such works admit of any amount of artistic treatment. The whole would be surmounted by a stone balustrade such as we see on Waterloo Bridge or in Trafalgar Square, or on the terrace of Somerset House, or by ornamental wrought-iron railings, as in New Palace Yard. All this I indicated in my original letter, but it is calmly ignored by the two official critics whom I have mentioned. I venture to ask why should such things be ugly at Hyde Park Corner in the future any more than they are eyesores now at the places which I have mentioned? and I assert boldly that they need not be in the least unsightly under proper architectural advice.

Another example occurs to me which is still more to the point. The French for the Paris Exhibition erected a beautiful and very wide bridge across the Seine, named the Pont Nicholas II., and they wisely carried the roadway (a very important one) on the north bank of the river, which is at right angles to the axis of the bridge, under the bridge by an inclined road and subway instead of crossing the two streams of traffic at right angles to each other. The walls on each side of the roadway are anything but unsightly, being executed somewhat in the way which I have mentioned. Why cannot we do as well or better at Hyde Park Corner? There can in truth be no difficulty in the matter if, following the example of the Parisians, who have reason to be proud of their public works, we associate with the engineer of the County Council any one of half a dozen well-known architects, the names of whom will occur to anyone.

Before leaving my æsthetic critics who curiously enough propose to destroy a number of trees between Down Street and the Wellington Arch, I should like to say that I find (thanks to a plan published by the *Daily Chronicle*) that by bowing the sunken road about 40 feet to the south almost all the trees in question could be preserved and remain between the sunken road and the existing thoroughfare of Piccadilly. The additional abstraction of land from the body of the Green Park might not be too high a price for the preservation of the trees, and the land between the old and new roadways, though partially severed, would remain with its trees and grass as a screen between the two roads.

If, then, we wish to do the thing which is necessary, viz. separate the conflicting streams of traffic at Hamilton Place, it can be done very easily by a subway, and so that the work may be an ornament to London rather than the opposite. If, on the other hand, we deliberately adopt the half measure of a mere local widening and are content to prepare another failure, it is better to boldly tell us that we must take the cheaper but inefficient expedient because it is cheaper, than to condemn the complete proposal for cure by inferentially exaggerating its cost, by calling in question without full investigation its engineering features and by lifting up hands of holy horror about ugliness which need not exist.

Mr. Shaw Lefevre, lastly, says let us try the widening of Piccadilly first and see what it will do. I ask what purpose, except a mistaken economy looking very like extravagance, can be served by embarking in a scheme which is foredoomed to failure. Why should we waste some thousands of pounds on a proposal which will still leave the north and south traffic to jostle its way across the east and west streams of vehicles?

If the County Council and His Majesty's Office of Works are in earnest in the question, let me submit that they should carefully study the scheme of a subway without any foregone conclusions against it, because it is a new departure or because it will cost more than widening Piccadilly; and that they should try by a model prepared under good advice how the sunken road could best and most artistically be done, for it stands to reason that it is the only complete solution of a question urgent enough now and getting worse every year.

STREETS AND TRAFFIC.*

AT this the first meeting of the British Association of the new century I wish to lay before you some of the interesting problems presented by recent developments in means of locomotion on land which demand the best thoughts not only of our engineers, but of everyone interested in the improvement in means of travelling and in the more rapid transit of goods. A rather curious speculation presents itself to us. This is whether the need for rapid communication between town and town may not eventually be supplied by high-speed motor-cars on roads specially prepared for them. Mr. Wells in his interesting forecast in the *Fortnightly Review* seems to think that the time is not far distant when all passenger traffic will be carried on special roads on motor-cars. That the advantages of carrying your family and loading up your belong-

* From an address to the Mechanical Science Section by Colonel R. E. Crompton, M.Inst.C.E., president of the Section.

ings at your own door, in your own or a hired car, and transporting them without any change or handling of your baggage right up to the point where your journey ends, will be so great that even for comparatively long journeys travellers will prefer it to the railway, and that our railways will eventually be relegated to carrying minerals and heavy goods. But without going so far as Mr. Wells, it does seem probable that if only a few passengers require to travel between two business centres such as Manchester and Liverpool, and to occupy only half the time from door to door at present taken by the railway and the two terminal cab rides, it might be better to provide one of Mr. Wells's improved roads on which private owners could run their own cars, paying toll for the road, and on which a public service of cars would provide for those who did not own cars themselves.

I now propose to deal at somewhat greater length with what I think is a most important problem in locomotion, viz. that caused by the congestion of street traffic in our towns and by the undoubted difficulties which exist in carrying our workers to and from their homes in the country to their places of employment in our towns. A large proportion of the workers who during the latter half of the last century lived and worked in the country are now working in towns, although some of them still live outside in order to obtain the advantages of lower rents and of a healthier life for their families, and this last class is likely to largely increase. Those who have been responsible for the enlarging and improvements of our towns have done so much to make town life preferable to country life that the country is gradually being depopulated.

It must be remembered that the laying of tram rails not only blocks ordinary traffic, but in our most crowded streets it introduces dangers to all wheeled vehicles not on rails, motor-cars and cyclists by the skidding of the wheels when they cross the line of rails, and these dangers are daily causing, and are still likely to cause, very serious accidents.

The increased road and street traffic and the development of new means of road locomotion have made imperative some modification of our existing system of roadway administration. Cycles, motor-cars and electrical tramcars have been invented and put on roads which are maintained and worked exactly as they were seventy years ago at the commencement of the railway era, when the population of the United Kingdom was half its present figure and that of the large towns one-tenth of the present figure. During the 150 years previous to the railway era the ancient tracks were gradually improved into tolerably efficient roads for coach and waggon traffic, but after the introduction of railways there was a complete cessation of improvement, as for fifty years after the railways started the old roads were equal to the farmers' and local traffic which the railways left for them; but for the last twenty years the roads near to the great towns have been inadequate, and now that the cyclist and motor-carist travel over the whole of the roads of the country the neglect of our ancient roadway system is very apparent.

Although the urban populations have so greatly increased, the old coaching roads are still the only ones that exist; no main roads parallel to the old ones or alternative to them have ever been made. Towns which are now joined by railways grew out of small rows of houses built facing the main road; in fact in many cases the road made the town. During the early part of the railway era, when the roads were so little used from coaching falling into disuse, encroachments on the roadway took place in and near the towns, such roads being now actually narrower and less suitable for traffic than in the coaching days; so that these towns which owe their existence to these roadways now put every impediment and hindrance to their use by the travelling public. What is needed is that towns situated on our main through roads should provide alternative routes, so that through travellers could, if they desired, avoid the crowded streets of the town. One method of providing such relief roads would be by by-laws providing that all building estates should set aside land for main roads. The building estates which are developed around our great towns never provide a road which can be used as a main line of thoroughfare, although by their very act of building additional houses they cause additional congestion to the main roads. They lay out their roads to obtain quiet for those who live on the estate, and take every possible means to prevent their estate roads from taking a share of the main thoroughfare traffic.

Parliament must take in hand an improved administration of our highways by a comprehensive scheme. Far too many ancient main lines of thoroughfare, already too narrow for the traffic which is on them, are being blocked by having tramways laid on them; these cause the development of building estates, which throw additional traffic on to these thoroughfares. Apart from the roads themselves, the complicated conditions of street and road traffic demand careful regulation. Street traffic should be carried as far as possible by lines of vehicles driven as nearly parallel to one another as possible. The rule of the road, as it is called, and which is embodied in an Act of Parliament, 5 & 6 of William IV., which is com-

monly called the Highways Act, says that every vehicle is to keep as close as possible to the left or near side of the road, except when overtaking another vehicle going in the same direction, and then it is to keep to the off side of the overtaken vehicle as closely as possible. As a matter of fact, everybody knows that this rule is habitually neglected by drivers who, whenever they get a chance, drive down the centre of the road, so that others who overtake them dare not do so on the wrong or near side, but must pass out far to the off side of the road, and consequently interfere with the traffic coming in the opposite direction. This neglect of the rule of the road causes a great waste of space immediately behind every vehicle, and is one of the chief causes of the limited carrying capacity of the streets in cities where the police do not attend to this important matter. It can be remedied by the existing police regulations being adhered to and insisted on by fixed-point constables, or by constables moving about on motor-cars or bicycles. Slow moving and frequently stopping vehicles are another cause of congested traffic. A great deal might be done by arranging that during certain hours much of the slower moving traffic is shunted into alternative routes so as to be kept by itself. An increase in the speed of the street traffic is desirable, for the faster the vehicles travel the less the street is occupied by them. Motor-cars can safely travel at sixteen miles an hour, and therefore need only take half the time and occupy only half the street surface that an omnibus does when travelling at eight miles per hour. Such high speeds as these, which are desirable and perfectly safe for motor-cars, cannot, however, be obtained unless some regulations are made as to the use of the roadways by foot-passengers. There is no rule of the road for foot-passengers—they pass one another on the footpath, or vehicles in the roadway, just as they please. No driver of a vehicle in the road who sees a foot-passenger stepping into the roadway can ever tell with certainty what his movements will be. It will be no hardship to foot-passengers to insist on their movements being regulated.

AN AMERICAN ENGINEER.

DOWN in the heart of commercial New York traffic suddenly ceased for a time, says the *Engineering Record*, and the hurrying crowds of business people, deeply touched by the sad sight, stopped to stand with bared heads while nine companies of regular troops marched slowly to Trinity Church with the body of one of their most gifted officers. A little later a bugler within the church softly sounded "Taps," and the people waiting outside knew that the last military honours had been paid to General William Ludlow, a public servant of the highest type.

He came from a family of considerable standing in New York and Long Island. His military bent of mind was evidently an inheritance from his father, who was breveted major-general for services in the Civil War, and it is worth noticing that a brother, Nicol Ludlow, is a rear-admiral on the retired list. This inheritance of military spirit and the training at West Point, where he was graduated when nineteen years old as eighth member of the class of 1864, was confirmed and moulded by a gallant part in the Civil War. At an age when boys to-day are in the lower classes of colleges and technical schools he was chief engineer of the twentieth army corps and marching through Georgia with Sherman. In a few months he was chief engineer of the army of Georgia, and later because assistant engineer of the entire army under General Sherman. He was in a number of battles, and when given his first leave of absence in April 1865, he had won by gallant and meritorious services the brevet rank of lieutenant-colonel. All these facts are important as showing under what strenuous conditions his inherited character was strengthened and fixed along soldierly lines at an early age. The only adverse criticisms from reputable people which have been made against him came from those unable to appreciate the essential difference between military and civil ideas of promptness, activity and obedience to orders from a superior.

At the close of the war he took up the usual duties of an engineer officer in times of peace. In 1867 he was raised to captain, and five years later was made chief engineer of the Department of Dakota. From 1876 to 1882 he was assistant under Colonels Kurtz and Macomb, and then served about six months as engineer secretary of the Lighthouse Board. During these years of routine engineering service his scrupulous honesty, unusually attractive personality and engaging frankness of speech won the friendship of all public-spirited and broad-minded people with whom he came in contact, and eventually led to his receipt of the greatest compliment paid to an engineer officer since the Civil War.

In the winter of 1882-83 the people of Philadelphia rose in wrath against the officials of the city. Under the leadership of a committee of 100, so-called new officers were chosen, and an attempt made to improve the administration of public affairs. The water department particularly was the subject of

criticism, and there was an urgent demand for an intelligent executive engineer at its head. By a common impulse the committee turned to Captain Ludlow, who was widely known among the leading citizens. He agreed to accept the task if a leave of absence could be procured, so the committee appealed to Congress, then in session, and by a special Act, passed on February 28, 1883, secured his services for three years. Here his executive ability and freedom from the indirect methods of politicians soon reduced chaos to order, shiftlessness to business, and jobbery to clean administration. The problem of the extension of the waterworks was turned over to Mr. Rudolph Hering, with orders simply to find the best source for an additional supply, and in every other direction broad-gauge, earnest and intelligent work, with specialists' assistance, was done for the public service.

While holding this office an attempt to bribe him was made, which is now a well-known story, but is worth telling again as illustrating the cutting scorn he showed toward dishonesty in any form. A contractor called at his office, and during the conversation placed in a conspicuous place a bank note of large denomination. The talk continued quietly, and the contractor was offered a cigar from the commissioner's private box. Pleased at the success of his little deal he accepted with complacent self-esteem, which soon changed to fright when he was handed the bill, burning, to light the cigar.

When the three years at Philadelphia were finished, with much credit to himself and advantage to the city, Major Ludlow became engineer commissioner of the district of Colombia. Service for five years on the Lighthouse Board succeeded his term in Washington, and he then went to London as military attaché. While serving there he was called back to perform one of his most important public services, an examination of the Nicaragua Canal project, in which task he was associated with Messrs. M. T. Endicott and Alfred Noble. At this time everyone believed that the power over Congress of the Maritime Canal Company was so great that the country would be committed to its scheme without proper investigation. The Ludlow Commission stopped this absolutely by a report which is one of the most creditable examples of professional literature, produced under adverse conditions, that we have had in recent years.

Of his work in Cuba after the Spanish war so much was printed in the *Engineering Record* last year that it is unnecessary to review it here. Havana was a charnel house when he took charge of the city; it compared favourably with many cities in the United States when he left it. With his little staff of devoted officers and civilian assistants he fought the battle of cleanliness as valiantly as he had fought that of humanity, and faced the storm of abuse and filthy innuendo from the riffraff of the city with as little concern as the bullets of an enemy in arms. It was a grand achievement that was his, not generally recognised at its full importance in the States nor in the Cuban capital, but one which should be commemorated in enduring bronze in a conspicuous place in that city.

On his return to America he was commissioned to organise the Military War College, and for the purpose visited the headquarters of several European army departments. When the work was finished he was ordered to the Philippines, but consumption had seized him before he arrived out, and he was invalided home immediately. It was characteristic of the man that none of the usual hopefulness of the consumptive was shown by him. On the return voyage he discussed the disease calmly with the surgeon, talked over the quality of the creosote he was taking, and freely expressed a decision to die peacefully at home rather than among strangers in some distant sanitarium. And so he passed away as he wished, on August 30, in the home of a son-in-law. Honoured by the army, respected by those who respect what is just and true, loved by all who knew him well, he has left behind a record which may well be held up as a model for the American soldier.

CONGRESS ON TESTING AT BUDAPEST.

THE Congress of the International Association for Testing Materials was held at Budapest from September 9 to 14 under the presidency of Professor L. von Tetmajer, and was largely attended by engineers from all parts of the world. The delegates present included four from England, forty-one from Austria, three from Belgium, nine from Denmark, two from the United States, thirty-six from France, 152 from Hungary, seventy from Germany, three from Norway, twelve from Italy, twenty-six from Russia, one from Roumania, three from Spain, one from Servia, ten from Switzerland and five from Sweden. After an inaugural presidential address and address of welcome from the Hungarian authorities, a representative of each country was elected an honorary president of the congress, Mr. B. H. Brough being chosen for England, and Professor H. M. Howe for the United States. The other English and American members present were:—Sir William H. Bailey (Manchester), Mr.

Bertram Blount (London), Dr. C. J. Renshaw (Ashton-on-Mersey) and Dr. R. Moldenke (New York). In addition to the various reports of committees dealing with technical problems, the following papers dealing with metals were read and discussed:—"On the Measurement of Internal Tension," by Mr. Mesnager (Paris); "On the Forms of Carbon in Iron," by Baron Jüptner (Leoben); "On Brinell's Researches," by Mr. A. Wahlberg (Stockholm); "On the Testing of Metals by Means of Notched Bars," by Mr. H. Le Chatelier (Paris), by Mr. G. Charpy (Paris), and by Professor Bebelubsky (St. Petersburg); "On Micrographical Researches on the Deformation of Metals," by Mr. F. Osmond (Paris); "On Metallography," by Mr. E. Heyn (Charlottenburg); "On the Testing of Railway Material," by Mr. E. Vanderheyem (Lyons), and "On the International Iron and Steel Laboratory," by Professor H. Wedding (Berlin). Several papers dealing with stone and mortars were also read, and an interesting lecture on the iron industry of Hungary was delivered by Professor Edvi-Illes (Budapest).

TESSERÆ.

Roman Art.

WHEN the whole collective history of civilised man (with the exception of India) was concentrated in Rome, so likewise was that of art. But this was solely the result of the political supremacy of Rome, not of her artistical talent. The Romans, although intimately allied to the Greeks, were made of a sterner, harder and less finely organised stuff. Their minds were constantly turned toward those external relations of men by which their actions are generally regulated and determined (or, as we should say, to practical life); at first, more to those which regard the community (*i.e.* the political); afterwards, when freedom had perished, to those which concern individuals in their intercourse with each other, and especially to those grounded on the relation of men to worldly possessions. To maintain, to increase, to secure the *res familiaris*, was nowhere regarded so strongly in the light of a duty as here. The careless ease, the playful freedom of mind which, abandoning itself absolutely to internal impulses, gives birth to the arts, was a stranger to the Romans. Religion, too, in Greece the mother of art, was among the Romans, both in her earlier form of an emanation from Etruscan discipline, and in her later, when the deification of ethico-political ideas prevailed, systematically practical. This practical spirit was, however, connected in the Romans with a grandeur of mind which contemned everything petty and half-formed, which met all the necessities of life by vast and effective undertakings, and hence maintained the glory of at least one of the arts—architecture.

Religion and Art in Greece.

The Greeks were in a certain sense fortunate, that long before art had a visible existence, the genius of the people had prepared the way for the artist and had prefigured the whole world of art. That mystical element which is so essential a part of religion—in which we dimly conceive and feel the divine nature as infinite and absolutely different from the human—as incapable of all representation and the subject only of faint and imperfect suggestions—this element was not wholly excluded indeed—for that is impossible—but thrown into the background, especially by poetry. The ancient legends which describe the secret influences of the universal powers of nature had, even as early as the Homeric age, nearly lost all meaning to the Greeks; the festal rites which sprang from this root continued to be observed as venerable and traditional ceremonies; but poetry followed her inevitable course—to fashion everything after the analogy of human life; and with this a simple piety, which conceived the Deity as a human protector and counsellor, a father and friend in every time of need, was perfectly consistent. The bards, who were themselves only the organs of the universal sentiment, gradually rendered their descriptions more individual and precise, as we see that Homer did not attain to the same degree of sensible distinctness which characterised the poets of the most flourishing age of plastic art. When, however, plastic art had succeeded in representing the outward forms of life in all their truth and significance, there remained only for her to give substance to the ideal images which the imagination had already individualised. And although this could never be done without an entirely original conception, without inspiration, and an exertion of genius on the part of the artist, yet the general conception of the god entertained by the whole nation was there, and served as a criterion of the accuracy of the representation. If the established and distinct conception of the god, and the exquisite sense of the Greeks for the character of forms, were completely satisfied, a normal image arose, to which all succeeding artists conformed, though with the living freedom of genius, evincing that peculiar taste and judgment of the Hellenic nations, equally removed from Oriental stiffness and servility, and from the modern rage for originality, which

is the mere offspring of vanity. Statues of gods and heroes were produced which possessed not less internal truth and distinctness than if the gods and heroes had actually sat to the artists. This state of things the world has beheld but once, because it was only in Greece that art was the business of the nation.

The Architect and His Works.

With the higher order of artists we see the most striking proofs that man can least appropriate to himself that which most completely belongs to him. His works leave him as a bird the nest in which it was hatched. The lot of the architect is herein strange above all others. How often does he turn his whole mind and soul to the construction and perfecting of rooms from which he must be for ever shut out. The royal halls are indebted to him for a splendour the full effect of which he is never to enjoy. In the temple he fixes an impassable barrier between himself and the Holy of Holies. The steps which he has laid for the celebration of the heart-elevating mysteries he must never venture to ascend; as the goldsmith looks with distant reverence on the sacred chalice, to the gold and gems of which he has given shape and brilliancy. With the keys of the palace the architect delivers up to the rich man all its conveniences and enjoyments of which he is never to share in one. Must not this gradually estrange the art from the artist—that his work, like a full-grown child, no longer reflects its influence on its father? And how much would the art advance if it were occupied almost exclusively with the external, which belongs to all, and in common with all, to the artist himself.

Oolitic Limestone.

Oolitic limestones stretch across the country as escarpments or hills from Gloucestershire, where they form the Cotswolds, to Yorkshire, where they form the moors. A few seams of clay intervene, the chief being the fuller's earth. The limestones are richly fossiliferous, and, like the lias, may be divided into zones, each characterised by a particular ammonite. Ammonites, brachiopoda and corals are of frequent occurrence, with a vast number of other shells. The egg-like structure which gives these limestones their name of oolite, or roe-stones, from their resemblance to the roe of a fish, is a remarkable one. The grains consist of crystalline calcite, and in them can be observed both a radial and a concentric structure, arranged usually round a grain of sand, a fragment of a shell or some foreign body. By some this is supposed to have resulted from the deposit of carbonate of lime from solution in water round grains of sand and shell fragments drifting about between tide marks; by others the growth of calcite is supposed to be due to the action of a small organism which builds minute tubes of carbonate of lime. The similar but larger grains which occur in the pisolite or peagrit of the inferior oolite seem to be undoubtedly due to the growth of such an organism. Oolitic limestones not only occur in the lower oolites, but in the corallian rocks and in the Portland stone, so famous for building massive structures of Classic design like St. Paul's Cathedral. The inferior and great oolites also yield splendid building stones in Somerset, Gloucestershire and Lincolnshire which are much used for Gothic architecture.

"Theatrum Orbis Miraculum."

The Theatre of Parma is commonly supposed to have been the work of Palladio and finished by Bernini, but neither of them had the smallest share in it. Gio. Battista Magnani, an architect and engineer, and Leonello Spada, a painter, were employed by the Duke Ranuccio Farnese to construct and embellish that famous theatre. Its form is semicircular, to which are added two straight sides. Its length from the wall to the front of the stage is about 125 feet, and its breadth, reckoning from the wall behind the boxes, about 93 feet. Around the pit, which is about 48 feet broad, is erected on a basement, with balusters between the piers, a gradation of fourteen rows of seats, with two entrances at the sides and a large ducal balcony in the middle. Each entrance is furnished with a large winding staircase. Over these gradual seats are raised two stately boxes, one Doric and the other Ionic, each with a gradation of four rows of seats. The upper decoration of the boxes is sustained by enchased pillars, between which are arches supported by other pillars, smaller and insulated, which causes a confusion of appearance in the architecture and a great impediment to the view of the spectators who are in the boxes. A worse effect is produced by the two great lateral entrances which are between the seats and the stage, as the two orders with which they are ornamented, instead of uniting in the best manner, divide and rudely clash both with the theatre and with the stage. In the middle of the upper arch of these entrances, on a very high pedestal, is an equestrian statue, which seems determined to rush headlong to destroy all rules of propriety. Great projections and unmeaning arches hurt the stage and the orchestra. But the greatest inconvenience is in the front of the stage being excessively narrow and distant from the seats, whilst with the

greatest ease it might have been constructed wider and much nearer the spectators. From the aforesaid inconvenience and the above-mentioned strange figure of the theatre result this very great evil, that the spectators who are at the sides can see but a very small part of the stage; in compensation for which they hear surprisingly well, as the structure, whether by design or accident, is such that a person whispering in one part, another situated at the opposite side distinctly hears him. This great theatre has no external decoration, and by being such a length of time out of use is in such a ruinous state as scarcely to be visited without danger.

GENERAL.

M. Poilpot has received a commission from the French Government for a painting which will represent the arrival of the Czar at Dunkirk.

The Ancient House known as "The Hall-i-th'-Wood," Bolton, which had its origin in Tudor days, and which more than a century ago was the home of the Lancashire inventor, Samuel Crompton, has been judiciously restored, and is to be used as a public museum.

Mr. Lawrie, burgh engineer, has prepared plans for a fever hospital which is to be erected in Bo'ness at a cost of 6,000*l*.

The Committee for the collection and preservation of geological photographs received during the past year 240 examples, exactly the average for the past eleven years. It is proposed to publish three sets, the first of which will be issued shortly.

The British Association will meet next year in Belfast, under the presidency of Professor James Dewar, and for 1903 Southport has been selected.

The Late Mr. Herbert Richard Lloyd, aged thirty-nine, architect and surveyor, of Birmingham, who resided at Redditch, was accidentally poisoned on Thursday in last week. He had been suffering from illness, and was ordered to inhale carbolic acid. Mrs. Lloyd gave him a dose from the bottle containing the acid, and he died in great agony twenty minutes afterwards. The jury at the inquest returned a verdict of "Death by misadventure." He had a well-established business connection in Birmingham, and was architect of the Redditch Technical Schools, the recently-erected Redditch United Methodist Free church, and several other public buildings.

An Isolation Hospital is to be erected in Bexhill, and a design is to be obtained through a competition. The Urban Council have resolved that "the position of the hospital buildings be left to the competitors to deal with as they think best."

The Society of Arts announce that next year the six prizes for designs for household furniture, carpets, wall-papers and hangings, damasks, chintzes, &c., regulated by the principles laid down by Owen Jones, will be awarded.

The Autumn Art Exhibition in the Walker Art Gallery, Liverpool, was opened on Saturday. Among the paintings are M. Benjamin Constant's portrait of Queen Victoria, Mr. Holman Hunt's *Finding of the Saviour in the Temple* and Mr. Watts's *Slumber of the Ages*, besides works by forty-three members and associates of the Royal Academy.

The New Church in Dundee, which is a memorial of George Wishart, a forerunner of the Scottish Reformation, has been opened. It was designed by Mr. T. Martin Cappon.

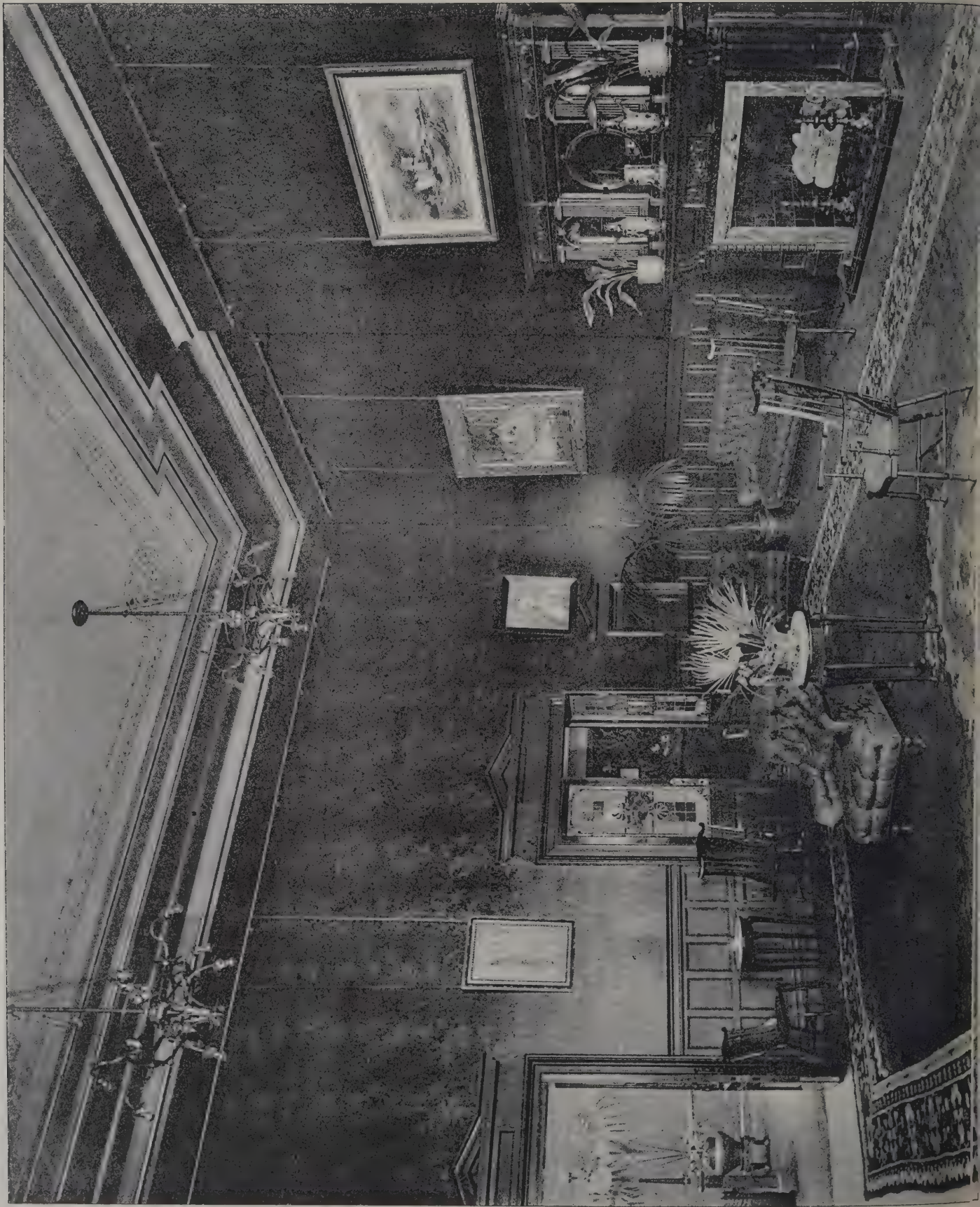
In the Exhibition to be held next year at Cork, it has been decided to have an art gallery. The idea is to have a loan collection of Irish pictures up to the end of the last century. The project is excellent, and it is to be hoped that it will receive the support it deserves.

As a Memorial of the late Queen Victoria, a handsome chancel screen, richly carved in oak, has been erected in the parish church of St. Nicholas, Great Bookham. It has been dedicated by the Bishop of Winchester, and numbers among its subscribers nearly every resident in the parish.

The Marquis of Salisbury has subscribed 50*l*. towards the 2,200*l*. required to complete the restoration of St. Mary's Church, Charing Cross Road.

An Arbitration Case is now before Mr. G. F. Deacon, C.E., relating to a claim by Messrs. Holme & King, Liverpool, who constructed for the Merthyr Tydvil Urban District Council extensive waterworks at Neuadd, Breconshire. The amounts sought are for work done other than that provided for by contract, 6,744*l*. 18*s*. 6*d*., and for extra expenditure caused through the Council's delay, 23,427*l*. 3*s*. 9*d*.—total, 30,152*l*. 2*s*. 3*d*.

Mr. Douglas Strachan has completed the decoration of St. Machar's Church, Bucksburn, N.B. In the chancel are introduced four wall-paintings of the Adoration of the Magi, the Transfiguration, the Crucifixion and the Resurrection.



The Architect, Sep^r 20th 1901.

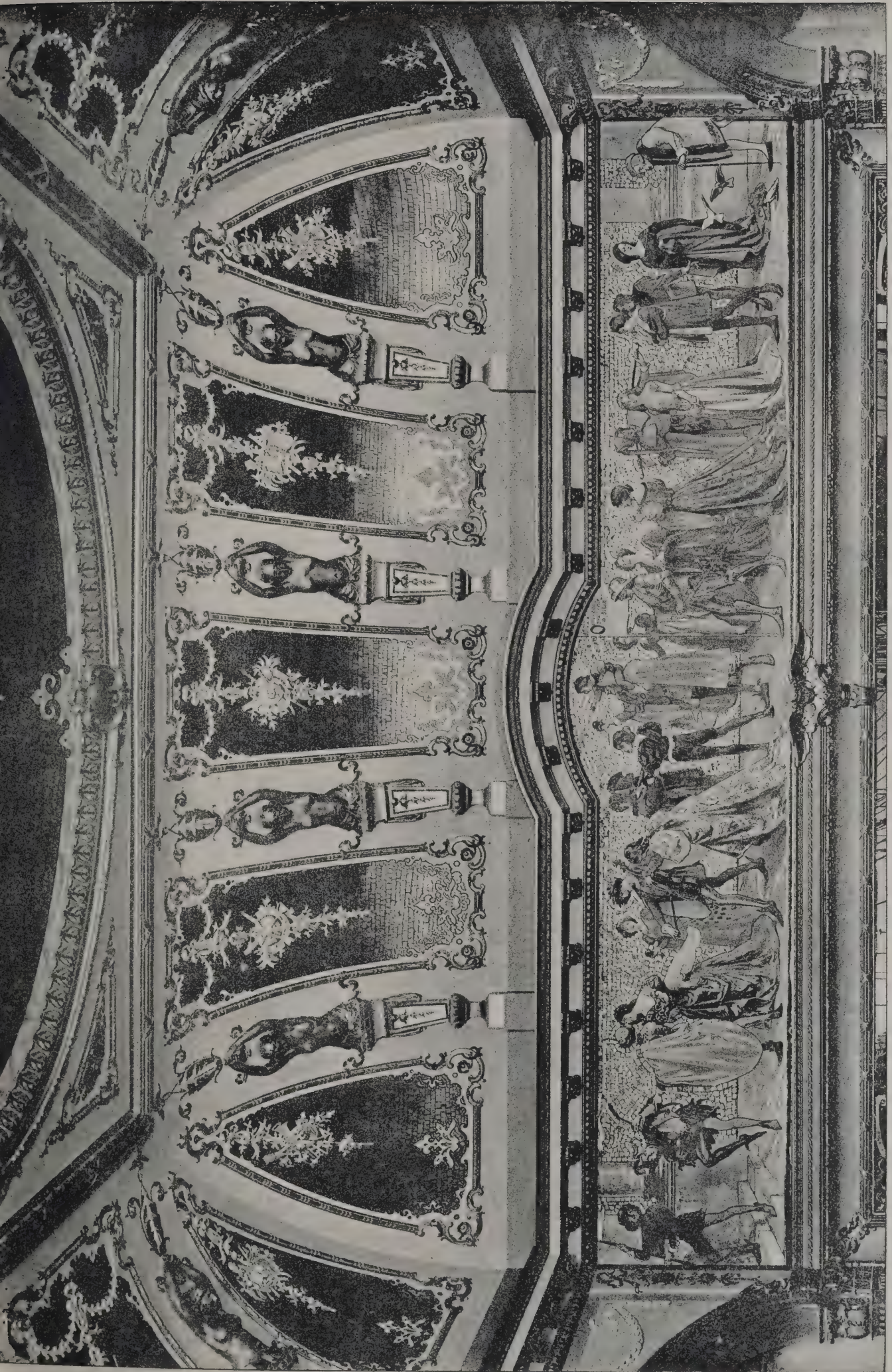




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CATHEDRAL SERIES, No. 354.—CHICHESTER: NORTH AISLE, LOOKING WEST.



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FRIEZE: THE CENTURY THEATRE.

Painted by Mr. CHARLES BUCHELL.

Messrs. ERNEST RUNTZ & CO., Architects.

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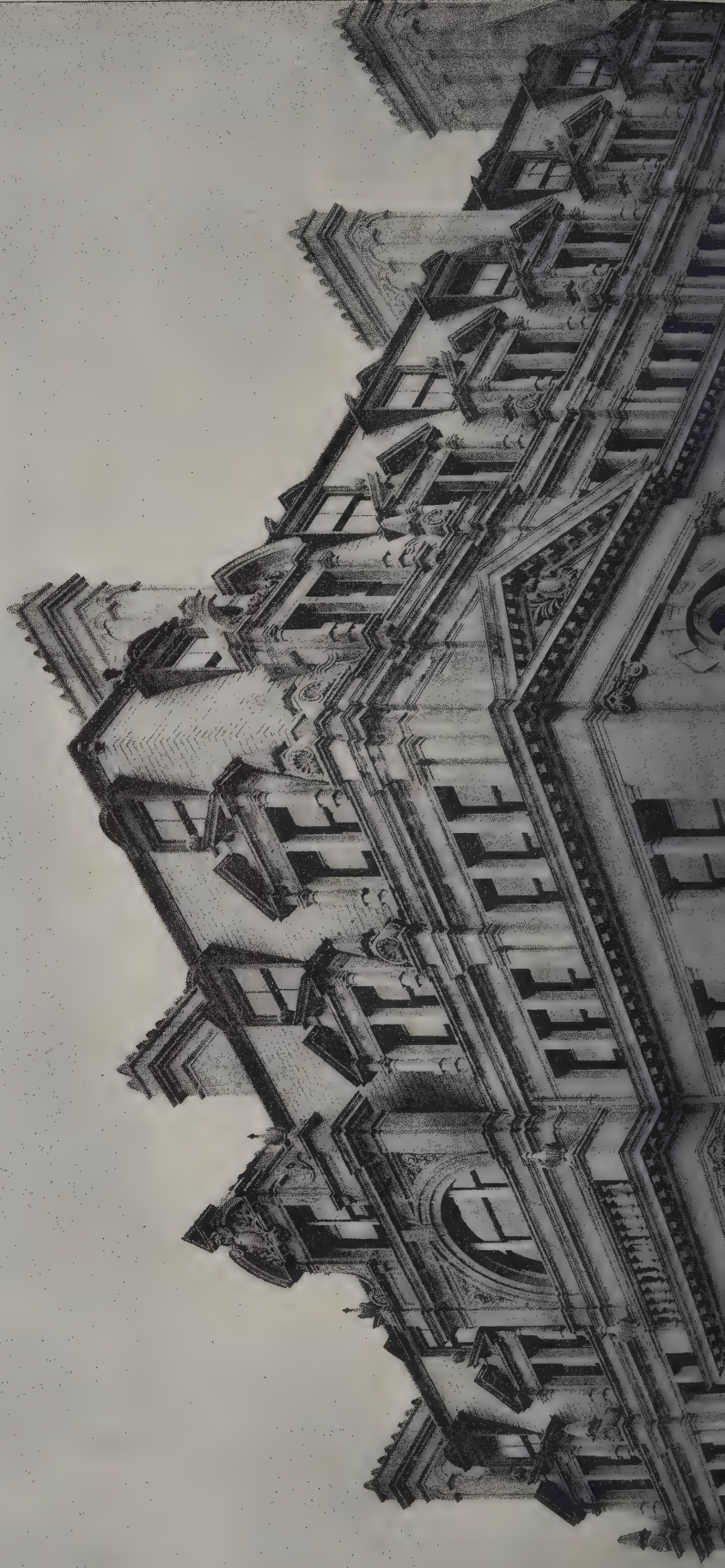
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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100l., 50l. and 25l. respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ALDERSHOT.—Oct. 1.—For opening, filling and making good trenches for electric-light cables and mains. Mr. W. E. Foster, clerk to Urban District Council, Council Offices, Aldershot.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

BARKING.—Oct. 9.—For erection of an entrance-lodge, tool-house, building, and cart-shed at the recreation-ground, Longbridge Road, Barking, Essex. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BARNLEY.—Sept. 26.—For erection of five cottages in Stanley Road, Stairfoot. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BARNSTAPLE.—Sept. 23.—For extension of the Imperial hotel. Mr. W. C. Oliver, architect, Bridge End, Barnstaple.

BERWICK-ON-TWEED.—Sept. 24.—For erection of a villa at Norham. Mr. J. L. Murray Sherrieff, East House, Norham.

BEXHILL.—Oct. 4.—For erection of coastguard buildings, consisting of houses for an officer and twelve men, boathouse, watchroom, &c. Contract particulars may be seen at the Coastguard station at Bexhill.

BIDEFORD.—Oct. 5.—For sewerage works in connection with the sewerage and disposal of the sewage of East-the-Water, Bideford. Mr. Baldwin Latham, Parliament Mansions, Victoria Street, Westminster.

BIRMINGHAM.—Oct. 8.—For erection of receiving wards, porter's lodge and new pavilion, stores and offices, workshop, at the workhouse, Selly Oak. Mr. Edwin Docker, clerk to the Guardians, 10 Newhall Street, Birmingham.

BRIGHTLINGSEA.—Sept. 24.—For alterations to the reading-room, Brightlingsea, Essex. Messrs. Start & Rowell, architects, Colchester.

BRISTOL.—Sept. 25.—For wiring of the Avonbank electric-lighting station. Mr. H. Faraday Proctor, city electrical engineer, Temple Back, Bristol.

BRISTOL.—Sept. 30.—For erection of an infants' school and special class centre at Wilson Street, St. Paul's. Messrs. Philip Munro & Son, architects, 6 St. Stephen's Chambers Baldwin Street, Bristol.

BROMLEY.—Sept. 24.—For alterations and additions to the mortuary buildings at the sick asylum at Devons Road, Bromley, Middlesex, E. Messrs. J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

CAMBORNE.—Oct. 1.—For erection of a dwelling-house at Barripper Road, Camborne, Cornwall. Mr. J. F. Pearce, Camborne.

CANNOCK.—Sept. 25.—For erection of entrance walls, with boundary wall and palisade, repairs to fences generally and alterations in the wards for fire exits at the workhouse. Mr. Ashton Veall, architect, Wolverhampton.

CARLISLE.—Sept. 25.—For erection of two houses in Norfolk Street. Mr. H. H. Hodgkinson, architect, 9 Lowther Street, Carlisle.

CARLISLE.—Sept. 25.—For erection of a Primitive Methodist church at Upperby, Carlisle. Mr. Isaac Longrigg, Lazonby, R.S.O.

CARLISLE.—Sept. 30.—For erection of four houses, Courtfield Gardens, Warwick Road, and two houses in Close Street. Messrs. Briggs Bros., Market Street, Carlisle.

CASTLEFORD.—Sept. 24.—For erection of houses in Globe Street. Messrs. Garside & Pennington, architects, Wesley Street, Castleford.

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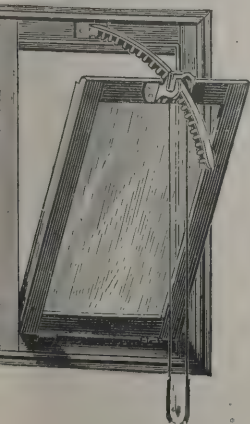
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CHEADLE.—Oct. 7.—For erection of mortuary buildings and chapels at the new cemetery, Stockport Road, Cheadle, Cheshire. Mr. Geoff. H. Brady, architect, 18 Little Underbank, Stockport.

CHELTENHAM.—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

COCKERMOUTH.—Sept. 25.—For altering dwelling-house at Double Mills. Mr. John Fearon, clerk to Urban District Council, Cockermouth.

COWES.—For supply and erection of a foul main and tar outlet, including 100 feet run of 18-inch wrought-iron and 110 feet of 4-inch cast-iron pipe, connections, &c. Mr. N. H. Humphreys, gas engineer, Salisbury.

DONCASTER.—Sept. 27.—For supply and erection of one high-speed 220-kw. steam dynamo for traction and lighting purposes, with steam-pipes, steam-valves, &c. Mr. C. A. L. Prusmann, borough electrical engineer, Electricity Works, Grey Friars Road, Doncaster.

ENFIELD.—Oct. 2.—For sinking a well, lining same with cylinders, driving adits, &c., on the site of the new pumping-station, Hadley Road. Mr. Richard Collins, surveyor, Court House, Enfield.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FIELD BROUGHTON.—Sept. 24.—For erection of a vicarage at Field Broughton. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

GRESSHAM.—Sept. 25.—For alterations and new structural work, hot-water heating, supply by rain and storage of water, engineering works, including boilers, cooking apparatus, laundry machinery, pumping engines and iron emergency staircase, &c., at the workhouse at Gressham, Norfolk. Mr. John B. Pearce, Upper King Street, Norwich.

GREAT YARMOUTH.—Oct. 1.—For erection of cemetery chapel, superintendent's lodge, office, toolhouse, entrance gates and fencing at Caister. Mr. J. W. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

HALIFAX.—Sept. 27.—For erection of fourteen houses, &c., near Pellon, Halifax. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HORNSEA.—Sept. 30.—For extension and removal of creosoted wood fencing at the cemetery, Southgate, Hornsea, Yorks. Mr. W. G. Warburton, surveyor, Public Rooms, Hornsea.

HORSHAM.—For supplying and fixing a new 4-h.p. oil-engine, with shafting. Mr. F. T. Mead, North Heath Farm, Horsham, Sussex.

HOUNSLOW.—Sept. 30.—For erecting twenty-two houses for the working classes. Mr. P. G. Parkman, surveyor, Town Hall, Hounslow.

HUDDERSFIELD.—Sept. 30.—For supply and erection at the electricity works, St. Andrew's Road, Huddersfield, of one 600-kw. alternating-current generating plant. Particulars may be obtained at the Town Clerk's Office, Town Hall.

HULL.—Sept. 27.—For the following work in connection with the west district destructor and sanitary department's stables, for the Corporation, namely, (a) two steam dynamos, output of each 90 ampères, to 220 volts; (b) wiring, &c., the premises for about 24 arc lamps and 120 incandescent lamps. Mr. A. E. White, city engineer, Town Hall, Hull.

ILFRACOMBE.—Sept. 30.—For sinking and lining with masonry two shafts to a depth of about 40 feet in a field in the parish of Bratton Fleming. Mr. C. G. Barnett, clerk, Town Hall, Ilfracombe.

ILKESTON.—Oct. 3.—For laying a line of 18-inch pumping main, about 2½ miles in length, from the site of the proposed pumping station at Meerbrook Sough to the intended Chadwick Nick reservoir. Messrs. G. & F. W. Hodson, Ilkeston and Heanor Water Board, Ilkeston.

IRELAND.—Sept. 23.—For supply of meters and arc lamp carbons for twelve months from October 1, 1901, for the electric-lighting committee, Rathmines. Mr. E. P. Fawcett, clerk, Town Hall, Rathmines, co. Dublin.

IRELAND.—Sept. 24.—For erection of a new dining-hall, scullery and reading-room at the workhouse, Belfast. Messrs. Young & Mackenzie, architects, Belfast.

IRELAND.—Sept. 26.—For erection of a drying chamber in the workhouse, sewerage works, and providing and fitting baths in the men's probationary ward of the workhouse, Ballymoney. Mr. T. B. Hamilton, clerk to the Guardians, Ballymoney.

IRELAND.—Sept. 28.—For completion of the tower and spire of the Roman Catholic church, Castleisland. Mr. D. J. Coakley, architect, Cork.

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IRELAND.—Oct. 1.—For cementing walls, flooring rooms, painting and general repair at Shiels's Institution, Carrickfergus. Particulars from the Superintendent.

IRELAND.—Oct. 5.—For erection of a masonry wall, with concrete coping, to enclose ground for cemetery, and erection of a gatehouse for caretaker of cemetery, Carrickfergus. Mr. W. D. R. Taggart, C.E., 17A Donegall Street, Belfast.

IRELAND.—Oct. 7.—For proposed Killea extension of the Londonderry waterworks. Mr. J. J. S. Barnhill, engineer to the Council, 1A Strand, Londonderry.

IRELAND.—Oct. 19.—For improvement of Annalong harbour, co. Down. Mr. Robert MacIlwaine, secretary to the County Council, Court House, Downpatrick.

KILDWICK.—Sept. 27.—For restoration of Kildwick Church, Yorks. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

LEEDS.—Sept. 23.—For alteration of the coal stores at the Meadow Lane gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Dewsbury Road.

LEEDS.—Sept. 30.—For erection of club premises at the corner of Sussex Street, Upper Accommodation Road. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEICESTER.—Sept. 28.—For erection of competitors' room at the Belgrave baths. The Chairman of the baths committee, Town Hall, Leicester.

LINCOLN.—Sept. 28.—For erection of a boiler shop about 435 feet long and 222 feet wide, and erection of about 960 tons in steel stanchions, girders, roof principals, &c. Messrs. Ruston, Proctor & Co., Ltd., Sheaf Ironworks, Lincoln.

LITTLEHAMPTON.—Oct. 2.—For construction and erection of steam-engine, boilers and pumping machinery in buildings on site of well at Warningcamp, near Arundel, Sussex. Mr. H. Howard, engineer, Town Offices, Littlehampton.

LONDON, S.E.—Sept. 24.—For supplying and erecting in position at Dulwich baths a hot-water circulating boiler and coupling same on to existing connections. Mr. W. Oxtoby, borough engineer, Town Hall, Camberwell.

LONDON.—Oct. 8.—For supplying and fixing lifts, motors, pumps, ventilating fans, lamps, cables, wires, conductors, switchboards and columns, &c., required for the electrical equipment of the Greenwich footway tunnel and its approaches. Particulars may be had at the Engineer's department, County Hall, Spring Gardens, S.W.

LUTTERWORTH.—Sept. 28.—For construction of a new river cutting, the laying-out of the irrigation area, the construction of screening tanks, bacteria beds and filters, together with main and branch carriers, effluent drains, &c. Mr. W. H. Simpson, civil engineer, The Corridor Chambers, Market Place, Leicester.

MANCHESTER.—Sept. 26.—For laying of concrete foundations for engine beds at Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Sept. 26.—For steelwork, &c., required in connection with the roofing, &c., of the boiler-house at Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MENSTON.—Sept. 30.—For erection of an isolation hospital at Menston, Yorks, consisting of administrative block, scarlet-fever pavilion, typhoid-fever pavilion, isolation pavilion, laundry, engineering and stable block, mortuary and discharge block, porter's lodge, roads, drainage, &c. Messrs. Blackwell & Thomson, architects, Leicester.

MIDDLESBROUGH.—Sept. 24.—For excavation, concrete and piling work for gasholder-tank foundations. Mr. David Terrace, manager, Gasworks.

NEWCASTLE-UNDER-LYME.—Sept. 23.—For iron staircases and building alterations at the union workhouse. Messrs. Chapman & Snape, architects, Newcastle-under-Lyme, Staffs.

NOTTINGHAM.—Sept. 24.—For altering and partially or wholly rebuilding the Dog and Partridge inn, Lower Parliament Street, and Newcastle Street, Nottingham. Mr. O. S. Holt, secretary, Nottingham Joint Station committee, London Road Station, Manchester.

OLDHAM.—Oct. 8.—For erection of a generating station at Greenhill, Oldham. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

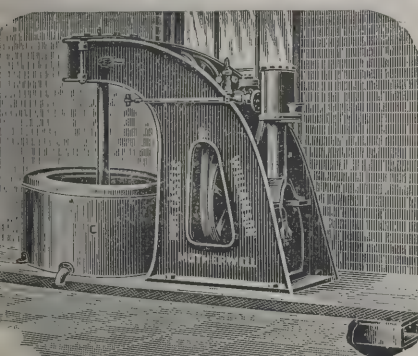
PEMBROKESHIRE.—Oct. 15.—For extension of Rosslare Pier. Mr. Otway, engineer, Inchicore, Dublin.

PLYMOUTH.—Oct. 1.—For erection of schools in Salisbury Road. Mr. H. J. Snell, architect, 11 The Crescent, Plymouth.

PONTEFRAC.—For erection of house, shop, stabling, &c., in Micklegate, Pontefract. Messrs. Garside & Pennington, architects, Ropergate, Pontefract.

PONTEFRAC.—For erection of business premises, Market Place, Pontefract. Messrs. Tennant & Bagley, architects, Ropergate Chambers, Pontefract.

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PORTLAND.—Sept. 23.—For constructing a service reservoir, &c., at Portland. Mr. Ernest J. Elford, C.E., engineer, Council Offices, New Road, Portland.

RADCLIFFE.—Sept. 23.—For erection of two brick and stone urinals near railway bridge, Spring Lane, and near railway bridge, New Road, Radcliffe, Lancs. Mr. W. L. Rothwell, surveyor, Council Offices, Radcliffe.

RAINHILL.—Sept. 26.—For additions and alterations to laundry and boiler-house, the erection of a chimney and of pathological rooms and museum at the County Asylum, Rainhill, Lancashire. Mr. James Gornall, clerk and steward at the Asylum.

ROCHDALE.—Oct. 2.—For supply of feeder and distributor cables. Mr. C. C. Atchison, borough electrical engineer, Electricity Works, Dane Street.

ROTHERHITHE, S.E.—Sept. 23.—For pulling-down and clearing the site of a number of houses in Fulford Street, Paradise Street, Rooney Street, Braddon Street and Seven-Step Alley, in the parish of Rotherhithe. Mr. Fredk. Ryall, town clerk, Town Hall, Bermondsey.

ROYSTON.—Sept. 25.—For erection of an infectious diseases hospital to contain eight beds, administration block and out-buildings, at Royston, Herts. Mr. A. Paul MacAlister, architect, 20 St. Andrew's Street, Cambridge.

RUSHDEN.—Oct. 2.—For erection of fire station and cottage, Newton Road, Rushden, Northants. Mr. W. B. Madin, town surveyor, Vestry Hall, Rushden.

SALFORD.—Sept. 24.—For fixing the necessary apparatus for supplying water to the electric car depôt, and for the wiring for electric lighting of the depôt. Mr. L. C. Evans, town clerk, Town Hall, Salford.

SCOTLAND.—Sept. 23.—For erection of a villa at Newtonmore. Mr. Alex. Mackenzie, architect, Kingussie, N.B.

ST. ALBANS.—Sept. 23.—For painting, repairs, &c., to the police station. Mr. A. H. Debenham, town clerk, St. Albans.

SCOTLAND.—Sept. 23.—For additions and alterations to property in Shore Street, Fraserburgh. Mr. William Reid, architect, Saltoun Square, Fraserburgh.

SCOTLAND.—Sept. 30.—For construction of additional settling ponds, for the Edinburgh and District Water Trustees. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SCOTLAND.—Sept. 30.—For cutting tracks and laying and jointing about 2,320 yards of 33-inch cast-iron pipes, for the

Edinburgh and District Water Trustees. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SCOTLAND.—Sept. 30.—For reconstruction of the buildings 75-101 Union Street, in connection with the extension of the Glasgow Central Station. Mr. James Miller, architect, 15 Blythswood Square, Glasgow.

SCOTLAND.—Oct. 2.—For additions and alterations to the Barnhill poorhouse, Glasgow. Messrs. MacWhannel & Roger-son, architects, 59 West Regent Street, Glasgow.

SIDCUP.—Oct. 10.—For installation of boilers, laundry fittings, &c., at the new children's homes at Halfway Street, near Sidcup, Kent. Mr. Thomas Dinwiddy, architect, 12 Crooms Hill, Greenwich, S.E.

STANWAY.—Oct. 1.—For erection of a laundry at Stanway, Essex. Mr. G. H. Page, architect, Trinity Chambers, Colchester.

STAVELEY.—Sept. 25.—For construction of a steel girder bridge, with the necessary abutments, over the river Rother, in the parish of Staveley, Derbyshire. Mr. E. Lines, civil engineer, Union Offices, Chesterfield.

SUNDERLAND.—Sept. 23.—For erection of school buildings in Sans Street South. Mr. T. W. Byers, clerk, 15 John Street, Sunderland.

SWINDON.—Oct. 2.—For erection of buildings and chimney-shaft, for the Corporation electricity works in Corporation Street. Messrs. Lacey, Clirehugh & Sillar, engineers, 2 Queen Anne's Gate, Westminster.

THORNABY.—Oct. 5.—For alterations and additions to Thornaby police-station. Particulars can be obtained at the County Surveyor's Office, Northallerton.

TOOTING, S.W.—Oct. 8.—For erection of 276 cottage dwellings for the working classes on part of the Totterdown Fields Estate. The Architect's Department, L.C.C., 18 Pall Mall East, S.W.

TYLDESLEY.—Sept. 23.—For erection at the gasworks, Tyldesley, of an iron shed with corrugated iron roof, for the coal store. Mr. Wm. J. Matthews, clerk to District Council, Council Offices, Tyldesley.

WAKEFIELD.—Sept. 30.—For extension of the water supply at Sandal Magna. Mr. Frank Massie, Council Offices, Sandal, Yorks.

WALES.—Sept. 24.—For erection of some twenty to thirty cottages at Treallaw. Mr. Arthur O. Evans, architect, Pontypridd.

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WALES.—Sept. 24.—For erection of the Heath sanitary laundry and carpet-beating works near the Barracks, Cardiff. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

WALES.—Sept. 25.—For erection of the steel and ironwork required for the widening of the Hayes bridge, the widening of the North Road bridge and the reconstruction of the East Wharf bridge, Cardiff. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

WALES.—Sept. 26.—For erection of new schools and offices at Burry Port. Mr. Richard Williams, architect, Burry Port.

WALES.—Sept. 27.—For erection of six cottages at Wainfelin. Mr. P. Chapman, Wainfelin.

WALES.—Sept. 28.—For supply of a 10-ton steam road-roller, with scarifier of approved make, delivered free at Swansea. Mr. G. B. Haynes, clerk, Alexandra Road, Swansea.

WALES.—Sept. 30.—For erection of schools at Machynlleth. Mr. J. Cook Rees, architect, St. Thomas Chambers, Neath.

WALES.—Oct. 2.—For erection of a school at Brynmawr for 420 boys, and for converting the three departments of present schools into two departments and executing various repairs at the Brynmawr Board schools. Mr. F. Baldwin, architect, 13 Frogmore Street, Abergavenny.

WALES.—Oct. 3.—For steel girderwork required for the Blackmill, near Bridgend, joint bridge, and for the fixing of the same in place. Mr. H. Dawkin Williams, engineer, Blackmill, near Bridgend, South Wales.

WALES.—Oct. 10.—For erection of the proposed hospital for Pontypool and district on a site abutting Leigh Road. Mr. Robert Williams, architect, 10 Clifford Inn, Fleet Street, E.C.

WALTHAMSTOW.—Sept. 24.—For erection of a cookery-room, cloakroom, scullery, &c., at the Wood Street Girls' school, for the Walthamstow School Board. Mr. H. Prosser, at the Board's Offices.

WARE.—For erection of a house at Ware. Messrs. R. & A. G. Thorowgood, surveyors, Hertford.

WERNETH.—Sept. 25.—For erection of a cotton shed at Werneth, Oldham, including about 350 tons of steelwork, for the Lancashire and Yorkshire Railway Co. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

WEST HAM.—Sept. 24.—For construction of an underground sanitary convenience, Sebert Road, Forest Gate, E. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

WESTON-SUPER-MARE.—Oct. 2.—For erection of boundary walls of the new school site on the Uphill manor estate. Mr. Wadsworth B. Lillington, clerk to the School Board, 46 Waterloo Street, Weston-super-Mare.

WEST TARRING.—Sept. 30.—For laying about 250 yards of 4-inch water main, &c., in Parkfield Road, West Tarring, Sussex. Mr. H. Bartlett, surveyor, Railway Approach, Worthing.

WHALEY THORNS.—Sept. 21.—For erection of schools at Whaley Thorns, near Langwith, for the accommodation of 253 children. Messrs. Vallance & Westwick, architects, Mansfield.

WHITSTABLE.—Sept. 27.—For erection of coastguard buildings at Whitstable, in the county of Kent. Quantities, &c., will be sent on application to the Director of Works Department, Admiralty, 21 Northumberland Avenue, W.C.

WIGAN.—Sept. 25.—For erection of a coal stage at Wigan, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

WILLESDEN.—Sept. 24.—For erection of main generating station and sub-station and offices in connection with proposed electric-lighting scheme for the district. Mr. O. Claude Robson, engineer, Public Offices, Dyne Road, Kilburn, N.W.

WILMSLOW.—Sept. 28.—For enlarging of receiving tank at the southern outfall works. Mr. A. Stott Cartwright, surveyor, Council Offices, Wilmslow.

WINDSOR.—Oct. 1.—For erection of workshops and stores at the Windsor Royal Gasworks. Mr. John Henry Strange, secretary, 2 Victoria Street, Westminster.

WITHAM.—Sept. 24.—For supply and fixing of a large cast-iron tank, delivery pump and pipes in connection with the water supply at Bridge school, Witham, Essex. Particulars at the office of the Metropolitan Asylums Board, Embankment, London, E.C.

WOMBWELL.—Sept. 30.—For erection of six houses for Mr. Wm. Johnson, four houses for Mr. John Carr, and a villa for Mr. G. A. Hollin. Mr. John Robinson, architect, Park Cottage, Wombwell, Yorks.

WOOLWICH.—Oct. 3.—For erection of reception-house for dead bodies upon a site adjoining St. John's Church, Eltham. Mr. Frank Sumner, borough surveyor, Maxey Road, Plumstead.

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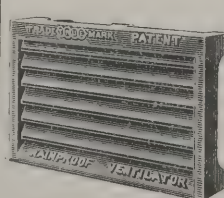
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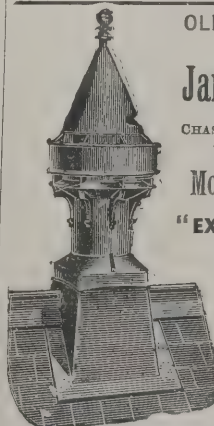
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WORSBOROUGH DALE.—For erection of Wesleyan Reform chapel and school at Worsborough Dale, Yorks. Mr. George Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

WORTLEY.—Sept. 24.—For erection of a lodge at Wortley, near Sheffield. Mr. G. A. Wilson, architect, Hartshead Chambers, Sheffield.

TENDERS.

ANDOVER.

For erection of a timber footbridge over the river Anton, near Clatford station. Mr. J. WORMALD, district surveyor.

H. A. Annett & Son	£65	10	0
C. Grace & Sons	59	10	0
F. BEALE & SONS, Andover (accepted)	55	6	0

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For works in connection with the water supply.

A H White	£1,695	0	0
M Martin	1,640	0	0
P. Jenkins	1,547	0	0
Peerless, Dennis & Co.	1,494	0	0
Miskin & Son	1,460	0	0
Strange & Sons	1,417	0	0
J. THOMAS, Battle (accepted)	1,367	12	6

BURNLEY.

For construction of a covered service reservoir at Read. Mr. S. EDMONDSON, surveyor, 18 Nicholas Street, Burnley.

Mullen & Durkin	£915	15	0
W. Sutcliffe	893	19	0
G. Read & Sons	875	0	0
M. & J. W. Heap	864	0	0
J. Miles	810	19	0
E. Heap	784	0	0
J. R. Atkinson	777	17	0
G. Cunliffe & Son	776	18	0
J. & G. DUXBURY, Padiham (accepted)	769	0	0
Smith Bros.	720	0	0
E. Armitage	710	0	0

BIRKENHEAD.

For supply and erection of a steam-engine and dynamo at the generating station situate in Craven Street, Birkenhead. DICK, KERR & CO., LTD, 110 Cannon Street, London, E.C. (accepted).

CANNOCK.

For painting, &c, the exterior of the workhouse premises and interior of board-room and offices.

T. MASON, Hednesford, Cannock, Staffs (accepted) £4,684 16 0

CANTERBURY.

For carrying-out works incidental to contract No. 3 of the new city lunatic asylum.

W. J. ADCOCK, Dover (accepted) £23,000 0 0

CATTERICK BRIDGE.

For erection of a farmhouse and farm buildings near Catterick Bridge, Yorks. Mr. FRANK MARTIN, architect, South End Chambers, Darlington.

Johnson & Boyd	£775	0	0
Boyd & Sons	706	13	6
W. Robinson	678	19	6
Mackenzie & Todd	675	16	0
J. MACKENZIE & SON, Catterick (accepted)	612	15	0

DARTFORD.

For three Lancashire boilers with pumps and other work in the boiler-house at Joyce Green Hospital, for the Metropolitan Asylums Board. Messrs. A & C. HARSTON, architects, 15 Leadenhall Street, E.C.

D. Adamson & Co.	£4,125	0	0
J. Adamson & Co.	4,040	0	0
Musgrave & Sons	4,027	0	0
Tinkers, Ltd.	3,987	0	0
Holdsworth & Sons	3,927	0	0
Yates & Thom	3,916	0	0
Moorwood & Sons	3,775	0	0
Anderton & Sons	3,625	0	0
Oldham Boiler Co.	3,586	0	0
W. Arnott & Co.	3,500	0	0
J. Thompson	3,400	0	0
E. DANKS, Birmingham (accepted)	3,400	0	0

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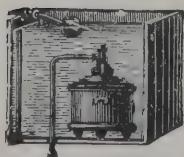
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J. Jenkins3,963 10 0
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For supply of electrical plant, for the Town Council.
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For sewerage works at rear of Langney and Pevensey Roads.
Mr. R. M. GLOYNE, borough engineer.
W. & E. NOAKES, West Street (accepted) . . .£96 0 0

EGREMONT.

For alterations and improvements to the Oddfellows' Hall,
North Road, Egremont, Cumberland. Mr. JAS. COWAN,
surveyor.
Accepted tenders.
T. & W. Robinson, Egremont, joiner and cabinetwork.
J. Waddell, Egremont, plumber.
H. Hird, Egremont, smith.
W. Eilbeck, Gosforth, plasterer.

HALIFAX.

For erection of chimney-shaft, 60 yards high, at the electricity
works, Foundry Street. Mr. JAMES LORD, borough
engineer.
J. Charnock & Sons£3,489 12 0
Dean, Hetherington & Co.2,980 0 0
Bower Bros.2,523 5 10
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For erection of electric lighting and destructor buildings, and
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W. WHITEMAN, 46 Sackville Road (accepted) . £370 0 0

For street works in Princess Road, Hove, Sussex. Mr. H. H. SCOTT, borough surveyor.

PARSONS & SONS, 118 Church Road (accepted) £240 0 0

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For alterations and additions to children's homes at Rothwell Haigh, Leeds. Mr. W. E. RICHARDSON, architect, Rothwell.

W. NICHOLSON & SON, Hunslet (accepted) . £266 7 2

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For erection of schoolhouse and boundary wall in Banbridge.

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D. Cromie 611 0 0

J. Graham, jun. 605 0 0

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D. DALZELL, Rathfriland, co. Down (accepted) . 489 0 0

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For erection of a cottage at Carus Lodge Farm. Mr. J. PARKINSON, architect, 67 Church Street, Lancaster.

Accepted tenders.

R. L. Dilworth, mason.

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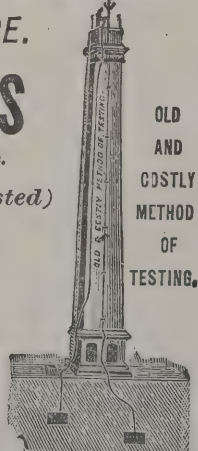
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GLAZED BRICKS.

REDBOURN.

For construction of two wells.

Cheeld & Co. £69 9 0
 C. HAWES, Redbourn (*accepted*) 57 5 0

ST. ANNES-ON-SEA.

For supply of steam dynamo.

DICK, KERR & Co. (*accepted*).

ST. COLUMB MAJOR.

For enlarging the Queen's Board schools from 150 to 260 school places.

C. CARRWICK, Newquay (*accepted*) £1,039 0 0

SHANKLIN (I.W.)

For construction of two groynes in concrete blocks at the northern end of the foreshore.

Case Sea Defence Syndicate £5,530 9 1
 H. M. Patrick 2,219 0 0
 B. Cooke & Co. 2,200 0 0
 FRANCIS HAYDEN & SON, Sandown (*accepted*) 1,950 0 0

SOUTHBOROUGH.

For erection of a chapel and cottage in connection with the proposed new cemetery at Southborough, Kent. Mr. WILLIAM HARMER, surveyor, 137 London Road, Southborough.

H. Whibley £1,900 10 0
 C. J. Gallard 1,492 0 0
 Gann & Co. 1,380 0 0
 Martin & Co. 1,300 0 0
 H. C. Jarvis 1,240 0 0
 Tapener & Co. 1,235 0 0
 J. Leney & Son 1,228 0 0
 Beale & Son 1,220 0 0
 J. Marshall 1,205 0 0
 J. Crates & Son 1,179 0 0
 E. Punnett & Son 1,175 0 0
 T. POTTER, Southborough (*accepted*) 1,172 8 10

SOWERBY BRIDGE.

For construction of about 44 yards of brick barrel culvert, 3 feet 6 inches diameter, under the new road.

R. PARKER, North View (*accepted*).

SWINDON.

For supply and delivery of cast-iron pipes, &c., during period ending March 25, 1902. Mr. H. J. HAMP, borough surveyor.

Spittle, Ltd., Newport, Mon, 3-inch pipes £5 7s. per ton,
 4-inch £5 7s., 5-inch £5 4s. 6d., 6-inch £5 4s. 6d., 8-inch
 £5 4s. 6d., specials £10 10s.

TORQUAY.

For an electric-light installation at the Corporation Buildings in Market Street.

T. L. HARDING (*accepted*) £49 15 0

For improvements at the gasworks.

Accepted tenders.

Willey & Co., Exeter, ironworks, fittings, &c., £4,847 10 0
 G. R. Hislop, structural work 807 15 0

TRURO.

For street works in The Avenue and Carvoze Road. Mr. MEASHAM LEA, city surveyor.

W. Shaddock £356 10 0
 S. RODDA, Redruth (*accepted*) 295 0 0

For erection of cattle market. Mr. M. LEA, city surveyor.

A. N. Coles £6,389 0 0
 H. E. Skinner 5,896 0 0
 W. E. Beake 5,598 0 0
 J. COLLIVER, Truro (*accepted*) 5,179 0 0
 J. Harris 5,097 0 0

TURTON.

For connecting about 490 houses at Edgworth, Bradshaw and Harwood with the main sewers. Mr. VINCENT W. LAITHWAITE, surveyor, Bromley Cross, near Bolton.

J. HOLES, Bolton (*accepted*).

WALES.

For widening and reconstructing (in masonry) a portion of the bridge over the river Ely, in the parish of St. Fagan's, Llandaff. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.

F. Ashley £493 17 6
 T. Rees 486 17 0
 W. Cox 466 5 0
 C. H. Cooksley 450 0 0
 C. Davies 408 4 4
 J. E. EVANS, Cardiff (*accepted*) 344 2 0

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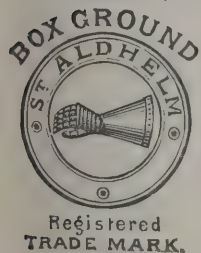
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WALES—continued.

For supplying and laying 800 lineal yards of 2-inch cast-iron water-pipes, with the necessary fittings, at Lavernock, Llandaff. Mr. JAMES HOLDEN, surveyor, 35 St. Mary Street, Cardiff.

J. Thomas £206 8 2
G. DAVIES, Cardiff (*accepted*) 140 11 8

For private street works, Merthyr Vale.

W. Brown £443 16 6
G. Price 399 5 5
E. R. Davies 373 19 11
D. JONES, 33 Alma Street, Dowlais (*accepted*) 356 19 3

For painting town hall, Merthyr Tydfil.

J. Jerimiah £525 10 0
J. P. POOL, Brecon Road, Merthyr (*accepted*) 425 15 0

WALTON-ON-THAMES.

For erection of stables, cartsheds, cottage and other buildings at the depôt site in Crutchfield Lane. Mr. CHAS. J. JENKIN, surveyor.

J. Lee £2,894 0 0
Newland & Higgs 2,799 0 0
W. Greenfield 2,606 0 0
Simpson & Co. 2,571 0 0
Shelbourne & Co. 2,563 0 0
T. T. Hawkins & Co. 2,493 0 0
R. Atkinson 2,480 0 0
Merredew & Co. 2,450 0 0
W. H. Gaze & Sons 2,359 0 0
Redhill Joinery Company 2,250 0 0
C. HORSELL, Weybridge (*accepted*) 2,147 0 0

WELLS-NEXT-THE-SEA.

For sewerage works in Mill Lane and Chibb's Lane, for the Wells Urban District Council.

T. FLATTERS (*accepted*) £50 0 0

WEYMOUTH.

For extension of the cast-iron outfall sewer at the Nothe Point. Mr. W. BARLOW MORGAN, surveyor.

G. Bowring £3,996 0 0
J. T. Whettam 3,600 0 0
Cook & Co. 3,450 0 0
J. A. BARTLETT, Franchise Street, Weymouth (*accepted*) 2,582 10 6

WOLVERHAMPTON.

For erection of the industrial hall and other buildings for the proposed exhibition.

H. Lovatt £13,000 0 0
H. Willcock 12,158 0 0
J. Charles 11,950 0 0
H. Gough 11,900 0 0
J. L. Jones 10,850 0 0

NOTE.—The tenders included the cost of a dome estimated at 1,000l. This was dispensed with, and the committee accepted the tender of Mr. Jones for the net amount of 9,850l. by the reduction of the sum for the dome.

WOOLWICH.

For wrought-iron fencing, gates, brick piers and boundary walls, &c., in Lodge Lane, Bostall Heath, Plumstead. Messrs. CHURCH, QUICK & WHINCOP, architects, William Street, Woolwich.

Stephens & Son £3,150 0 0
J. Chapman 2,958 0 0
Pollard & Brand 2,800 0 0
E. Proctor 2,730 0 0
Thomas & Edge 2,700 0 0

Received too late for Classification.

ESSEX.

For erection of new school at Marsh Green, for the Dagenham School Board. Messrs. HARRINGTON & LEY, architects, 65 Bishopsgate Street Without, E.C., and Corn Exchange, Komford.

W. HAWKINS & SON, Peterborough (*accepted*) £5,317 10 0

WALSALL.

For erection of the new Municipal Buildings.

Armitage & Hodgson,* Leeds £67,650 0 0
* Recommended for acceptance.

In connection with the Lichfield sewerage scheme, the Lichfield City Council at their last meeting, after interviewing three engineers, appointed Mr. J. R. Elliott, C.E., of Nottingham, at a fee of fifty guineas, to prepare plans and report upon the city sewerage.

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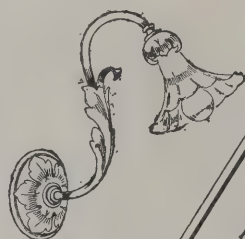
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VARIETIES.

NEW chapel, erected on a spot adjacent to the post office in Barry Island, in connection with the Wesleyan denomination was opened last week. The cost of erection amounted to £1,000.

THE new mission church of St. Hilda, in the parish of St. James's, Latchford, Warrington, was opened on the 12th inst. The building has accommodation for about 350 persons, in addition to a reading-room and two vestries. The total amount expended on the land, building, fittings, &c., up to the present time is £367. 10s.

THE ancient parish church at Wingrave, Buckinghamshire, has been thoroughly restored. The tower has been restored to the base, and the structure has been raised by five yards to provide for an adequate ringing chamber and a clock chamber, and an entirely new turret has been built. The cost of the restoration has been about £6,000.

IN view of the steps which the Dover Corporation are taking to obtain an extension of the borough boundaries, the inhabitants of St. Margaret's Bay have sent a petition to the Corporation requesting that the neighbouring resort may be included in the application. Five-sixths of the ratepayers of St. Margaret's signed the memorial. The Overcliff scheme will connect Dover and St. Margaret's by a broad road over the cliffs, and several estates are already laid out. The proposed boundary scheme would double Dover's sea frontage.

THE Congregational church, Lewisham High Road, has been renovated and decorated throughout and the electric light installed. The stonework of the spire has been repointed in

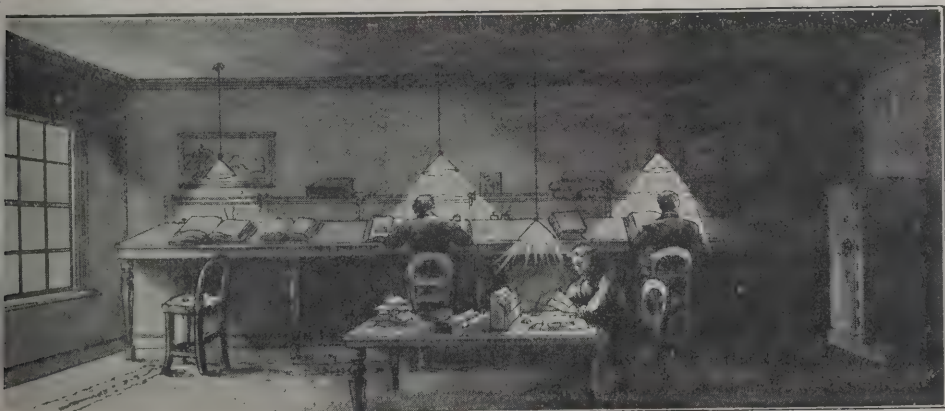
cement and treated with a solution of "fluat," and a new lightning conductor fixed. The repairs and decoration have been carried out by Messrs. J. O. Collingwood & Co., Brockley, S.E., from the designs and under the superintendence of Messrs. G. & R. P. Baines, architects, 5 Clement's Inn, Strand, W.C., at a total cost of about £1,300.

THE Garden City Association has invited the London borough councils to appoint delegates to attend a conference at Birmingham and Bournville to-day to consider the experiment of Messrs. Cadbury in removing their works from Birmingham to Bournville, and the desirability and practicability of a combined movement of manufacturers and co-operators to new areas, so that new towns may be established on land to be purchased for the community. In this way, it is suggested, overcrowding in towns might be relieved and workmen provided with healthy homes in rural garden cities.

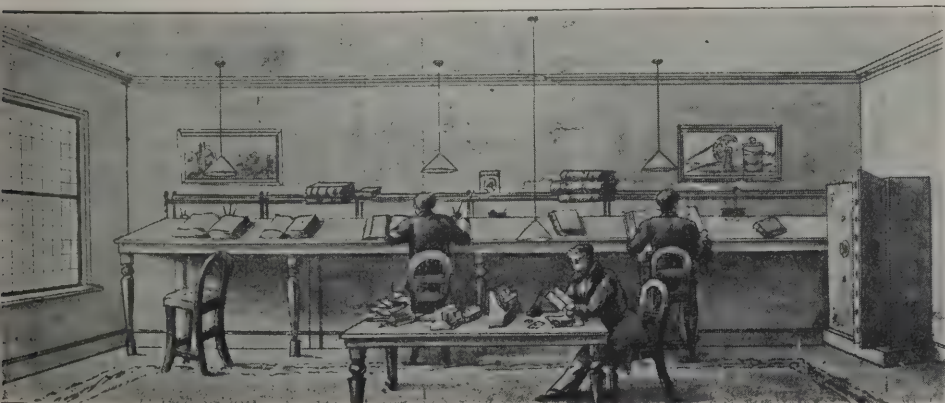
A NEW Board school which the Halifax School Board have erected at Sunnyside, in the north-west portion of the town, at a total cost of £22,500, was opened on the 16th inst. In the mixed department accommodation is provided for 350 boys and 350 girls. The infants' department, which forms a separate building, contains accommodation for 108 scholars. Belonging to the former department there is a gymnasium, a cooking kitchen and a manual instruction-room, fitted with fourteen benches. The school has been provided throughout with the electric light. There are also special rooms for the drying of the clothing of the scholars in wet weather.

AT a meeting of the Congleton Corporation held at the town hall last week the mayor (Councillor G. Pedley) reported that the borough surveyor and himself had called at the Local Government Board offices to endeavour to expedite matters in connection with the application of the Town Council for sanction to borrow £16,953 for the purposes of sewerage and sewage disposal, and the town clerk read a letter from the secretary of the Local Government Board, as a result of the interview, in which he stated that the Board were now satisfied that there was no risk of pollution of the water-supply by the construction of the proposed works, and that the Corporation's scheme of sewerage and sewage disposal was otherwise generally satisfactory, except as regarded the area of land proposed to be used for the treatment of the effluent from the secondary bacteria beds, the Board considering that an additional two acres should be acquired and laid out for the purpose indicated. It was resolved that the mayor, Councillor Carson and the

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The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light, and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.



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Wilson's "DIOPTRIC"
Pavement Lights are
an improvement on
the semi-prism at the
same price.

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GIRDERS, AND ALL ARCHI-
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town clerk should see Sir Walter Shakerley's agent and endeavour to arrange for the purchase of additional land.

A MUNICIPAL technical college which the Sunderland Corporation has had erected, at a total cost of 27,000*l.*, was opened on the 16th inst. The building of this handsome structure was made possible by the action of the Government of 1890, which set apart what is known as the "whisky money" for the use of county and county borough councils for the purposes of technical education, and Mr. Storey recalled the circumstance that it was he who moved in the House of Commons the amendment which, though defeated by four votes, induced the then Chancellor of the Exchequer to thus allocate these funds. The proceedings were attended by all the local authorities, and many eminent professors at various universities. Towards the cost of the college the Corporation have provided the interest and sinking fund on the capital sum of 10,000*l.*, the estimated balance required. As at present equipped, the college will cost about 4,000*l.* per annum, and the technical education committee expect to receive sufficient from "whisky money," grants and fees to carry it on without any call upon the rates, though the Council have power to levy a rate of 1*d.* in the pound for the purpose.

ELECTRIC NOTES.

THE Wednesbury Corporation have requested Mr. Warden-Stevens, consulting engineer, of Westminster, to advise them regarding an electrical distribution undertaking. The Corporation a short time back obtained a provisional order entitling them to establish works for the supply of electricity, but at present it is proposed that the power shall be obtained in bulk from an adjoining local authority or from a power company.

FOR many reasons it is sometimes convenient to adopt alternating current circuits, but difficulties arise in connection with the lamps. The General Electric Company, Ltd., have after many experiments and tests produced an enclosed arc lamp which will be known as the "Angold." It possesses several advantages in being rainproof and weatherproof, having a peculiarly neat arrangement of the globe and a choking coil in the lamp case. No pumping is needed at starting, and the burning is absolutely steady and noiseless. The company have also perfected a balancing and other coils which can be used with the arc lamp.

WE mentioned last week that the Electric Lighting Board, Limited, of 7 Pall Mall, had executed a number of important commissions in connection with the Czar's visit to France, and telegrams to hand yesterday give particulars as to the extent of the work done through the company's French agents and contractors in the very short time available. The whole of the official electrical illuminations at Compiègne were done on the E. L. B. system to the exclusion of all other electrical work. The illumination devices alone carrying 12,000 lamps, whilst not less than 500 garlands of lights were also provided, and further, 3,000 yards of illuminated festoons. The whole of the official electrical illuminations on the Prefecture Buildings and the Town Hall at Dunkirk were done on this system, the illumination devices alone carrying 3,000 lamps. The Transatlantic liner, *La Gascogne*, was lit up on the same system, as well as one of the cruisers of the French fleet, the latter as an experiment for future illumination of the French men-of-war. A Paris innumerable decorative schemes were carried out for business firms on the E. L. B. system, but the most interesting was a design at the Orangery, in the Tuileries Garden involving 4,000 lamps.

TRADE NOTES.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester have just supplied their patent Manchester grates to the new Cottage Hospital, Abergavenny.

THE Shire Hall, Haverfordwest, has been fitted with improved low-pressure hot-water heating apparatus by Messrs John King Limited, engineers, Liverpool, who are employing their Rahnee radiators.

THE heating of the new museum, Albion Street, Hull, is to be by Spencer's patent "Ventilo" radiators, of which the patentee and sole maker is W. F. Spencer, Cross Bank Works, Oldham, and 145 Queen Victoria Street, E.C.

MR. JOHN LAIDLAW, of Dundas Street, Glasgow, informs us that the co-partnership carried on by the Messrs. Mirrlees, Watson & Co., engineers, and John Laidlaw, engineer, under the firm of Watson, Laidlaw & Co., engineers, in Glasgow, was dissolved on December 31, 1900, by mutual consent, and that he has taken as partners Mr. James Wright Macfarlane and Mr. Andrew Robert Robertson, who for a number of years past have been connected with the management of the business, of which he has acquired the whole assets and goodwill.

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and which will continue to be carried on under the name of Watson, Laidlaw & Co.

THE "Empress" combination bath, recently introduced by Messrs. Wright, Sutcliffe & Son, of Halifax, is a light, rustless and strong bath made in tinned steel, tinned copper and aluminium. It requires no casing, can be decorated in any style, adapted to any kind of fittings, and every part is open and accessible. The patent "Empress" lavatories are made with basin, table top, patent standing waste-pipe, soap and rush trays in one piece of porcelain, with fittings for hot and cold water. These are so arranged that there is no brass plug or chain inside the basin. The waste-pipes and drain-holes are adjusted to give a quick discharge. The basins are made of the finest sanitary earthenware produced, and are supplied white, ivory, gilt, blue printed, or decorated in various styles.

BUILDING AND BUILDERS.

NEW Wesleyan chapel is to be erected at Coytrahen at a cost of 450/.

MEMORIAL-STONES of new Board schools were laid on the 14th inst. at Rise Carr, Darlington. The buildings are estimated to cost about 8,500/.

THE town clerk of Bridlington has received a letter from the Local Government Board sanctioning the borrowing of the extra 2,000/., making 8,000/., for the carrying out of the sewerage works.

A SITE for a crematorium has been secured at Golder's Green, Hendon, adjacent to the terminus of the proposed tube railway from Charing Cross to Hampstead. Extensive excavations and building operations have already commenced.

THE foundation-stone of St. George's chapel of ease, Clonliffe, which is to be built instead of the temporary building at Clonliffe, in St. George's parish, is to be laid on October 9.

THE Pudsey Town Council having decided to provide public baths, steps are being taken to get information as to the working of such baths in towns of similar size to Pudsey, and a special meeting will be called to deal with the question.

THE memorial-stones of the Walton Park Congregational church, which is in course of erection at a cost of 5,500/., in Rice Lane, Liverpool, were laid on the 14th inst. The

architects of the new building are Messrs. Briggs & Wolstenholme, and the builder Mr. W. Mather.

THE eighth annual convention organised by the National Association of Master House Painters and Decorators will be held at the Temperance Hall, Leicester, on Tuesday, Wednesday, Thursday and Friday, 1st, 2nd, 3rd and 4th prox.

PRINCESS HENRY OF BATTENBERG has expressed herself as in favour of the Solent tunnel scheme, and it is expected that Her Royal Highness will cut the first sod at Freshwater, a ceremony which is not likely to be much longer delayed.

THE six selected candidates for the office of clerk of works in connection with the erection of the new market hall for Leeds came before the markets committee on Monday, and Mr. James Reid, Glasgow, received the appointment at a salary of four guineas per week. The market hall, which will be built from plans prepared by Messrs. Leeming & Leeming, architects, will cost about 100,000/.

THE directors of St. Anne's (Lancs.) Land Company have decided to obtain powers to widen St. Anne's-on-the-Sea pier and erect a concert pavilion, for which 25,000/., new capital will be raised. Messrs. Garlick & Sykes, engineers, of Preston, have been instructed to proceed with the complete scheme at once. The pavilion, which will be of Oriental design, is estimated to seat 800 persons.

AT a special meeting of Bridlington Town Council a plan for the extension of the sea-wall, the construction of a marine drive and the erection of bandstand and shelters on the extension, was discussed for over two hours. At the close a resolution approving of the plan was defeated. The scheme was estimated to cost 35,000/., was prepared by Mr. Matthews, surveyor, and it was intended to call in Wagnall & Littlewoods, Manchester, to construct the pavilion on lines shown in the prize design of last year. The scheme will be further considered subsequently.

TENDERS have been accepted for the erection of a new covered market in the Main Street, Bingley, Yorks. The proposed structure will span the open space between two shops in the centre of the town, near to where the old market-house stood. The length of the new building will be 78 feet, from back to front 37 feet, and the height to the eaves 12 feet. It will abut on the Main Street, and will be open the full length at the front and walled at the back, save for 18 feet, to make a through road to the land at the rear. The building has been designed by the surveyor, Mr. H. Bottomley, and will be of a

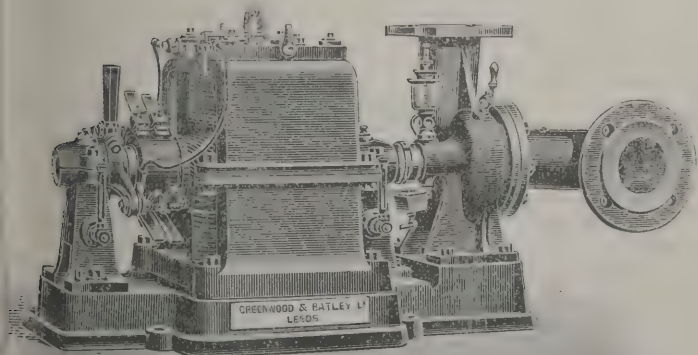
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neat but inexpensive style. In addition to serving the purpose for which it is intended, it will make an admirable shelter for the visitors to the town in wet weather.

THE memorial-stones of the new Wesleyan chapel which is being erected in High Street, Tisbury, Wilts, were laid on the 12th inst. The new chapel will be of Geometric Gothic architecture, and will accommodate 300 people. A schoolroom is also being built 40 feet by 20 feet with a movable partition, so that when necessary the two buildings can be thrown into one. Two vestries will be built and the entrance will be through a spacious porch with a tower 60 feet high above. The building will be of Tisbury stone with relief work and dressings of Bath stone. There will be an open varnished roof in the interior; the pews are to be of varnished red deal and the windows of tinted glass. The building will be heated with hot-water apparatus and will be lighted with gas pendant lamps. The total cost is estimated at 1,600*l*. The architect for the building is Mr. T. Wnacott, of Southsea, and the builder, Mr. F. Huish, Street.

A PUBLIC inquiry was held on the 11th inst. at the Wolverhampton town hall by Major C. E. Morton, inspector to the Local Government Board, respecting an application by the Town Council to borrow several sums amounting to 34,026*l*. for public improvements. Mr. H. Brevitt (town clerk) explained that the money was required for the purchase of Messrs. Harley's liquor vaults and other properties at the corner of Queen Square and Victoria Street to widen those thoroughfares. The Corporation had also bought the building at the corner of Cleveland Road and Bilston Street, hitherto a coffee-house, for the purposes of a branch police-station, and they had decided to extend the town hall buildings. The particulars of the different schemes having been furnished to the inspector, and there being no opposition, the proceedings ended.

IN a letter read at the Middlesbrough Ferry committee on Tuesday afternoon, Mr. Charles H. Gadsby, consulting engineer, Westminster, offered to supply a preliminary design and estimates for a proposed transporter bridge across the Tees at Middlesbrough, and in the event of the scheme being proceeded with and his being retained as engineer for its construction, he said he would agree to the fee counting as part of his ultimate remuneration. Referring to the Shields Bridge scheme, he said the Bill was thrown out by the Commons committee on the opposition of the Tyne Commis-

sioners, after an eight days' fight, chiefly on the ground that in case of war a foreign navy could knock the bridge down and so block the Tyne, which was the chief naval arsenal on the east coast. Councillor Ward proposed and Councillor Poole seconded that the offer of Mr. Gadsby be accepted. Alderman Scupham opposed on the ground that they would meet with opposition from Stockton, and after incurring considerable expense they would share the same fate with their Bill as the Shields promoters. The Chairman said they were differently situated. The Tyne Commissioners opposed the Shields scheme because they were partly owners of the Shields ferries; at Middlesbrough the ferries were owned by the Corporation. In reply to Dr. Hedley, the Chairman said their steam ferry-boats were old, and they would have to have new ones in the course of the next four or five years. The motion for the design and estimates as proposed was carried.

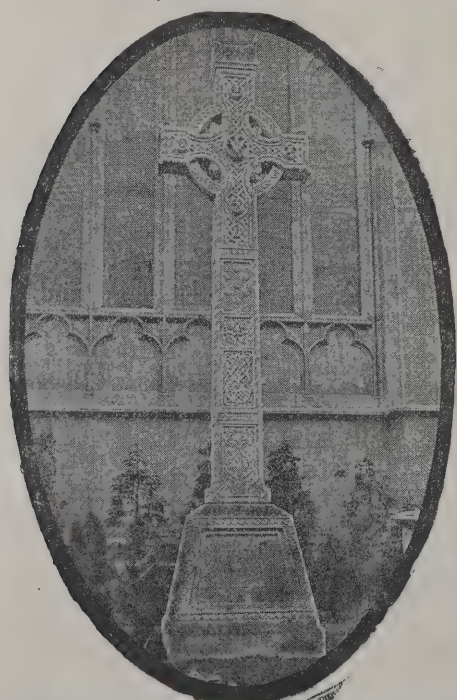
A MANIFESTO has been issued by the Hull Operative Building Trades Federation in relation to the strike of slaters in that city. The circular states that on August 6 a code of rules was posted in the Hull yards, which were said to be those agreed to by the representatives of the Yorkshire district on the one hand and the master slaters on the other, and in this code the Hull men were asked to accept the following conditions:—(1) $\frac{1}{2}$ d. per hour reduction on out-of-town work. (2) The abolition of extra pay for overtime when asked to work at night. Saturday afternoons, Sundays and Christmas days only to count as overtime. Saturday afternoons to be paid for as time and a half. Sundays and Christmas days as double time. (3) The introduction of labourers to do slate-holing, slate-pointing and to dress slates, whereas labourers in Hull have been content with carrying up the material required, and have never handled tools in any way. (4) That they shall leave the Hull Building Trades Federation (for this is what rule is really means), and thus lose the support of the other sections of the building industry in Hull, and practically become of no effect as a trade union. This, the Federation venture to think, is a large pill to be asked to swallow at one dose, and no one could wonder that the Hull men have struck work against such rules. The action of the E.C. in accepting such conditions, without even submitting the proposals to a vote of the members, and after promising that the rule relating to labourers should be deleted or qualified in the interests of the Hull men, is only surpassed by refusing these men financial support, and even going to the extent of advertising for unionists to take the place of the men out on strike. The Federation think that,

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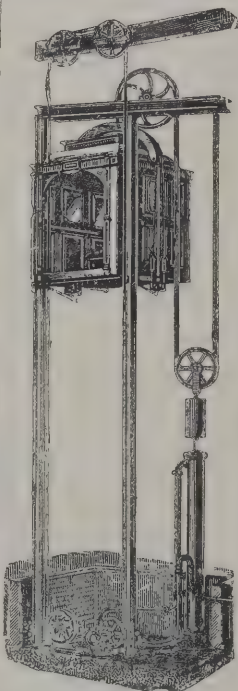
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oking at both sides of the question, the Hull men have a just se, and it has therefore been decided to support them nancially as well as morally. They therefore ask that l slaters and tilers should be dissuaded from accepting nployment in Hull until the dispute is closed, and that ntributions should be obtained for the support of the men hilst they remain out on strike.

THE AUCTIONEERS' INSTITUTE.

HE members of the Auctioneers' Institute of the United ingdom have held their autumn meeting in Edinburgh this ar.

At the meeting of the Council, under the chairmanship of r. W. Bennett Rogers (London), Mr. J. A. H. Townsed reen, chairman of the finance committee, reported that after oviding for payment of all accounts to July 31 last there mained a substantial balance in hand, in addition to 2,700/. vested. The benevolent fund, which is a separate account, owed a balance at the bank of 2157/, in addition to invest- ents in Consols amounting to 950/. The report was con- sidered satisfactory and adopted. The general purposes com- mittee reported that the actual number of members of the nstitute was 1,337. A large number of applications for mission to the Institute were considered, when eighteen new llows, fifteen associates and one student were elected. In e evening the members and friends, numbering over 100, ined together in the Royal Hotel, Edinburgh.

PROPOSED ENCROACHMENT ON REGENT'S PARK.

CCORDING to Dr. J. Fletcher Little, member of the London ounty Council for East Marylebone, Lord Howard de Walden as laid a proposal before the London County Council and the Marylebone Borough Council which, if it is carried out, will nvolve a serious diminution of the air and space on the north ide of Regent's Park. His lordship is improving that portion f his estate called Portland Town, which abuts on the north- west side of Regent's Park. He asks to be allowed to advance ae building line on the forecourts in Albert Road from High treet (St. John's Wood) to Culworth Street to an extent arying from 10 feet to 26 feet on an average of 15 feet, and it

is understood that, should this be granted, a further demand will be made to continue the encroachment for a long distance further in the direction of Primrose Hill. The object in view is that there may be more room for the erection of blocks of residential flats in Albert Road overlooking Regent's Park. This scheme will take a large slice off the width of Albert Road, which, in its present state, is capable of being converted into a magnificent boulevard, and will cause a serious diminu- tion of the amenities of the park. This proposal has received the approval of the works committee of the Marylebone Borough Council.

PIETERMARITZBURG TOWN HALL.

THE new town hall, which was formally opened by the Duke of Cornwall and York, surpasses every building of the kind in the colony, not alone for the commodiousness of its interior, the number of offices it contains, and the ample accommoda- tion it offers to all municipal functions, but also for its design and the technical perfection of the plans on which it has been built. It is a very large building, extending 158 feet 11 inches on Commercial Road by 176 feet 11 inches on Church Street. It contains three storeys and a clock tower of 165 feet, fitted with four clock faces and a complete set of chimes. From outside the building dominates all its surroundings; it gives a fine and majestic finish to the centre of the town, and is in itself a magnificent structure, in all respects worthy of the capital of the colony.

At the main entrance on Commercial Road the portico extends beyond the pavement, and is pierced athwartships, as it were, by a double arch. The entrance is closed at the inner end of the portico by a sliding grille of wrought-iron. From this portal inwards one walks on a pavement of polished Italian marble. Just within the gate a tablet is inserted in the wall, marking the locality of the foundation-stone laid by the mayor. This stone was originally laid for the old hall by the Duke of Edinburgh, then Prince Alfred, in 1860.

Folding doors of glass and teakwood admit one into the vestibule, a fine hall supported on four pillars of Carrara marble. On the right another tablet catches the eye. It is a solid block of grey marble, sculptured to represent a mourning female figure weeping over the inscription that perpetuates the memory of those Natal Volunteers who fell in the war. Above is a scroll bearing the arms of Natal.

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The walls of the vestibule are marble faced to a height of eight feet or so, and are surmounted with a frieze in a foliage design. The door of the main hall is at the end. Between the two pillars on the right the grand staircase ascends to the first storey, from which the gallery of the main hall is reached.

On ascending the staircase is seen a stained-glass window 16 feet in height. The staircase is polished marble underfoot; the balustrade is of worked iron with a hardwood rail. There is a landing half-way up before the first storey is reached.

On the first floor the landing is bounded on one side by the main hall, and on the other by a broad balcony running out over the portion. Large glass doors, arched, admit daylight, and a corridor leads on either side to the numerous rooms and offices.

On the right are the banqueting-room and the council chamber, two fine, well-lighted apartments looking out on to the Market Square and Longmarket Street. The former is a spacious chamber, with barrel ceiling and windows rather high above the floor. The council chamber is rather smaller than the other, and its ceiling is pierced in the centre with a dome-shaped skylight. At the end of the corridor, behind the council chamber, is a staircase leading up from a side entrance to the hall. The corridors are lofty and 9 feet wide, lighted from above by electric lamps.

On the other side of the main hall on the first floor are numerous spacious offices, some opening on to balconies, and all planned to accord exactly with the idea that dominates the architecture of the whole structure. The entrance to the clock-tower is on this floor.

The third floor contains offices.

The main hall is best viewed as a whole from the gallery, to which access is obtained by eight doors on the first floor, corresponding to eight others on the lower floor. These doors are of teak and ground glass, with brass fittings. The broad, sloping gallery runs round three sides of the hall, with four tiers of folding chairs so arranged as to comfortably seat 460 persons, and allow each one easy access to his seat. The walls are alternately panels and columns, the latter of the Corinthian type, with moulded capitals. A broad cornice runs round the wall near the ceiling, and above it are stained lead-lights. The gallery is supported on cantilevers, thus obviating the use of pillars and allowing a clear floor to the hall below. The dimensions of the hall are 127 feet 6 inches in length by 60 feet in breadth by 54 feet in height. The hall is lighted at night by sun-lights.

The floor of the hall is of narrow oak boards, 3 inches in breadth by 1½ inches in depth. Thick pads of india-rubber intervene betwixt the planking and the girders on which they rest. The seating capacity of the floor has not yet been tested but at a moderate estimate at least 800 people could be comfortably accommodated on the lower floor, beside the 460 in the gallery.

The choir-gallery, with its orchestra platform and the organ are opposite the chief entrance to the hall. The choir gallery has nine rises, to seat some 150 persons. The platform is 10 feet wide, but a movable front enables this to be increased by 5 feet. The steps up to the platform are on either side, but for the purposes of the function a special front stair has been erected.

The architect is Mr. Street Wilson and the contractors Messrs. Mowat & Still. The clerk of the works was Mr. H. Light.

RED-GUM PAVING BLOCKS.

THE following report has been addressed to the agent for the West Australian Government by Mr. Herbert Stone, an expert who is engaged under instructions from the Colonial Office in investigating the commercial woods of the Empire:—

To the Hon. H. B. Lefroy.

Sir,—I have pleasure in reporting upon my visit with you on September 2 to the various places where Alcott's red-gum paving blocks have been, or are now being laid.

As regards the former, I consider that the length of time, viz. two years nine months, the longest record red-gum paving can show in London, is far too short to afford a basis for an opinion upon its merits.

In the experimental areas at Bridge Street, Westminster, laid two years ago, it has worn well compared with the neighbouring white oak and deal, but does not present the even surface of the doweled jarrah paving, especially on the west side of the road. With the exception of some unevenness in the middle of the road, where, I understand, a change in the system of laying was made, the surface of the jarrah is perfectly good. The soft wood (deal) compares rather badly here, as it has worn sufficiently for a channel across the road to be noticeable adjoining the jarrah, upon which the traffic impinges with great severity without producing much impression. All the four kinds of paving may be said to be in good condition.

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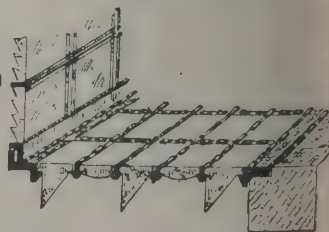
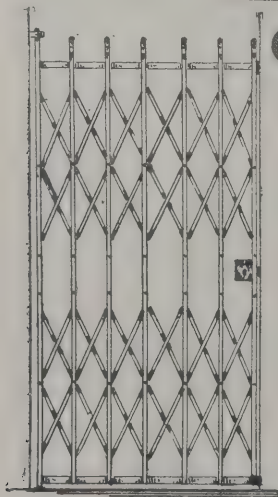
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The paving at the Post Office, Charing Cross, where jarrah and red gum are laid together, appears to favour red gum, as so do the three strips of red gum, karri and white oak in Piccadilly Circus. In the latter case the white oak has suffered severely, but if the positions of the woods had been reversed I imagine that the pavement would wear in precisely the same places, as the destructive action of the starting of the omnibuses must be the severest test possible. The contrast is not pronounced in the middle of the road where the traffic is uniform.

In Waterloo Place jarrah and red gum again adjoin. The former has been down for two years and the latter since last November. With the exception of one or two depressions where the two woods meet the jarrah is in the better condition of the two. At the back of the statue the red-gum wood is covered with green algae, which are not injurious in themselves, but testify to the absorbent nature of the wood.

The karri paving in East Pall Mall is bad, and was evidently laid with unseasoned wood. The blocks have cracked and gaped widely, but show few, if any, cracks and little evidence of wear.

The blocks of red gum now being laid in Whitehall were carefully examined, and whatever durability the best selected blocks may possess those now being used are quite unfit for street paving or any other purpose. Although the number of blocks is extremely large, I am of opinion that 90 per cent. of those laid at the time of my visit should not have been passed—firstly, on account of the large quantity of sapwood (unripe wood); secondly, because of the wet and unseasoned condition of many of the blocks. A large proportion of these have been cut from young stuff, *i.e.* small trees in which the wood has not commenced to mature. The characteristic durability of woods belongs to the mature wood alone, the sapwood being perishable to a much greater degree. The worst feature, however, is the wet condition of the great proportion of the blocks, which can be clearly seen when one is cleft in two.

I understand that, on the attention of Mr. Alcott's representative being called to this, he stated that the moisture was due to the "gum." That this is not the case is obvious on comparing a wet block with a dry one, which is readily done as the laying proceeds. The practice of the men is to pick up the blocks with the tip of an axe, which compresses the wood and squeezes some of the moisture to the surface on each side of the cut. A dry block simply shows the clean cut. In addition, the "gum" does not saturate the tissue of the wood

uniformly, but is secreted in minute globules in the vessels or pores, and which give the wood its frosted or sparkling appearance on a cleft or plain surface.

A piece of a block (a portion of one cleft by one of the workmen) exposed a surface wet enough to moisten the fingers. It became apparently dry in the course of half an hour. Its weight on the evening of the same day was 11.7 oz. After drying at a temperature near, but below boiling point, it has lost 3.92 oz., or 33½ per cent. of its original weight.

There are wormholes in this specimen, which is partly sapwood and partly heartwood.

No user of wood would employ timber in this condition for any purpose whatever, and unless allowed to dry naturally before sealing up it must naturally decay. The blocks at Whitehall will require at least nine months' seasoning before they will be fit for use, even if otherwise suitable.

The manufacture of the blocks has been carelessly done, as they are irregular in size. Apart from those already rejected from this cause, those now laid vary as much as 1 inch in length and ¼ inch in breadth.

I am of the opinion that the pavements laid in the experimental areas above mentioned were selected blocks of mature wood similar to the sample block sent me by Mr. Alcott in December last. Careful search amongst those laid in Whitehall did not reveal more than one block equal to this in density and ripeness. The durability of this wood will be over-rated if the experimental areas be taken as a standard.

The specimen block alluded to was received by me on December 5, 1900, and, though apparently seasoned, became rapidly covered with mould on the end of the grain. Wishing to avoid error, I removed it to a drier location, after planing the surface clean, when the mould appeared again. The block was on each occasion placed with the end of the grain (where the annual rings appear) in contact with the desk, but was otherwise ventilated all round. It was upon this lower surface that the mould appeared. This, I consider, in connection with the green growth on the pavement at the back of the statue in Waterloo Place, to be evidence that the wood is appropriate pabulum for vegetable parasites. Further, the block, which was quite rectangular when received, has sunk on three sides.

The specimen taken on September 2 weighs, when dry, 39 lbs. per cubic foot.

To sum up, my conclusions are:—

1. That the blocks being used at Whitehall are not of the same quality by far as those used in the experimental strips.

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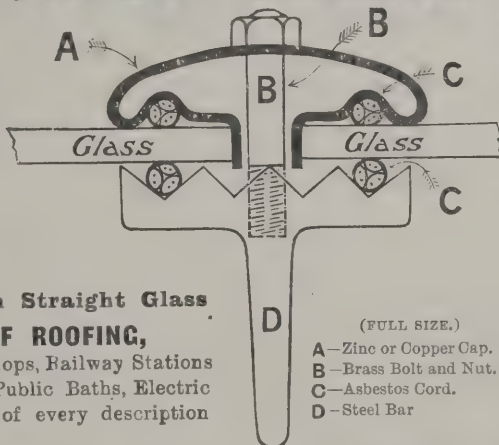
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2. That whatever durability the best of the mature wood may possess when sound and properly seasoned, it is valueless in the condition in which it is being supplied at Whitehall.

3. That as the mature sample supplied to me by Mr. Alcott shows the liability of the wood to the attacks of vegetable parasites, the wet and sappy wood must be liable to a much greater degree.

4. That the blocks laid will open in a multitude of cracks when exposed to the sun in a similar way to those at the back of the statue in Waterloo Place, and each crack will admit moisture and become a focus of decay.

All this ignoring the blocks already rejected for more obvious defects—I have the honour to be, your obedient servant,

(Signed) HERBERT STONE, F.L.S.

Little Hay House, near Lichfield:
September 4.

PROPOSED NEW ISOLATION HOSPITALS FOR LANCASHIRE.

A LOCAL Government Board inquiry was held at the Manchester assize courts last week by Mr. W. W. E. Fletcher, M.B., into the application made to the Board for sanction to the borrowing by the Lancashire County Council of the sum of 16,000*l.* for the provision of an infectious hospital by the Horwich, Westhoughton and Blackrod joint hospital committee, to be erected at Fall Birch, on the north side of Chorley New Road. There were present at the inquiry, which was held in the grand jury room, Messrs. John Unsworth (chairman of the hospital committee), Herbert Barker, James Howarth and William Pilkington (members of the committee); Mr. J. P. Muspratt (deputy clerk to the County Council), Dr. Sergeant (county medical officer of health), Dr. G. H. Whitaker (medical officer to the Horwich District Council), Mr. J. B. Crompton (vendor of the land), Mr. P. M. Crompton (solicitor to the vendor), Mr. Thomas Partington (clerk to the hospital committee) and Mr. C. Cressey (Messrs. Cressey & Keighley, architects, Horwich and Morecambe). The inspector asked if there was any opposition to the proposed scheme, and Dr. Sergeant replied that there was not the least, the desire being that it should be proceeded with as rapidly as possible. The inquiry then resolved itself into an examination of the plans and the various details in connection with the new hospital.

The following details were supplied as to population, rateable value, &c. :—

	Population.	Rateable Value.	Amount of Rate <i>rd.</i> in the <i>l.</i>
Horwich . . .	15,083	57,600	235
Westhoughton . . .	14,377	64,726	259
Blackrod . . .	3,871	17,444	68

It was stated that the building, which is expected to cost about 16,000*l.* exclusive of site, will consist of five buildings in all, accommodating twenty-two beds for scarlet fever patients, twelve for typhoid sufferers and six for diphtheria cases. There will be an administrative block three storeys in height, and a laundry equipped with the usual disinfecting chambers and apparatus. The style of architecture will be English Renaissance, and the materials brick with stone dressings and green slate roof. The buildings will be ranged on each side of a central avenue. The cost per bed will be 430*l.* (with site), as compared with 306*l.* at Farnworth, which has thirty-two beds. Tenders will be advertised for in about a month hence. The inspector, among other matters, referred to the size of the ten bedrooms, and said that if they were intended for single bedrooms they were very large.

Mr. Unsworth said they were not, except in the first instance.

The inspector said trained nurses objected to sharing rooms. The inspector asked for an undertaking that smallpox cases would not be dealt with in the institution, and it was given. He then examined the plans in detail, and expressed his satisfaction with them.

Later in the week Mr. Fletcher concluded an inquiry at the county offices, Preston, into the application of the Lancashire Council to lend 15,000*l.* to the Preston, Fulwood and Longridge Joint Hospital District for the construction on a site behind Fulwood Barracks of an isolation hospital for infectious diseases.

Mr. Clarke, clerk to the joint hospital committee, stated that the original site at Pinfold was abandoned owing to its unsuitability, the present site being selected on the recommendation of the county medical officer of health. The new site effected a saving to the committee of 1,500*l.*

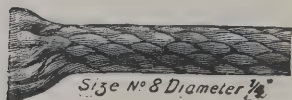
The inspector thought the present site, having been purchased out of a loan, ought to have been the subject of an inquiry. If the County Council had applied to the Local Government Board for power to lend the money, he did not think the Board would have given their sanction without an inquiry as to the

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tness of the site, which investigation would have given residents an opportunity of objecting. He would have to raise the point, and leave it with the Board to decide.

SEWAGE AND BACTERIA BEDS.

A PAPER by Professor E. A. Letts, D.Sc., Ph.D., and Mr. R. F. Blake, F.C.S., F.I.C., on "The Chemical and Biological Changes occurring during the Treatment of Sewage by the so-called Bacteria Beds," was read at Glasgow. It was, he said, generally assumed that the so-called "bacteria beds" acted as oxidising agencies, absorbing oxygen from the air during their periods of rest, and subsequently transferring it to the constituents of the sewage when the beds were filled with this latter, the transfer being effected by micro-organisms which had established themselves on the surface of the material with which the beds were filled. It also appeared to be generally taken for granted that the micro-organisms mainly concerned in the purification process were the nitrifying organisms. Hence if these views were correct, the effluent from the bacteria beds should contain nitrates and nitrites equivalent in amount to the unoxidised nitrogen which disappeared during the treatment. But on examining the results obtained by chemists in investigation on sewage purification it would be found that comparatively small amounts of nitrate and nitrite were produced in relation to the unoxidised nitrogen disappearing. From results obtained in Manchester, Sutton and Leeds it was found that the nitrogen disappearing as "free" or "albuminoid" ammonia was 1.634, 7.185 and 1.528 grains per gallon respectively, while the nitrogen found in the effluent as nitrate or nitrite after double contact with the bacteria beds was 0.636, 1.100 and 0.11 grain per gallon respectively, showing that the percentages of nitrogen disappearing were respectively 39, 15 and 7. It was quite evident, therefore, that a considerable portion, and in most cases the greater part, of the unoxidised nitrogen which disappeared must be got rid of in some other form, and the question arose as to how this might occur. In all probability there were two—and only two—alternative ways in which the nitrogen could be lost, viz.:—(1) It might escape in the gaseous state as free nitrogen, or possibly as oxides of nitrogen; (2) it might pass into the tissues of animals or vegetables, the former of which might escape from the bacteria beds, and the latter (and possibly the former also) might remain permanently in the beds. In other words, there might be either

a chemical or a biological explanation, or both together. In an investigation on the effects of double contact with bacteria beds on screened and settled sewage the authors made analyses of the dissolved gases present, both in the original sewage and in the effluent from both beds, the samples being collected in such a manner that they did not come into contact with the air. The general results of these analyses were as follows:—(1) Practically no oxygen was present either in the sewage or effluents; (2) the effluent from first contact always contained considerably more carbonic anhydride than the original sewage, and with two exceptions the effluent from second contact also contained an excess of that gas; (3) in eleven out of twelve series of analyses the quantity of nitrogen in the effluent was in excess of that present in the original sewage, and, generally speaking, it was in larger excess in the effluent from double contact than in that from single contact. As the first six series of analyses only were made under exactly the same conditions the authors found that, taking them as the basis of calculation, on the average the excess of nitrogen in the effluent from second contact over that present in the sewage amounted in weight to 0.272 part per 100,000, while the loss of unoxidised nitrogen which had occurred in the sewage (by Kjeldahl's process) amounted to 2.2 parts, or that 12 per cent. of the nitrogen lost from the sewage during purification was thus accounted for, while in one particular case it amounted to 31 per cent. In all probability only a fraction of the free nitrogen actually evolved would be retained by the effluent, the rest escaping into the air. As regards the possibility that nitrogen was lost biologically—i.e. was absorbed into the tissues of animals or plants which feed on the sewage—there could be no doubt that a portion did escape in that way. The bacteria beds at Belfast and elsewhere swarmed with minute insects (*Podura aquatica*). These, escaping in myriads, often formed a thick layer on the surface of the effluent, which looked like soot. There could be no question that in thus escaping these animals carried with them some of the nitrogenous constituents of the sewage which they had devoured, but as yet the authors had formed no estimate of the quantity so removed. There were also species of worms always present in the bacteria beds in considerable numbers, which no doubt also fed on the sewage.

Professor Glaister said that he had been taking an interest in the Barrhead installation of bacteriological treatment of sewage, and he must confess that those results of Professor

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Letts had been somewhat staggering. He had not found exactly the same results as Professor Letts had, but he had noticed that depending upon the age, and therefore the efficiency of the bacteria beds, you got different proportions of nitrogen in the fluids and the effluents. So long as the age of the bed was of importance, so long would any investigation of nitrogen at the inlet and the outlet be somewhat unsatisfactory.

Dr. S. Rideal said he believed that the main portion of this black-soot-like substance to which Professor Letts had referred was not living at all, but dead, inert nitrogenous matter which was formed in the breaking-down of the organic nitrogenous substance of sewage, and contained, roughly, 7 per cent. of nitrogen. He pointed out that the loss of nitrogen in bacteria beds, which was not accounted for by the cover formed, and gaseous nitrogen evolved was in part due to a black humus substance allied to peat, which, he had found, was formed in all the different methods of bacterial disposal which he had examined. This substance contained 7 per cent. of nitrogen, and was very stable, so that it did not decompose or give rise to any smell even if it was broken.

THE CRITICAL POINT IN ROLLED STEEL JOISTS.

A PAPER was read by Mr. E. J. Edwards in the section of engineering at the meeting of the British Association.

In selecting rolled steel joists for floors there are two elements which determine the section to be used with a given load per square foot of floor area. First, the stress per square inch produced by the load. Second, the deflection produced by the same load. At first, particularly with small spans, it is the stress per square inch which is the governing element; this stress must not exceed safe working limits. As the floor span is increased the deflection becomes the ruling element, the stress per square inch falling into the background. The deflection must not be sufficient to crack the ceiling where there is one, nor sufficient to be unsightly where there is none.

In the diagrams exhibited two curves were shown, one in black and the other in red. The former is the curve of a given maximum stress, and shows the loads a steel joist will carry for various spans. The red curve gives the loads which produces a deflection which is a constant given fraction of the span, viz. 1-200. The curves cross each other, and the point of crossing the author calls the critical point. At this point the

distributed load produces the given stress and given deflection. Before the critical point is reached the load produces the specified stress, but is insufficient to produce the limiting deflection; after the critical point is passed the distributed load produces the specified deflection, but is insufficient to produce the specified stress; in other words, the limit of deflection is reached before the limit of stress. Examples are given of various sizes of steel joists with the limiting stresses and deflections.

Generalising, up to the critical point the stress curve is the more important; beyond this the deflection curve is more important. The two important parts of the curves taken together are called the curve of loads, which is a curve with a kink in it. The first part of curve is drawn from the formula

$$W = \frac{128 I}{9 L d} \text{ and the second part from the formula } W = \frac{32 I}{L^2}$$

Explanations showing how the equations are arrived at are given in the paper. With a factor of safety of 3 and a breaking stress of 32 tons per square inch, and a deflection of 1-200 span, the critical point is at a span of twenty-seven times the depth. For this particular deflection it is shown that the factor of safety multiplied by 9 gives the critical point.

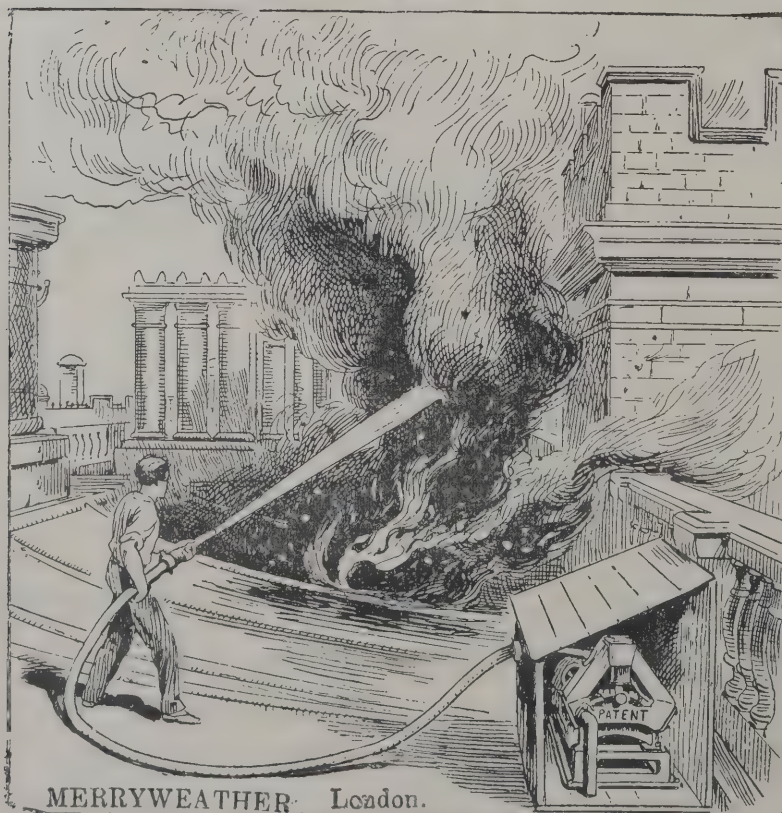
If the deflection in percentages of the span are calculated a series of curves of deflection can be plotted. At 1 ton per square inch and 1 per cent. of deflection the critical point is 576, the depth at 2 per cent. of deflection, the critical point is 288 times the depth, or 9×32 . As at 1 ton per square inch, 32 is the factor of safety. The values were tabulated and shown graphically by diagrams.

Returning to the special object of the paper, the selecting of rolled steel joists for fireproof floors, the principal step is to determine the pitch or spacing apart of the joists. These pitches are tabulated for various sections of joists for the loads of 1 cwt. and $1\frac{1}{2}$ cwt. per square foot of floor. A formula is deduced for a loading of 1 cwt. per square foot:

$$p = \frac{20 W}{L}, \text{ and for any other loading } p_x = \frac{p}{x}, \text{ where } x \text{ is the cwt.}$$

of load per square foot, p = pitch in feet, L = span in feet, and W = distributed load in tons, the rolled steel joist will carry safely. A final result is that the pitch varies inversely as the square of the span when the stress per square inch is considered, i.e. up to the critical point, and varies inversely as the cube of the span when the deflection is considered, or beyond the critical point.

ROOF FIRES



This engraving is based on an illustration the roof of

WELBECK ABBEY

during the recent fire, and shows the application of the

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The Architect.

THE WEEK.

WHEN the project of a cathedral in Liverpool assumed some consistency, and a definite site was suggested, we offered a few remarks about the design for the contemplated building. We maintained that the case should be treated without any reference to the former project, which was a failure. When a cathedral was contemplated on a site near St. George's Hall, the intention was to dominate that building as much as possible, in order to make it plain to all Liverpool that the Church was supreme in the city. There is no doubt that one of the causes of the collapse of the scheme arose from the recognition of that intention. It would then be unfitting that any design which was produced to meet the circumstances of that unlucky case should be furbished up and made to serve for a building on a site of a different character, and where there was no secular building to be overawed. What we said gave offence to some of our readers. There is an effort to rule the profession of architecture through organised cliques, and one at least of them assumed that they could dictate to the cathedral committee the appointment of an auxiliary as architect. The efforts which were tried to make it appear that only one design was eligible, and that under no circumstances could another approaching it in merit be produced, were a revelation of the system which is now in force, and through which the interests of architects in general are sacrificed for the benefit of a few. It will be seen from the articles which we reprint this week from the *Liverpool Courier*, the leading journal in that city, that the selfish attempts have been frustrated, and that a design is likely to be obtained in the customary and most legitimate way. Not one of the designs produced in the last competition was sufficiently beautiful to induce the Liverpool people to make the least sacrifice for its realisation, and it would be absurd to believe that any of them would be more attractive now.

THE cathedral of Rheims must have a peculiar interest for sovereigns of all countries, for, like our Westminster Abbey, it has witnessed many coronations. It was in a predecessor of the existing building that St. REMI baptized CLOVIS and his warriors, and it was consequently the cradle of catholicism in France. In 401 a cathedral was built, but it was supplanted by one erected in 846 under the direction of ROMUALD, the architect. That building was destroyed by fire in 1210. The plans of the present edifice were prepared by ROBERT DE COUCY. Everyone knows the beautiful effect of the interior, especially towards the decline of day, when the light passes through the stained-glass windows and produces a chromatic charm which words fail to express. When the Emperor of RUSSIA visited the building on Thursday in last week the afternoon reflections had vanished and the interior was allowed to be unilluminated except by the lamp of the sanctuary. When Cardinal LANGÉNIEUX conducted the CZAR and CZARINA within the building the darkness was suddenly transformed into a blaze of light by electric power. This was a theatrical effect which was not suited to a cathedral, but it was characteristic of French ideas. At the same time a march of GOUNOD was sounded. Apparently the contents of the cathedral treasury were as interesting to the Imperial visitors as the building itself. Among the objects preserved, the three copes which were worn at the coronation of LOUIS XIV., LOUIS XVI. and CHARLES X. appeared to exercise most attraction.

AT Engelholm, on the west coast of Sweden, Professor MONTELIUS, of Stockholm, has revealed three ancient graves. One is supposed to be about forty centuries old, and has the characteristics of the Stone Period. The body it contained had almost entirely mouldered, but beside the remains was a flint weapon. The later graves, which were placed above the lower one, belonged to the Bronze Period, but the covering, which was a large stone, was derived from the earlier grave. In one of them a bronze dagger was found, and in the other a bronze sword enveloped in bark, which, however, fell in pieces when it

was taken up for removal. It is believed the two weapons date from about twelve centuries before our era. In the vicinity three graves were afterwards explored, also belonging to the Bronze Period, but of a later date. They are all supposed to have been the burial-places of Huns, and to mark a place of observation near the earliest colony of the invaders.

THE examinations of the Surveyors' Institution have imparted an impetus to the revival of land surveying. The maps of the Ordnance Survey were generally thought to have given the ancient science its quietus, at least as regards the measurement of estates. Railway surveying was a modern variety, and as it was unknown to the old Egyptians and mainly depends on optical instruments, some would say it had no right to be regarded as surveying. The Surveyors' Institution does not apparently attach much value to trigonometrical surveys, and we believe a student could pass the examinations without having once taken an observation through a theodolite. The latest treatise on the subject, entitled "Land Surveying: its Theory and Practice," by SAMUEL SKRIMSHIRE, F.S.I. (London: F. P. WILSON), professes in the author's words "(1) To supply in a handy and accessible form the exact knowledge required by candidates for the professional certificates; and (2) to give the necessary information in such an order that the work may form a clear and easy book of reference on the whole subject to the busy practical man." The aim of the author is therefore modest; the book mainly relates to work with a chain, and to such levelling as would be required in dealing with a building site. The instructions are given in simple language and are amply illustrated by diagrams. From what is said about instruments it is not necessary to have a separate treatise on the subject, and for all the purposes required by the Surveyors' Institution we have no doubt Mr. SKRIMSHIRE'S treatise is adequate. One piece of advice should be borne in mind in all offices where good drawings are prized, viz., "avoid stencil plates in the case of all except unimportant work." The words will show the care taken by the author with all varieties of routine.

THE late CHARLES JAMES RICHARDSON, who died in 1871, produced several books, and for a time they were referred to as authorities on Elizabethan and Jacobean architecture. He prepared designs for gates, ceilings and other works for manufacturers who were connected with building. He was a link between the time of SOANE and the new era. But he was too devoted to his art to become wealthy, and was unable to enrich his family. His daughter, Mrs. ADA GILES, is now an applicant for assistance from the Architects' Benevolent Fund. She is largely dependent for the support of her children on music lessons, but her piano has had to be pawned, and she appeals for aid to redeem it before all her pupils are lost. The case is a sad one, and if all our readers who have used Mr. RICHARDSON'S books would contribute a shilling or two, it would remove a great anxiety from his daughter. The committee of the Architects' Benevolent Fund will, no doubt, do all they can with the help of resources on which there are unhappily many demands.

It was generally considered that ARY SCHEFFER as a painter had lost all interest for Frenchmen. His name suggested his Germanic origin, and he was the favourite painter of the family of LOUIS PHILIPPE. Few care to recall that he was the painter of *Christ, the Consoler*, and *Christ, the Avenger*, which at one time were accepted as incarnations of the religious spirit in art. His name has, however, been revived by the presentation of some of his portraits to the Versailles Musée. The subjects will recall the variety of friends possessed by ARY SCHEFFER. They represent M. and Mme. DE BARANTE, who were notabilities in the political world; General CAVAIGNAC, who gained a reputation in Algiers and who was for a very brief period President of the Republic; HORACE VERNET, the military painter; TAGLIONI, the danseuse, and GOUNOD, the composer. SCHEFFER'S greatest defect was his indifference to colour. The Paris wits used to say he employed only snuff and green soap in making up his palette, and his portraits are not exempt from the artist's weakness.

IRISH PAINTERS.

AN appeal has been issued by Mr. A. HILL, architect, as secretary for the Fine Arts Committee, requesting owners of pictures by Irish artists to lend them for exhibition in Cork. It can hardly be expected that the display will equal what is seen in Glasgow, but there is little doubt that good examples of the painter's art would be appreciated in the Munster capital. That reason alone should be a sufficient recommendation of Mr. HILL's effort to increase the interest of the Exhibition of 1902.

The question has, however, been asked by many lovers of painting, Who were the Irish artists whose works are considered to be worth sending to their own country? There is no Irish painter at the present time who is an Academician or an Associate of the Academy. What is more remarkable, it is very rarely a picture is to be seen in Burlington House which has come from any Irish studio. In some of the late exhibitions Irish skill was represented by no more than one or two portraits. It is, therefore, pardonable if English amateurs should imagine that Ireland is at present without artists, and that in past years they were also absent. Further inquiry would establish the fact that although there is a Royal Hibernian Academy it is in a moribund condition, and the usual conclusion in such a case is that the failure must be owing to the inability of the members to produce attractive works.

Ireland has produced artists who, under favourable conditions, would probably have executed works deserving of comparison with those by natives of other parts of Great Britain. There is no reason against such a conclusion. It is impossible to discover through what conditions, artists appear in any country, for they may belong to the humblest classes; but as nature is fairly impartial it would be erroneous to believe there is any obstacle in Ireland which would make that country excluded from arrangements which are accepted as being universal. It is more just to conclude that the germs of art appear in the island, but as circumstances are not propitious to them they never attain their full growth. All that GRAY the poet has said about the waste of genius when it appears like a gem in unfathomed ocean caverns, or a fragrant flower in a desert, is as applicable to Ireland as to the village of Stoke Pogis.

It will be replied that art has flourished in countries where the surroundings were as unfavourable as in Ireland. SYDNEY SMITH showed acumen when he proposed as a motto for the *Edinburgh Review* a sentence of his own, which although in Latin announced that he and his fellow-contributors cultivated literature on a little oatmeal. He knew that Scotsmen and, indeed, all sensible people would be consequently more appreciative of what was written than if he had said the articles in the Review were to be composed by aristocrats for aristocrats. Scottish artists do not profess to spring from a higher class of men than JEFFREY'S writers, but already they have created a school. Their works win approbation in every continental exhibition, and examples are purchased by foreign Governments as permanent adornments of foreign galleries.

If we ask what is the difference between Ireland and Scotland, we find in the first place that the Scottish painters know they are living among men who are honestly sympathetic, and who are willing to expend money in the purchase of pictures. In Ireland there is a more effusive sympathy, but it begins and ends in words. The total sum laid out on the purchase of works from an exhibition of the Hibernian Academy is far less than is sometimes given for a single water-colour drawing in Edinburgh or Glasgow. The Irish painter soon learns the value of the praise he receives, and the prospect of the patronage which awaits him is enough to deprive him of all delight in his art. The verbose admiration of which he may be the subject is only a mockery, and he must feel it would be as advantageous for him to be applauded by chattering apes.

The experience which so many undergo, for in Ireland as elsewhere art will always have its deluded victims, corresponds with what is known about the relations between artists and the Irish people for more than a century. No Irish artists were ever successful unless they emigrated to another country. The greatest among all modern Irishmen, EDMUND BURKE, with his keen insight realised that fact as if it were a natural law. He was not satisfied with

talking and writing about works of art. He felt it to be a duty as far as his limited means allowed to give substantial support to artists. In his capacious mind there was no separation between art and the artist, and as he admired the former he was convinced that the producer had a claim upon him. Accordingly we find that when he was secretary to a secretary in Dublin, he visited an exhibition of pictures and was struck by a historical painting of BARRY'S. At his own expense BURKE brought the artist to London, sought out patrons for him, and, in order to have the young man's talents fully developed, arranged to make him an allowance while he was studying in Italy. In those days there was no man in Great Britain who could be so eloquent over art as EDMUND BURKE, but his practical wisdom convinced him that what was needed was not words, but gold. GEORGE BARRET was another of BURKE'S protégés, and in a financial sense his landscapes were more successful than the heroic figure-pieces by JAMES BARRY. BURKE'S protection was not withdrawn when BARRET became one of the foundation members of the Academy. We need not inquire whether the two painters realised all that was anticipated of them; what we say is that BURKE acted after the manner of his times, and set an example which noblemen and wealthy merchants could imitate. In our time the conditions of patronage are altered, and if BURKE were living now he would show his sympathy with artists in a different but no less efficacious way. MARTIN SHEE had also the advantage of BURKE'S protective power. As a painter he was inferior to BARRET or BARRY, but he could paint a passable portrait, while he was also competent to express his thoughts readily and gracefully in prose or rhyme, or by spoken words. SHEE in consequence became president of the Royal Academy. If he had remained in Dublin there is no doubt he would have been a humble portrait-painter leading a precarious existence.

MULREADY came to London when he was a child, and he was therefore unaffected by the evil influences which await young artists in Ireland. By many experiments he discovered for what kind of work nature had adapted him, and not even MICHEL ANGELO could have been more assiduous in study, which he continued until the end of his life. The night before his death he was working in the life school of the Academy with as much interest as he showed when he was a lad of sixteen. MULREADY'S example is a convincing proof that the Irish nature is not necessarily doomed to be inexact, idle or over ambitious. MACLISE, whose name is usually coupled with MULREADY'S, was, however, much the younger of the two, and unlike the elder artist, he had no uphill climb, for when he came to London he conquered even the critics. He was seventeen when he entered the schools of the Royal Academy; three years afterwards he obtained the gold medal, and in nine years he was an Academician. MACLISE, in spite of his success, always exemplified the difficulties which beset an artist who received a part of his training in Ireland. Until he arrived in London we do not believe he had seen one satisfactory picture. His education consisted solely in the drawing after plaster casts. The result was he became a magnificent draughtsman, but generally failed as a colourist. ELMORE was another Irishman who was indebted for success to London schools. FRANCIS DANBY belonged to the MULREADY period. He realised from his experience in Dublin that unless he abandoned art he must seek a living somewhere else. For a time he resided in Bristol, and there found the success which was denied him in Ireland. But he likewise exhibited at the Royal Academy, and in 1825 he was elected an Associate. Then he came from Bristol to London. Owing to the admiration for his poetic landscapes, DANBY would certainly have been elected an Academician in due course, but after a few years he quarrelled with his fellow artists and left England to live in Switzerland. Among the Irish painters, the artists we have named may be considered the most successful. BARRY'S works were generally too large for private galleries, and with the exception of an occasional portrait ascribed to him, paintings from his brush are unknown in the market. But the other artists produced numerous works in England, and some at least should be obtainable by Mr. HILL. Paintings have to submit, like meaner things, to the law of fashion, and with the exception of MULREADY'S, none of those artists' works are now as much prized as formerly. The

optical investigations by which it was established that MULREADY, like TURNER, suffered from defects of vision in his later years, have of course diminished the value of some of his paintings, but they have sufficient excellence to compensate for the defects which arose from an excess of devotion to art.

Many other Irish artists gained popularity which has not been enduring. It is difficult to escape from the consequences of defective training, and to become inspired by hope through the mere arrival in a strange country. We see a late example of the difficulty of accommodating an artistic nature to new conditions by the comparative failure of the late Sir FREDERICK BURTON. He adopted a new style of drawing, and conscientiously endeavoured to attain the highest standard in his art, but he could not get rid of the depression which is common with strangers, and it was a misgiving that he was in a false position which made him turn his knowledge of art into a new direction. A most competent director of the National Gallery was secured; but, on the other hand, an artist of original genius failed to reveal all his power.

When we take into account the long list of comparative failures which was the fate of so many Irish artists, we are afraid that England will not be able to supply as many works as are desired to the Cork Exhibition. It may be imagined that the dearth of Irish works arises from a dislike among Englishmen. That is not, however, the case. If Irish pictures were seen in London of equal merit with those from Edinburgh or Glasgow, or from Liverpool, Manchester or Birmingham, they would attain all the success they merited. But either from the defects of the teaching or the absence of courage on the part of the artists, Irish works are handicapped in the struggle for success. On that account we suppose there are few Irish pictures in England which were produced within the last half century, but if any can be discovered it would be doing a service if they were placed at the disposal of Mr. HILL for the Cork Exhibition.

ITALIAN DOORWAYS.*

ALTHOUGH we are supposed to be on the high road to communism, when personal distinctions are to be ignored, it is still evident that many men do not care to be confounded with the crowd, and they wish their belongings to have as far as possible some peculiarities by which they can be also distinguished. Hence we see of late years in some of the long streets and terraces of London that doors are here and there painted in the most brilliant yellow or red or blue colour which can be obtained, and form a contrast with those near them. Not long ago a white door was accepted as a singularity, and was supposed to be a sign of refinement, but the colour has become too common, and has therefore lost its interest. The yellows, reds and blues will no doubt share the same fate. The innovation cannot be condemned in all cases. If it is contrary to etiquette to put a red lamp over a physician's door, people who are in search of medical assistance will be glad of another sort of indication, and a messenger who is in a hurry may be contented to learn that in the first house he sees with a large yellow hall-door he will find what he requires. The numbers on houses are rarely legible at a distance, and where fifty houses may be alike in external appearance it is well to have a clue which will serve as a landmark, if it were only glaring colour.

The adoption of a different colour from those usually employed should be considered as expressing more than mere location, or as an aid to identification. It indicates that people are beginning to realise the importance of the doorway, which can be made an expressive feature in a house, and as such deserves more artistic treatment than the English love of plainness and simplicity has bestowed upon it. Just as church doors, especially abroad, were made wide with capacious porches, as if to signify the catholicity of the building in which all the world was welcome to enter, narrow doorways revealed apprehensions on the part of owners and inmates. From its use it becomes the most characteristic part of the house, and is the best remembered. This may be seen, to take one

case, by TENNYSON's reference to the doors of the house in which his friend HALLAM lived:—

Dark house, by which once more I stand
Here in the long unlovely street,
Doors, where my heart was used to beat
So quickly, waiting for a hand,
A hand that can be clasp'd no more—
Behold me, for I cannot sleep,
And like a guilty thing I creep
At earliest morning to the door.

The various aspects under which doors could be regarded are so numerous, it would take long to deal with them in the briefest manner. This is not the place for such an inquiry, nor can we now trace the course of the development of the doorway, although it was not without effect on architecture. It is sufficient to state that when the Renaissance occurred there must have been many doorways in Italy which were more or less allied to Classic examples, and were employed as models. We have a hundred of the Renaissance doorways which were derived from them represented by photographs, geometrical drawings and sketches in a volume published in connection with the *American Architect*. They are divided into ten groups, according to the treatment of the upper part, as square-headed, round-headed, decorative architrave, lintel over lintel, triangle over lintel, arc over lintel, lintel over arc, triangle over arc, arc between lintel, &c. Rome and Florence supply many illustrations, but subjects are taken from Venice, Genoa, Bologna, Milan and other cities.

The ornament on the sides of doorways could also be taken as constituting a variety of methods of treatment. Through the influence no doubt of older examples, or from some principle which we cannot now understand, a great many of the doors can only be described as forming imperfect frames. The lines are carried down from head to foot, and then appear as if about to be carried across from side to side, if the opening for entrance had not disturbed the arrangement. Even BRAMANTE in the doorway in the Cancellaria of Rome has adopted this system, and it is not unreasonable to imagine that a frame for a panel was converted into part of a doorway. An older example is from the Lucca chapter house, and the treatment is sanctioned by its adoption by most able architects. But no authority can make wrong become right, and as a door framing can only have a top and two sides it is absurd to suggest that at one time it had been a quadrilateral.

We need not say that although Italian doorways may be formed into ten or a lesser number of groups they are not repetitions of ten patterns. It can with truth be said that no two of the examples in the series before us are exactly alike. There is always some difference which imparts a special character. The best examples prove that mechanically exact copying was not approved by the Italian architects. The first illustration, for instance, represents a doorway from ALBERTI's fine church of St. Andrew in Mantua. The principal entrance, which is by ANTONIO and PADO MOLA, shows a beautiful design of scroll-work springing from vases near the ground, carried along the architraves and meeting in the middle of the lintel. The main curves are similar, and the leaves, flowers and birds have so much correspondence, they are generally assumed to be identical, but examination shows there is much difference in the details, and the sculptors would probably be unable to repeat their own ornament without introducing alterations. There are several other instances which show a desire for novelty as well as its attainment. The spirit of unity prevailed rather than the mere letter of the law. The general effect is at least equal to any slavish repetition, while the details throughout the composition can be examined from beginning to end with admiration for the invention of the designers.

In the example from the Ducal Palace at Mantua, instead of an attempt to rival the ornament of St. Andrew's, circular reliefs are introduced along the sides, which must have been exquisite works of art in their original condition; unfortunately they are now defaced. The Italian architects were generally able to command the services of sculptors, and thus we find several reliefs which are admirable as compositions and give a crowning glory to the doorways. An example from the Palazzo Doria, Genoa, almost attains the ideal; the building was erected from the designs of MONTORSOLI, who came from Rome for the purpose. But

* *Italian Renaissance Doorways*. Boston: American Architect and Building News Company. London: B. T. Batsford.

owing to the importance which was attached to doorways in Italian cities, artists were allowed to make independent designs for them. In this case PERINO DEL VAGA, who had been one of RAPHAEL's principal assistants in the Loggia of the Vatican, was enabled to have his way. He introduced a pilaster on each side, covered with delightful ornament. Below are trophies of arms on the pedestals, and over the doorway is a frieze of ornament and antique heads. The composition is fittingly surmounted by a panel, on which is engraved "Senat. Cons. ANDRÆ DE ORIA, Patria' Liberatori, Munus Publicum." It is a tribute to an admiral, but suggests that art can have its victories as well as war.

The use of columns to flank doorways is excellently exemplified by illustrations taken from the Palazzo Albergati, Bologna; the Palazzo Vecchio, Florence; the cloister doorway, Santa Croce; S. Pudenziana, Rome (where the shafts have a spiral treatment); and St. Rocco, Venice, where the doorway by means of columns is well united with the whole façade. In the church of S. Alexandra, Lucca, the doorway is surmounted by a very massive semicircular hood supported on consoles; it was intended for the preservation of the beautiful relief by CONSANI of the Blessed VIRGIN with cherubs, and owing to the precaution the sculptor's work continues to be in a perfect state, and still charms by the beauty of the expression. The hood, however, has the appearance of an afterthought, and we prefer the treatment seen in the Certosa of Pavia and other buildings, where the sculpture appears in a recess, as if it were contemplated from the beginning. The entrance to the Arsenal, Venice, although included in the book, seems like a Triton among minnows, with doors of houses, chapels and sacristies. According to the story, the character of the design was determined by the two marble lions brought from Athens, which it was desired to introduce. They, however, look like puppies when compared with the Lion of St. Mark which is above the arch, and which, however necessary as a symbol, puts the remainder of the sculpture out of scale. The figure of a saint which surmounts the pediment becomes inferior to the Venetian lion. But the effect of the sculpture was imposing, and made every spectator feel the greatness of the Government of the city.

Many of the Italian doorways opened into a colossal hall or into a courtyard. They became in consequence more like gateways than ordinary doors. But the general type was supposed to answer in all cases. Among the examples selected there are very few that can be looked upon as barriers for defence. When we see windows transformed into cages we know there was danger of attack, as well as of loss, when any of the young inmates thrust their heads into the public streets to gaze, as SHYLOCK says, "on Christian fools with varnished faces." But there are no signs of any of the ponderous devices which were sometimes necessary to keep out invaders. There is a marked difference between the security presented by the windows and the doorways. Bronze doors may have originated in days when timber would not serve, but in those which were constructed by Renaissance sculptors it was the enduring character of the material to express artistic forms which inspired their adoption.

For the student of architecture it is an advantage to have special series of different parts of buildings like that just issued. Usually the general effect of a building remains most clearly in the memory, and it is well to have records of parts which often are more successful than a building taken as a whole. In some cases the doorways, as we have said, were independent compositions, and although that is not always a recommendation, they can be judged for their special interest as works of art. The selection has been inspired by knowledge and good taste, and the work can become as useful to English architects as to those in America. The plates form suggestive precedents.

Mr. W. Emden has proposed that the Council of each Metropolitan borough, the Common Council of the City of London and the London County Council be invited to appoint one or two of their members and their engineer or surveyor to attend a conference to be held at the Westminster Town Hall, at a date to be hereafter fixed, for the purpose of considering the best materials and means of paving the streets of London.

DURHAM CATHEDRAL.

THE members of the Durham City Field and Research Club last week visited the cathedral church of Durham and its monastic buildings. They were favoured by the guidance of the Rev. Dr. Greenwell, M.A., F.R.S., who, notwithstanding his many disclaimers, is still, says the *Durham County Advertiser*, the very highest authority on all that relates to the magnificent fane that crowns the wooded slopes of the winding Wear.

Dr. Greenwell, who spoke from the lectern, succinctly sketched the establishment of Christianity in Bernicia, the episcopacy of Cuthbert and the settlements at Chester-le-Street and Durham with the latter's body. Canon Greenwell then went on to impart much interesting information respecting the congregation of St. Cuthbert. There was a bishop at the head and a body of monastic people, more or less monks—a celibate clergy who lived in common, presided over by the bishop, who was an integral part of the congregation, but had no separate establishment and no separate estate. The bishopric was removed to Durham in 995, and there could be no doubt as to why the congregation selected the site on which the present cathedral stood. It was naturally a strongly defensive position. It was a flat plateau of land almost surrounded by water and high rocky precipitous banks. Before the introduction of artillery they could not possibly have had a more strongly defended place than Durham. There was only one means of access to it, and that by a steep ascent from the Market Place to the foot of Queen Street. But the latter was fortified by the throwing of a wall across and a moat, &c. Immediately on settling here Aldhun commenced to build his cathedral, which no doubt occupied the site of the present structure. He thought it quite possible if systematic excavations were made upon the site of the nave they would probably find the foundations of Aldhun's church. That had never been done up to the present, hence they were unable to say what was the size of the old church. There could be no doubt it was smaller than the present church. Things went on until the time of the Norman Conquest. Walcher came there when William the Conqueror established his power in England, but did not reign as bishop very long. He was murdered by the people of Gateshead because it was stated his officials had oppressed the people. Not at all unlikely, because, as they all knew, officials were very much in the habit of oppressing people. After Walcher came Bishop William Carileph, who was a Benedictine monk. When he came to Durham, the monastery was still in the hands of the congregation, the bishop having no separate estate. This was repugnant to the notions of Bishop Carileph. But something was still more repugnant to him. The congregation of St. Cuthbert, originally a body of celibates, had become married. There was a great tendency at that time for the Saxon Church to have not only a married clergy, but to become hereditary more or less. At Hexham, where there was a great monastic establishment, the monks not only became married, but became hereditary. Son succeeded father and so on. If that had gone on the whole of the country would have come under the influence of an hereditary clergy. They would have had a body of people separated from the ordinary mass of the public in a very marked way, and in his opinion it would have been an extreme evil. He did not like rule by clergy. They were the worst people to rule anything in the world. They had got their use and their position, and he would not say it was a bad one; but the more they kept the clergy from administering civil affairs and ruling over people, that was irrespective of the religious feelings of the people and religious institutions, the better. When Bishop Carileph came he found the congregation of St. Cuthbert gradually drifting into a married body and an hereditary clergy, and getting the land of the country into their own hands. Bishop Carileph being a Benedictine monk disliked this order of things. Hence in 1083 he dispossessed the whole congregation, established a Benedictine monastery, divided the estates into two portions, and separated the bishop from the monastery. He gave certain lands to the monastery and kept the others in his own possession. And that division had come down to them in the present day, the great revenues being still divided between the Bishop and the Dean and Chapter of Durham. Of course the sums received had been very much cut down by the Ecclesiastical Commissioners, who a good many years ago took the estates of such bodies into their own hands because the bodies referred to were becoming far too rich. Of course the clergy least of all were liable to be spoiled by riches. Most of them had not too much money to be spoiled by. At the same time it was better that bodies like bishops and deans and chapters should have reasonable incomes to live upon, and not the gigantic estates with which they were endowed up to the time of the Commissioners. The latter had made good use of the funds coming into their possession. They had endowed small livings, created new livings and increased the incomes of poor livings. They would excuse this digression. Well, Carileph established a Benedictine monastery at Durham, and to his credit, be it said, he gave the congrega-

tion the option of remaining there as Benedictine monks, or of going away and living with their wives, giving them sufficient to live in comfort. Not one of the monks accepted Carileph's offer. Everyone went away and took his wife with him. He thought those present would agree with him in saying that that was very creditable indeed on the part of the congregation.

In 1093 Carileph returned to his see from exile in Normandy with the intention of building a new church. Aldhun's church was probably too small, or not convenient for the new body of monks, and it was accordingly taken down, and in 1093 Carileph laid the foundations of the new church. The building progressed so rapidly that when in 1099 Bishop Flambard came to the episcopal throne of Durham, Simeon told him he found the church finished up to the nave. "Up to the nave." That must have included the tower. Now they would see that if the tower, a heavy structure, was built, there must have been something to buttress the two great piers to the west. He did that, in Dr. Greenwell's opinion, by building the first two bays of the nave to the west. The details of those two arches corresponded with the details of the arches in the choir, but did not correspond with the details of the remainder of the building towards the west. Dr. Greenwell mentioned other facts in support of this contention. Therefore he concluded that in 1096 the church was completed up to the two first bays of the nave. It seemed a great deal of work to have been done in three years, but he did not see any difficulty in that, supposing they had money and men. Although it seemed a large building up to the nave, he saw no reason why it should not be built in three years. A great many people thought Carileph only built up to the choir, but Dr. Greenwell thought Carileph built up to the first two bays of the nave. The only question was what did the monks do in the interval between the death of Carileph and the coming of Flambard? Did they build the portion in question? There was an agreement between the bishop and monastery that the bishop should build the church and the monks the monastery. Simeon told them that between the death of Carileph and the coming of Flambard that agreement was neglected, and the monks went on building the church. What Dr. Greenwell thought they built was the west side of the transept. It was quite out of character with the architecture of the rest of the church, plainer and therefore likely to be built by people who had not got the same means at their disposal that a bishop had. He attributed the west side of the transept and probably the roof to the monks during the interval referred to. Then Flambard went on, and built the church no doubt on the same lines as were laid down by the architect of his predecessor. It was quite possible that the architect who prepared the original plan still lived on into the time of Flambard, and continued to build upon the lines of his original plan, as he naturally would, until he completed the church to the west end. Architecture was then a living thing, not like the architecture of the present day, which is merely the copying of old things, and really not a living thing at all. Architecture at that time was growing just as one grew from childhood to manhood. Thus that cathedral was built from 1093 to 1128, when it was finished. If the same man had charge he would naturally be affected by the change which was taking place in the growth of architecture. Therefore there was nothing surprising in finding towards the west end of the church details which were in accordance with the development of the great Norman scheme of building then being carried out here. At all events, they were told by the chronicler that Flambard died in 1128, he having finished the church up to the roof.

Now "up to the roof" had occasioned a great deal of difficulty till quite lately. How any person ever conceived such an extraordinary notion he could not imagine, but it was held that the roof of the nave was of about the same date as the roof of the choir, and put on in the middle of the thirteenth century. Well, the architecture itself told them distinctly that it could not possibly have been put on in the middle of the thirteenth century. One was as different from the other as could possibly be. It possessed all the characteristics of the early part of the twelfth century. The only difficulty which had caused people to take the extraordinary view referred to was that there was a pointed arch. Pointed arches came into use some years before that roof was put on. Therefore he had no doubt, taking into consideration what the chronicler told them, Flambard finished the church up to the roof, and that the monks in the interval between the time of Flambard's death and the coming of Galfrid Rufus finished the nave. Therefore there was nothing left except the roof to put on. Hence they might put the roof at 1130. Now they had got the whole church completed.

The Galilee or lady chapel was built by Bishop Pudsey. The latter commenced to build at the east end, but did not carry out his work there. He (Dr. Greenwell) did not know why. St. Cuthbert was said to have shaken it down. That was one of the stories told, and those present could believe it or not. St. Cuthbert was said to have had a more

than ordinary dislike of women. He believed there was not a word of truth in it, because some of St. Cuthbert's greatest friends were abbesses, therefore to say he had an aversion to ordinary women seemed absurd. However, the story was that Cuthbert would not allow Pudsey to build a lady chapel near to where his bones rested, and told him to build at the west end, which Pudsey did. And there they had the magnificent and exquisite Galilee chapel, one of the finest monuments to the architecture of that period to be found anywhere. Thus they had the great church of Durham, the grandest building in the world. He did not think there was any building superior to it. Of course, he might be thought to be prejudiced, but having seen all the great buildings in Italy, France, Germany, he had not seen a building which impressed him nearly so much by its solemnity and grandeur as the church of Durham. He did not care where they went, they would not see a church which surpassed Durham.

Returning to the east end, what they saw at present was not the original termination of the cathedral. The original termination was in a semicircular or apsidal form, the foundations of which would be pointed out to them. Soon after it was built the roof, particularly at the east end, gave way. That up to a certain time was held to have been caused by the foundations not being good. That idea had now been proved to be entirely fallacious. He had himself held the same view, which only showed how foolish it was to speculate when there was an opportunity of testing. The original foundations at the east end went down to the solid rock, 14 feet thick, good enough to stand till the crack of doom, which very likely they would do. What he believed to be the cause of the shrinkage was this. A roof was put on to the Norman choir in 1104. Architects were supposed to know everything about architecture. But his opinion was that architects knew no more about architecture than doctors knew about doctoring and lawyers about law. He had heard architects say no man ever put a roof on a building so large as that as early as 1104. That was a stone roof. They said a wooden roof. He was talking to a very eminent architect the other day, and he urged that view. Well, replied Dr. Greenwell, it was perfectly true there was no other church he knew of in existence where there was a stone roof put over such a width as at Durham, and which he claimed was done in 1104; but how many churches have been utterly and totally destroyed? There might have been such roofs put on as early as 1104, but no longer existing. But putting that aside, why should not Durham be the first church, though it be so large, to have a stone roof? That was unanswerable. His friend admitted that Carileph's architect was a very great man, one of the greatest architects that ever lived. Then, why should not one of the greatest architects that ever lived have been so far before or up to his time as to put on a stone roof? His friend could not answer him, and Dr. Greenwell chimed in with "He did it." He believed the cause of the shrinkage was this. The great man referred to had the courage to do something which no one had ever done before, and that was to put a stone roof over so wide a space, but he had not equally as much skill as he had courage. He put the roof on, it stood for a certain time, and then began to give way. He had not calculated on the forces likely to act against it. In 1242 they took down the east end, and replaced it with the beautiful chapel of the Nine Altars, one of the very finest specimens of thirteenth-century architecture that existed anywhere. If those living in Durham wished to make themselves acquainted with the architecture of the thirteenth century they could not have a better text than the chapel of the Nine Altars at Durham.

The party was then conducted over the cathedral by Mr. Freeman, head verger, who in many instances furnished details to what Dr. Greenwell had already said. Proceeding to the shrine of St. Cuthbert, Mr. Freeman pointed out the foundations of the original apsidal termination of the cathedral, remarking that the work was now as good as it ever was. Many interesting particulars were given respecting the shrine of the patron saint of Durham, and what was discovered in the grave when recently opened. Much interest was evinced in a rich altar frontal over 200 years old, and brought here by Canon Body. After hearing much of value respecting the beautiful chapel of the Nine Altars, Mr. Freeman conducted the party to the choir. Bishop Beaumont's monumental brass, 18 feet long, and the bishop's throne came in for special attention. The restored chapter-house was next visited, and the graves of Flambard, Rufus and William de St. Barbara pointed out. By way of the cloisters, built by Bishop Skirlaw, the Galilee chapel was reached; the remains of the ancient frescoes on the east wall, the tomb of the Venerable Bede, and the old well-house at the west end seemed to attract most attention.

The party was next conducted to the chapter library, where Dr. Greenwell again took charge. He said the room in which they were now assembled was the dormitory, or sleeping place, of the monastery. The other part of the library was the refectory. Originally a partition ran down the centre of each

window, and another partition midway between each window, making a small cell where the monk had his bed. That was the only place he had in the monastery. All the monks slept in the monastery, and they all dined together. The whole of their time, except when sleeping in their little cubicles, was spent together. There were something like seventy monks in the monastery besides novices and certain lay people more or less connected with the domestic arrangements. All slept in that room. There was an open space up the centre, along which one of the older monks walked during the night to rouse the monks to attend the several offices of the Church fixed for the early hours of the day, and also, no doubt, to keep order and prevent them playing pranks. After the Dissolution the Dean and Chapter converted that room into a prebendal house, and he remembered it as such, and occupied by Dr. Wellesley. Dr. Greenwell having given particulars as to how the dormitory was then arranged into rooms, went on to say that when the number of prebends was reduced from twelve to six there was no longer occasion for so many prebendal houses, hence the partitions and temporary floors were removed and the room added to the chapter library. In every respect, with the exception of the new windows and the removal of the partitions of the little cells which the monks occupied, the room was exactly in its original condition. The fine old roof which they saw was finished in 1404. The timber, roughly squared oak trees, was cut in the woods of Bearpark, which belonged to the prior and convent of Durham. The latter had extensive woods in various parts, but the wood which produced the best timber was Bearpark. They would scarcely believe that when that room was cleared out and made into a library, the chapter of that day wished to take off that roof, which they said was so mean and contemptible, and put on a high-pitched roof made of pine. Fortunately, they employed an architect, a man of large private means; consequently, not like most architects nowadays, who generally cared most about their percentages, and he refused to do it. Through that architect's refusal that roof was saved. They would all agree that there could not be a finer roof, which had lasted now for 600 years, and would last for as many years more. It was perfectly sound. He did not think there was a single plank in that roof bearing the slightest signs of decay. Dr. Greenwell then proceeded to describe the sculptured and inscribed stones in the library, mostly headstones and grave covers. The remains of three memorial crosses (of about the year 800) from St. Oswald's, Durham, proved that there must have been a settlement on the opposite side of the river before Aldhun came in 995. The Acca and Ruthwell crosses, heads of crosses found in the chapter-house, grave covers, &c., were all described in detail. Dr. Greenwell said these stones had come from various places, and had been got together by himself. When he first became connected with the library there was not a single piece of stone of that kind in the place. He had got them together by buying, some had been given, and others, he was sorry to say, had been stolen. He would tell them the circumstances under which he was induced to steal. He was driving with two friends through the North Riding of Yorkshire to see some churches. They went into a certain churchyard and saw a very pretty grave cover for a child all covered with beautiful ornamentation. His two friends urged him to take it back to Durham with him. No, he said, he had never stolen yet, and hoped to keep honest as long as he lived. Well, he went and saw the parson, and acted very foolishly. He praised this stone. He should have spoken of it otherwise. He found, however, the parson would not treat, but promised to put the stone inside the church. Three years afterwards his friends and himself were again driving through the same district and went to see this stone. It was neither inside the church nor in the graveyard, and on inquiring they found the sexton's wife had powdered it into sand. He declared that the next stone like it he saw he would carry off. He had since carried off three, but would not tell which they were. Dr. Greenwell next referred to St. Cuthbert's coffin, his patient labours in piecing together the fragments found in the tomb, what the carved figures symbolised, and so on. We are sorry that lack of space forbids more than this bare mention. The same applies to the relics in the adjoining portion of the library—fine embroidered work, a cross and a portable altar, believed to have been personal relics of St. Cuthbert, a stole, a maniple, the rings of Flambard, Rufus and William St. Barbara, Flambard's pastoral staff, and illuminated manuscripts of the twelfth and fourteenth centuries, and which the members spent some considerable time in examining.

At the close Mr. Brock proposed a hearty vote of thanks to Dr. Greenwell, which was carried by acclamation.

In his reply Dr. Greenwell promised the members an address on Ancient Britons, showing the progress made from the implements they used until the present state of civilisation was attained. He thought he could show them things that belonged to a time 2,000 or 3,000 years ago, and which they would admit were as well and as beautifully made as anything could be at the present time.

LIVERPOOL CATHEDRAL.

THE influential and representative body of Churchmen charged with the erection of Liverpool Cathedral are now, writes a special correspondent of the *Liverpool Courier*, approaching important matters, upon which they will do well to consult public opinion before they come to irrevocable decisions. Unlike their predecessors, who fixed upon a site and obtained designs, but failed to raise subscriptions, they, probably having learned much from that sad experience, first of all induced a liberal flow of donations, and then with wonderful unanimity and commendable promptitude chose a site to which no serious objections have been urged. That site, St. James's Mount, belongs to the Corporation of Liverpool. The application of the committee to buy enough land for the cathedral is now under the consideration of the finance committee and of the parks committee, and while no bargain has been struck, there is no reason to think that the City Council will refuse to sell on reasonable terms for the erection of a building which will be one of the most attractive features within its administrative area.

The next questions which the committee have to consider are connected with the building itself, what shall be its style, who shall be its architect? For that purpose a building sub-committee has been appointed. Much of its success may depend upon a wise selection of its chairman, and on looking at its composition one name naturally suggests itself for that position. Mr. Robert Gladstone has been the foremost, if not the first, advocate for the selection of the St. James's Mount site. He is a gentleman of much administrative and business capacity—his chairmanship of the Mersey Dock Board testifies to that fact—and if he were to accept the position the public would rest satisfied that he would devote himself wholeheartedly to a successful issue.

When the sub-committee has chosen its chairman let it walk warily. There has been much advice already given. An attempt has been made to persuade the committee and the public that the former are in honour, though not probably in law, bound to take up the design prepared by Mr. W. Emerson, of Westminster, which Mr. Ewan Christian reported upon in 1886 as being the best of the three then submitted, or to give the work of preparing a new design to that gentleman. The mention of a few facts will be sufficient to show how untenable is this contention. The site—St. John's Churchyard—was admittedly a circumscribed area, with very different levels, and dominated by St. George's Hall and other buildings in the Classic style. Competing architects were told to have regard to the proximity of such buildings, and Mr. Christian, in his report on their designs, again and again refers to this proximity as affecting details. Orientation was observed; important parts of each design depended upon the differing levels. The new site is altogether different. It would be unwise, ridiculous, stupid, to take a sixteen-year-old design and try to fit it to the new locality. For St. John's Churchyard site Mr. Christian thought it would have to be "carefully and judiciously revised." The "revision" the new site might render necessary, not only in adaptation of details, but in change of general appearance, would practically amount to a new design.

Then as to the committee being bound in honour to employ Mr. Emerson as the architect, he received 300 guineas for his design, and no promise was made that it should be accepted or he engaged, and each of the two other competitors—Mr. Brooks and Messrs. Bodley & Garner—is in exactly the same position as to payment and absence of promise. Indeed, the advertisement for competitors declared "the committee to be absolutely free to accept or reject any or all of such designs after such payment." The death of the scheme for a cathedral on St. John's Churchyard site, with the discharge of all financial undertakings by the old committee, gave any future cathedral committee an absolutely free hand.

The sub-committee therefore need not trouble themselves about the old designs. Fifteen years have elapsed since they were submitted, and many things have happened in that time which should help them to a proper conclusion. The Liverpool Architectural Society have made a series of suggestions to the cathedral committee which may be reproduced.

Choice of Architect, by Competition or Otherwise.

1. A limited competition is not advisable, as such competitions are only suitable when there is a recognised number of men possessing special expert knowledge. Very few architects in England can be said to have the necessary qualifications in this instance. 2. Two courses, in our opinion, are open to the committee:—(a) They can appoint their architect without competition, if they choose asking certain architects beforehand to submit drawings of executed work. (b) They can institute an unlimited competition, open to all English architects. 3. This is the course we particularly recommend, and in the event of its being adopted we make the following suggestions:—(a) That two competitions be held, one preliminary the other final. (b) The drawings in both to be sent in without name or motto, and numbered as they arrive. (c) The

drawings of the first competition to be to a scale of 1-16th of an inch to the foot. No perspectives to be submitted; the drawings to be in black and white; no colour allowed; no internal fittings to be shown; and only such drawings required as are absolutely necessary to explain the design. (d) That from the first competition not less than six nor more than ten be selected for the final. (e) That the authors of these designs be paid each the sum of, say, 300*l.*, on submitting final designs. (f) That assessors (not less than three), representing different schools of architecture, be appointed to draw up the instructions before they are sent out to architects, to select the designs for the final competition, and to advise the committee on the final decision. (g) That six months at least be allowed for the preliminary competition, and twelve months for the final. (h) That the question of style be left open. (i) That the successful competitor be employed to carry out the work.

Style to be Adopted.

We submit for your consideration:—1. That a modern cathedral should be representative of the art of the day, and not a copy of a bygone style. 2. That the word "style" is generally wrongly applied. It is not chiefly the detail that makes a style, but the method of construction employed. 3. That buildings may be carried on many and small points of support, as in the Greek and Gothic; or on few and large points of support, like the Byzantine and Renaissance. 4. That either of the latter permits of open unencumbered floor space, so necessary in a new cathedral. 5. That those who hold that Gothic is the only style suitable for churches forget that the Byzantine is the first of the great Christian styles, that Romanesque comes before Gothic, and that the largest church in Christendom and the cathedral of London are Renaissance. 6. For these reasons we recommend that, as before mentioned, no instructions be issued to competitors regarding the style to be adopted.

The Site.

That the disposition of the building on the site be left open to the competitors, they being informed that the St. James's Cemetery can be encroached upon if considered necessary.

The recommendations as to the choice of architect differ from the procedure on the former occasion. Then professional architects, and even amateurs who had given special attention to ecclesiastical structures, were invited to submit working drawings, not of a cathedral, but of buildings for whose architecture they had been responsible. Each competitor was limited to submitting a portfolio containing three complete sets of such drawings. No fewer than 101 portfolios were sent in. The heavy task of going through these fell to Mr. Ewan Christian, who selected forty-one for the committee's inspection, and subsequently twelve of these were picked out as the best. Mr. Christian regretted his inability to put any Liverpool architect in that list. Ultimately four were asked to submit designs for a cathedral. Three of these have already been named. The fourth, Mr. J. L. Pearson, R.A., was too busy with other work to accept the invitation. Each of the three who did compete was paid for the design submitted, after Mr. Christian had again reported. There is a feeling that in the unlimited competition proposed by the Liverpool Architectural Society, for which not past work but a specially prepared design is to be asked, architects of eminence, busy with other and paying work, would decline to take part; that such a contingency which has already been hinted at as probable would be prejudicial to the success of the competition, and that the better course may be to select a limited number of experienced architects who have proved their powers, and ask them to compete, offering each 300 or 500 guineas for their designs, whether approved or rejected. It rests with the committee to say what should be done; they need not rush at a decision but should weigh well what is to be said on both sides.

As to style the ultimate decision, no doubt, must rest with the committee. It may be that both English church tradition and natural situation of site will determine most architects to adopt the Gothic rather than the Classic, and it may also be that the individual members of the committee incline to that style. With the unlimited competition advocated by the Liverpool Architectural Society, there could be no harm in allowing each architect unfettered discretion as to style, but if the competition be narrowed then something may be said in favour of a certain indication of the committee's preference. But this is another subject upon which there should be careful deliberation.

As to the final suggestion of the Liverpool Architectural Society, there will be a general feeling that it would be unwise to encroach upon the cemetery if by that is meant a building across the valley, for such an encroachment is unnecessary, and would provoke much public feeling. The report recently made by Mr. Bradbury shows that a magnificent building can be erected on the solid rock in the northern portion of St. James's Mount, and that fact should be a determining point in the instructions to competing architects. It may also have its consolations to those zealous and jealous guardians of our

open spaces, for it means that the greater part of the gardens would remain at the unrestricted service of the public.

In the *Courier* of Tuesday the following leading article appears:—The Liverpool Cathedral building committee has entered upon its task without undue delay. Such an undertaking will not stand being rushed, and, on the other hand, evidence of continued progress is essential to success. The committee would seem to have hit upon the happy mean. Two important steps were taken yesterday. In the first place, Mr. Robert Gladstone was elected chairman. As a special correspondent of the *Courier* suggested, no man is better fitted, alike by business capacity, sound taste, local patriotism and devotion to the cause, for this extremely important position. Everybody felt that much would depend upon the chairman of the building sub-committee, and there will be practical unanimity of assent to the statement that the best possible selection has been made. Next the committee tackled the difficult question of the style of the proposed edifice. Many people feared that this might prove a hurdle in the path, as difficult to negotiate as the matter of the site itself. The recommendations of the Liverpool Architectural Association alone suffice to show how varied opinion on such a subject may be, and if the decision of the committee had been delayed it is virtually certain that contentious recommendations would have poured in upon it to an embarrassing, not to say bewildering, extent. Some may think that a point so vital should not have been disposed of out of hand, but our conviction is that in the circumstances the action of the committee was wise and prudent. As we understand, the adoption of the Gothic style does not amount to a declaration that Byzantine, or the Renaissance, or any other style is objectionable in itself, or as being non-ecclesiastical, but simply that Gothic is the style appropriate to the site. No one will dispute that in deciding a question of architectural style regard must be paid to the situation to be occupied by the building. The site may, indeed, be a determining factor, and it can hardly be doubted that it was the dominating consideration yesterday. It will have been observed that the suggestions of the Architectural Association involved a large extension of the building area, and this would practically have meant a reopening of the site controversy, now happily closed. That a cathedral in the Gothic style is best suited to the position as defined on St. James's Mount can hardly be seriously disputed. There is, of course, Gothic and Gothic, and in that sense much remains to be settled, but the appointment of a responsible committee carries with it the delegation of necessary powers, and in our view it would have been impolitic to leave open the broad question.

With the decision arrived at all possibility of utilising any of the designs sent in fifteen or sixteen years ago as a matter of course goes by the board. That must have been so in any case. There is no obligation. The claims of the competing architects for the abortive scheme were clearly defined, and it need hardly be said that designs suited to St. John's Churchyard, with its peculiar levels and special surroundings, are not obviously the best conceivable for St. James's Mount. But, however beautiful, ornate and imposing the best of those designs might be, the verdict in favour of a Gothic structure imperatively requires that the procedure with reference to plans be gone through afresh. Nothing definite is said as to whether or not the committee has resolved to act on the suggestion to have two competitive trials, but the decision to call upon architects to send in portfolios of Gothic buildings they have erected indicates a single and final competition on the part of those whose work is most highly approved of. Our hope is that what has been done will receive the loyal support of all interested in the scheme, not only in the city, but throughout the diocese. The Lord Bishop's earnest desire, as we know, is to see erected in our midst a minster church worthy of the great city of Liverpool and of the high purpose to which it is to be consecrated. We know from bitter experience that to satisfy every individual taste is impossible. One man's leaning is towards Byzantine or Romanesque; another holds that Gothic alone is truly ecclesiastical. If the committee were to attempt anything of the nature of a plébiscite, hopeless strife and confusion would be the result. We should have battling enough and advice in nauseating copiousness, but no cathedral of any sort or kind. The person who gives counsel on such a subject is profoundly convinced of the duty of other people to sink their personal opinions and prejudices. He alone ought to be allowed to dictate, and the name of this individual is Legion. To us it seems that the proper attitude is to believe that a beautiful and worthy cathedral in almost any style may be erected, and to repose faith in the taste and judgment of the men to whom has been confided the onerous duty of acting for the subscribers in the matter. With the Lord Bishop are associated the Earl of Derby, the Hon. Arthur Stanley, Sir W. B. Forwood, Mr. Robert Gladstone, Mr. Douglas Horsfall and many other "men of light and leading," known and tried by the community in many departments of activity.

NOTES AND COMMENTS.

THE expenditure on the excavations at Silchester during the year 1900 amounted to 550*l.* 3*s.* 7*d.* It is proposed during this year if possible to begin the systematic exploration of a grass field in the centre of the town, which may be as productive as any of the insulae. Taken as a whole, the results of the season's work were fully up to the average, both in the character of the buildings uncovered and the variety and number of objects found in and about them. The quantity of pottery and the hoard of smiths' tools are also quite exceptional. The objects in bronze, bone, &c., include many which are interesting. The coins found were as numerous as usual, but not very important. A house of large size with several mosaic pavements was uncovered on the east side of insula xxiii., and in the mouth of its courtyard was a small square building which may have been devoted to sacred purposes. This had been built up round a small and earlier structure of the same character. The other traces of buildings in this insula, despite its size, were singularly scanty, but the rubbish pits and wells were unusually productive in objects of interest. In pottery these yielded upwards of a hundred whole vessels of all kinds and sizes, and from one of the wells was recovered another great hoard of iron tools, mostly a smith's. Another house in insula xxiv. was of unusual interest from the peculiarity of its plans and the number of mosaic floors. Traces of several structures were found in insula xxvi., one of which was represented by a solid circular platform with a cement floor 27 feet in diameter, enclosed apparently by woodwork or half-timbering.

ILLUSTRATIONS.

ABBESS GRANGE, HANTS.

THIS house has been erected by practically pulling down the old house which formerly occupied part of the site, and by rebuilding it according to the accompanying plans. It is most picturesquely situated on a plateau between two steep escarpments, and is surrounded by excellent scenery. The ground floor consists of a large staircase, hall and inner hall, drawing-room, dining-room, library and offices. A billiard-room, crowned by a copper-covered dome, forms the eastern wing, and serves as a screen

to the kitchen approach. The exterior is in a quiet mullioned type of design. The whole of the ground floor has been panelled in oak to a height of about 9 feet, and also in oak are the mantelpieces of the principal rooms. Modelled plaster has been used for the ceilings and oak parquet borders for the hall and borders of the principal rooms. The general contractors for the whole of the work were Messrs. GOUGH & Co., of Hendon.

The panelling and fireplaces were by Mr. J. P. WHITE, of Bedford, the main staircase of oak by Messrs. ELLIOT, of Newbury, the leaded lights by KELLY & Co., the door and window furniture by Messrs. ELSLEY. The hot-water system and electric-light work, drainage and water supply by Messrs. RAWLINGS. The drainage has been carried out on the most approved principles of collection and disposal. The electric-light plant has been installed, and it is worked by a 10 horse-power oil-engine, the latter being also used for pumping the well water to a reservoir on the hill above the house. The works have cost about 17,000*l.* The whole of the works have been carried out according to the designs and detail drawings and under the superintendence of the architects, Messrs. BANISTER FLETCHER & SONS.

CATHEDRAL SERIES.—CHICHESTER: TOWER AND SOUTH TRANSEPT.

TUNKESBURY ABBEY: SOUTH AISLE, LOOKING WEST.

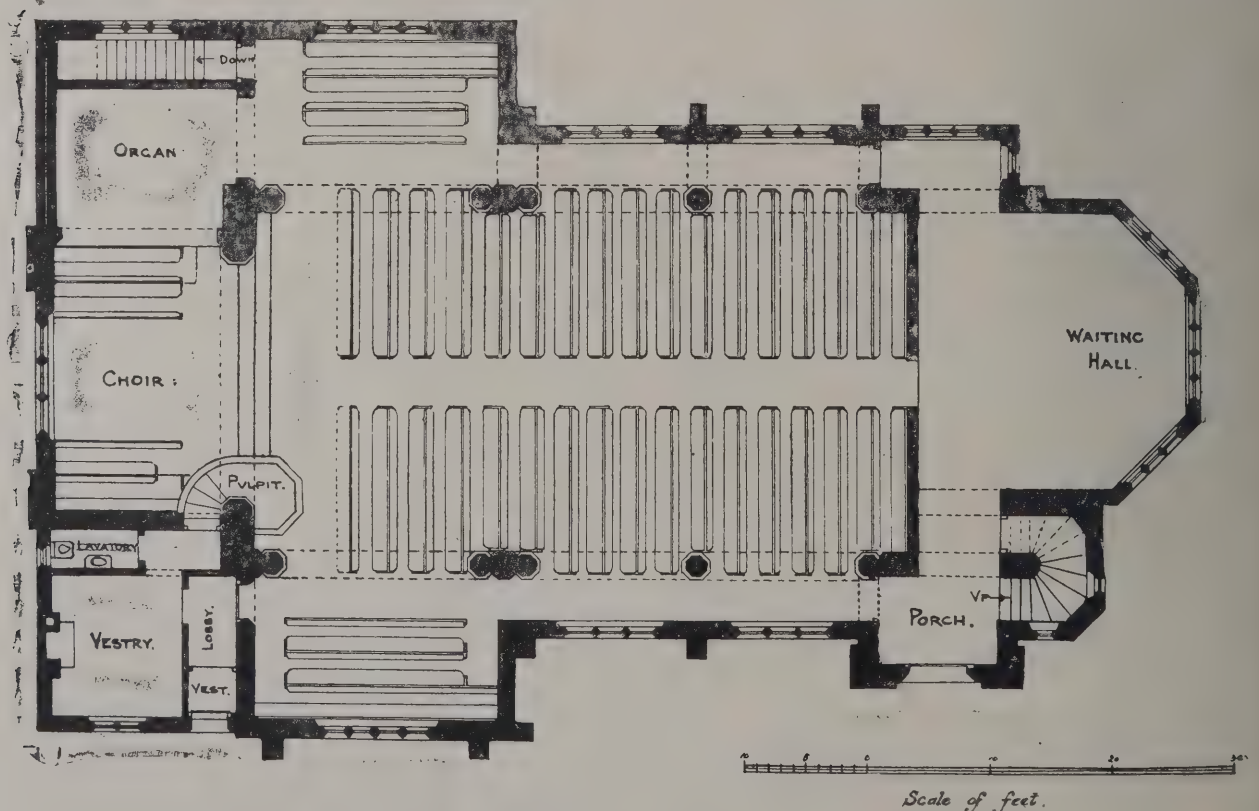
THE NEW CATHEDRAL, WESTMINSTER.

PROPOSED HOUSES AT HAMPSTEAD: LYSS, HANTS; AND WALTON-ON-HILL, SURREY.

THESE houses are intended to be mainly covered externally with white cement rough-cast, any portion not so covered to be faced with red brick. The whole of the roof to be covered with Broseley tiling. Any half-timberwork to be left black, as a strong contrast to the white rough-cast walls. All windows will be fitted with cast-iron casements and filled with glazing in leaded lights.

Internally in each house the hall and staircase has been made a special feature, being so arranged that the hall can be used as a lounge or smoke-room, with the staircase opening out of it, and a gallery running round the upper portion of hall and the principal bedrooms opening from same.

The two Surrey houses and also the Lyss house are intended for very picturesque and beautifully wooded sites of several acres each. Mr. J. W. COBB is the architect.



UNITARIAN CHURCH, BESSBOROUGH ROAD, BIRKENHEAD: GROUND FLOOR PLAN.

(J. Joseph Talbot, Architect, Liverpool and Bolton.)

The above plan was referred to in the description of the building which was printed in last week's *Architect*.

EDUCATIONAL BUILDINGS, WESTON-SUPER-MARE.

THE new museum in the Boulevard, Weston-super-Mare, is of red brick with Bath stone dressings and facings. The interior is divided between the free library section and the museum department. The latter is splendidly equipped, and though somewhat small there is ample ground space in the vicinity for considerable development. As regards accessibility and light it is as perfect as could be wished, and the hon. curator (Mr. W. H. Palmer) has been able to arrange the con-

house and museum were added in 1868. In addition to collections from South Kensington, others have been added since the opening ceremony. Mr. G. E. Weare both directly, and as the channel of other donors, has made many gifts, and though all are interesting, some of them call for especial mention. There is a curious stone, showing the distinct profile of a man's face, that was picked up at Anchor Head. Also some fossil wood excavated at Albert Road, Weston-super-Mare, 10 feet below the surface. Another local relic is a lock from Brean Church, left in the hands of Mr. Weare by the late Mr.



MUSEUM AND LIBRARY.

tents in a satisfactory way. The nucleus of the collection was some natural history objects and curios well known for so many years past as that of the Albert Memorial Museum. This was commenced in a very humble way about forty years ago by Mr. Mable, and was the result of classes held by him for boys and lads in connection with a night school which was established in the Emmanuel parish of Weston-super-Mare. This collection and his class work rapidly increased, and it was soon found desirable to erect buildings for a night school in 1863. A superintendent's

John Palmer for presentation to the public museum. Mr Weare also contributes some trade cards of some of the first established tradesmen in Weston-super-Mare, together with one relating to the general shop at Worle, from which the supplies for the inhabitants of Weston were formerly obtained. There are newspaper cuttings from *Farley's Bristol Journal* and other information relating to the stage coaches, mails and the "twopenny post" established between Bristol and Weston-super-Mare, and there is an amusing caricature of the return of four Weston fishermen after an unsuccessful sail in quest of

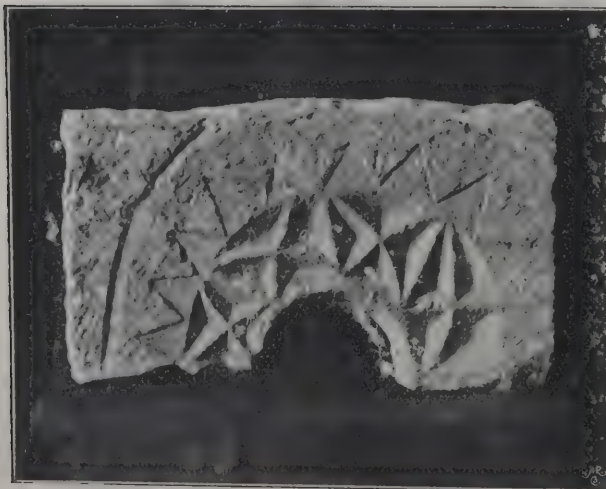
sprats by the late Sir A. H. Elton. There is a small collection of the organic remains of pleistocene mammalia (cave bears, hyænas, bison, wild horse, &c.) found in the caves at Uphill in 1898, including breccia with bones and teeth protruding, together with some nodules of flint, wrought-flint implements and a few rounded stones (quartzites) found in excavations on

&c., of a reindeer which were excavated from a gravel quarry on the road to Bleadon are interesting. A transcript copy, from the original publication, of the meeting on the sands at Weston-super-Mare of Miss Hannah More and Dr. John Langbourne, one of the English minor poets, in the year 1773, with the lines written by them on the sands, and afterwards



SCHOOL OF SCIENCE AND ART.

the hill adjoining the caves, which latter are believed to have been used, after being heated, for boiling water. The heated stones were immersed in water placed either in the skins of



THE OLDEST WORKED STONE IN WESTON-SUPER-MARE.

animals or in holes made in the ground and lined with clay. Stones of this kind were undoubtedly used by our prehistoric ancestors for heating water. Portions of the bones, antlers

transcribed, has been lent, together with the lines added by the Rev. D. Powell, the clergyman of Weston-super-Mare.

The architect of the building is Mr. Hans F. Price. The carving was executed by Mr. J. P. Steele. Mr. H. W. Pollard was the general contractor.

The School of Science and Art has also been designed by Mr. Hans Price. Both are important additions to Weston-super-Mare, and will increase the interest of the town as a residential resort which will have educational advantages.

The New Technical School, New Brighton, was opened on Saturday last. It is a commodious structure erected at a cost of 5,400*l.* upon a site presented to the district by Alderman James Smith, and was designed by Mr. W. H. Travers, district surveyor. It is substantially built, the elevations being of Ruabon brick with Stourton stone dressings. The style is what may be described as English Domestic, and advantage has been taken of the peculiar shape of the site and its prominence at the corner of Field Road and Rawson Street to introduce what is a striking external feature, in the shape of an octagonal tower containing a teachers' room on each floor. The building is two storeys in height, the main entrance being in Field Road. The ground floor comprises vestibule, inner hall, classroom, to be used temporarily as a reading-room, cooking and laundry classroom, with pantry and stores, workshop, cloakroom and lavatory, while the second floor includes two classrooms and a science lecture-room. The building is fitted with hot and cold water, and special attention has been paid to the heating and ventilation.

TEMPLE BRUER.—II.

OUR account of the Temple Bruer in history broke off last week at the finish of the general description of the architectural features of the ancient church. It will be recollected that we were told "beneath the church and tower was a perfect labyrinth of vaults and dungeons and intricate passages, arched over with stone, branches of which run under the floors of the church and tower and below the pavement of the cloisters." It will doubtless be interesting to our readers to learn a little more about these vaults and the traditions attached to them. A footnote in the late Rev. G. Oliver's book is as follows:—Some of these vaults were appropriated to purposes that it is revolting to allude to. In one of them a niche or cell was discovered which had been carefully walled up, and within it the skeleton of a man, who appears to have died in a sitting posture, for his head and arms were found hanging between the legs, and the back bowed forward. Immuring was not an uncommon punishment in these places. An instance of it was discovered a century back (1737) in one of the walls of Thornton Abbey, in this county, and Sir Walter Scott has drawn a thrilling picture of such an occurrence in his beautiful poem of "Marmion," canto xi. Another skeleton of an aged man was found in these dungeons, with only one tooth in his head. His body seems to have been thrown down without order or decency, for he lay doubled up, and in the fore part of his skull were two holes, which had evidently been produced by violence. In a corner of one of these vaults many plain indications of burning exist. The wall stones have assumed the colour of brick, and great quantities of cinders mixed with human skulls and bones, all of which have been submitted to the operation of fire, and some of them perfectly calcined. This horrible cavern had also been closed up with masonry.

Underneath the cloisters, between the church and the tower, many human bones were discovered, which appear to have been thrown together in the utmost confusion, and lying in different strata, some deep and others very near the surface. Near these interments was a vast mass of burnt matter of various descriptions, and the fire had been so fierce that the external surface of a massive cylindrical column, which was discovered near, is completely cinerated. Several large square stones were taken up, with iron rings attached, and altogether the ruins exhibit woful symptoms of crime and unfair dealing. We can scarcely forbear entertaining the opinion that these are the crumbling remains of unhappy persons who had been confined in the dungeon of the preceptory, for the Templars and their successors were always in feud with their neighbours, and would not be very likely to remit what they might conceive to be the merited punishment of delinquency.

When the remains of the Temple were visited in the seventeenth century by that indefatigable antiquary, Gervase Hollis, it contained several armorial windows. He describes the shields of the noble families of Deincourt, Cromwell, Tateshall, Ufferd, Beke, Willoughby, Mowbray, Beaumont, Bardoff, Cantelupe, La Warre, Wells, Zouch, Grey, Savile and others to which no names are attached, and he was only just in time to place them on record before Oliver Cromwell planted his cannon on the neighbouring hills to the west, battered down a great part of the church and pierced the tower with his balls, leaving an aperture as a memento of his presence, to which tradition still attaches his name.

It appears that when this was done the soldiers rushed forward to complete the scene of devastation by destroying every vestige of ornament which might remain. They dug a hole within the consecrated walls in the north, and lighting a fire with the beams and rafters which had been dislodged from the roof, they tore out the windows, and amidst shouts of savage triumph, as may be supposed, threw them into the fire, gloating over the work until all were melted into a solid mass. Then filling in the hole with stones and rubbish they left it in that state to perish in everlasting oblivion. But their expectations have not been realised, for October 31, 1832, the mass of melted lead, with lumps of vitrified glass mixed with calcined stones, charred wood and ashes, was discovered and taken out.

About half a yard below the site of this horrid feat we found an interment. The skeleton was perfect and lay, as usual, with its feet pointing towards the east. The skull small and the teeth delicate induce the belief that it was a female; and if so it was probably the remains of Dorothy, the wife of Roger Roletton, who died in the month of January 1529, and was buried in the north aisle of this church under a tomb with arms quarterly and an impalement as follows:—"1 and 4. Party per fess gu. and ar. a lion passant in chief of the second; in base a cinquefoil pierced az. 2 and 3. A chevron between ten martlets sa. Impaling, ar. ten torteauxes, a label of 3 points az. Roletton and Babington." If the above conjecture be correct the atrocity of the conflagration is greatly increased from the circumstance of its having been kindled in the grave of this lady, which the fanatics had probably broken open in search of treasure.

From a minute inspection of the remains I should not be

inclined to praise the magnificence of the edifice as a whole, though it had its peculiar enrichments, as may be evidenced by the numerous carved stones which have been excavated. The outer wall of the church was rude though massive. It is, however, venerable for its high antiquity, and in extent the Temple was stupendous, for these proud ecclesiastical warriors required considerable room for the number of domestics which were found necessary to support their state and dignity. In the course of investigations made amongst the ruins during the years 1832 and 1833 were discovered foundations of buildings in every part of the area enclosed within a space of a quarter of a mile square. In addition to the usual monastic functionaries or obedientiarii, the house at Temple Bruer was regulated by the state officers which distinguished a baronial castle. A numerous train of retainers was entertained, who were always ready to execute the will of the superior, and his fortified house was provided with every requisite to repel an assailant. The numbers may be further evidenced by the consumption of malt liquor, which must have been enormous, as they had breweries in constant operation at Blankney, Metheringham, Scopwick, Kirkby, Billingham and Timberland, and the vaults underneath their premises are sufficient to show that they lacked not conveniences for its disposal. It did not often happen that an attack was made on these military recluses, for being brought up to the use of arms, and their courage and tact having been often proved in the field of battle, they established for themselves a formidable character, and their vindictive spirit and haughty demeanour were an earnest of a dreadful retaliation to their enemies.

The staircase in the tower was partly intended as a means of access to the upper storeys, and partly for mounting to the battlements. This was the warder's station, and accordingly we find it furnished with loopholes at every gradation of the ascent, all of course pointing towards the only avenue by which the Temple was accessible from Hermen Street, then the direct road from the Metropolis, and almost the only one which connected these parts with every district in England. This avenue, winding its way through a beautiful valley, terminated at the entrance of the Temple, which was carefully fortified with gate and portcullis. The place is still marked by two high mounds, called the Bar Gates, that contain the remains of the two embattled towers by which the entrance gate was flanked and protected under the provisions of a license of 34 Edw. I.

The reflections which arise in the mind on a view of this portion of the precinct, from the most elevated part of the warder's tower, are highly gratifying. The spectator might almost fancy he beheld the

Christian host in its prided power

returning from the Holy Land to change their sword and helmet for the monk's cowl, and the steel and corslet for the simple white robe decorated with the symbol of their order. He might in imagination hear the clank of armour respond to shrill clarions' sound while spears are glancing and pennons waving, emblazoned with many a noble device in which the bright Red Cross shone with distinguished lustre,

And their plumes to the glad wind float,

as the warriors issued through the portal in stern and solemn array, met by their brethren of the Temple in procession, bareheaded, the emblem of their salvation elevated in the air, to conduct the warriors to the holy altar, that

The mass might be sung, and the bells might be rung.

In addition to his conveniences at the Temple, the preceptor had a lodge in Scopwick field, and at a distance of not more than half a mile westward a spacious grange, called St. Thomas's Grange, which was situated about a quarter of a mile eastward of Hermen Street, and almost opposite to the present Green Man inn. It consisted of a large house and offices, a chapel and cemetery, protected by a high mound, and subsequently a stone wall, which enclosed a space of about 10 acres of land. Here this potent chief retired for privacy and seclusion when it suited his convenience, but with an establishment equal to that of any of the neighbouring feudal proprietors, with whom he lived on terms of intimacy and friendship while they continued in his good graces, by paying him the expected tribute of deference and respect as combining in his own person the two high distinctions of a baron and a dignified churchman, and enjoying the privilege of exacting homage at the marriage of a tenant's daughter, which could not be performed without his consent. And it is recorded that, being all men of birth and educated according to the custom of that age, without any tincture of letters, they scorned the ignoble occupation of a monastic life, and passed their time wholly in the fashionable amusements of hunting, gallantry and the pleasures of the table.

The Grange above alluded to, we are informed in a footnote, was ultimately taken down several years ago (1807), and so extensive were the buildings that, as the tenant informs

us, thousands of loads of stone have been removed from the foundations only and applied to the repairs of the adjacent turnpike road; and during the excavations for this purpose the workmen found parts of painted windows, the lead and glass combined as when in actual use, carved stones, human bones and kistvaens or vaults made of stone 7 feet long by 3 feet wide, which could have had no other use than for interment. Near this grange was found some years ago the official seal of Henry, Earl of Derby, who was descended from a younger son of Henry III. He was created Earl of Derby before the decease of his father, at whose death, A.D. 1345, he succeeded to the title of Duke of Lancaster and became High Steward of England. The seal is of brass and of large size. The preceptor had a warren house near the Grange, which had a subterranean vault beneath it, and the place where it stood is at present indicated by a willow tree, which, according to tradition, grew originally out of the prior's oven.

STONEHENGE.

THE recommendations made by the representatives of the Society of Antiquaries, the Wilts Archaeological Society, and the Society for the Protection of Ancient Monuments, whom Sir Edmund Antrobus invited to advise him with regard to the preservation of Stonehenge, are now being carried out. Amongst other things recommended, says the *Wiltshire Mirror*, was an examination of the great trilithon, No. 56 (according to the numbering on Mr. Petrie's plan), which leans at a dangerous angle, with a view of maintaining it in a position of safety. For many years this stone has been in a very perilous position. It is believed that its foundations were weakened by the digging done round the stones in 1620 by the Duke of Buckingham whilst King Charles I. was staying at Wilton. Mr. Petrie, in his book on Stonehenge, says:—"This stone from the evidence of various drawings has inclined further and further since its first tip in 1620. In 1660 it was at 75 degrees, in 1720 at 70 degrees, in 1870 at 66 degrees, and it is rapidly going over further at present. On its fall, which cannot be far distant if unsecured, it will certainly break across, as it is cut unusually thin, has a large flaw in the middle, and will fall across its fallen lintel. To save this stone, the largest native hewn stone in England, and next to Cleopatra's Needle in size, will be far better worth while than attempting to re-erect the fallen trilithon, which undertaking was mooted some years ago."

The stone has now two distinct flaws in it which show more plainly every year. It is proposed to raise it into a perpendicular position, and the work is being carried out in the most careful manner under the supervision of Dr. Gowland, professor of mineralogy at the Royal College of Science, who is acting for the learned societies, and Mr. Detmar Blow, Sir Edmund Antrobus's professional adviser and architect. When raised the stone will be secured in a bed of concrete, which engineering experts believe will support the weight in a position of safety for many years to come. The stone leans towards the north-west, and the excavations for putting in the concrete bed have been commenced on the south-east side. The bottom of the stone was reached at a depth of 8 feet 6 inches. Before the excavations were commenced a careful survey of the surface was made, and when the concrete bed, the top of which will be 18 inches below the ground level, has been completed, the turf will be replaced in exactly the original position. The excavations are being conducted in the most careful and systematic manner. Every particle of earth is being minutely examined, and the system upon which Dr. Gowland is working will enable him to locate everything of interest that may be found. This is the first time since 1620 that any excavations have been made, and now nothing more than is absolutely necessary for the conservation of this unique relic of antiquity will be allowed. The digging done in 1620 by the Duke of Buckingham was of a very promiscuous character, and there is no record in existence of what he discovered. About no other megalithic monument in the world have so many opinions been expressed as Stonehenge. Its erection has been attributed by various writers to the Phœnicians, to the Belgæ, to the Romans, to the Romano-British, to the Saxons and to the Danes. Perhaps its greatest charm is the mystery in which its origin and purpose are shrouded. The solution of the mystery has baffled all our most learned archaeologists, and years ago Mr. Petrie, perhaps the best living authority on the stones, formed the opinion that what was necessary to settle many disputed points was a little careful digging. Acting on the advice of persons so absorbed in past ages, and so conservative in their ideas as representatives of the Society of Antiquaries, the Wiltshire Archaeological Society, and the Society for the Protection of Ancient Monuments, Sir Edmund Antrobus is now allowing such excavations as are deemed necessary for the preservation of the stones to be made, and there is no doubt the nation will watch the progress of the work with great and intelligent interest. So far as the excavations have proceeded some important and interesting discoveries have been made, which will

go a long way towards clearing up at least two points upon which there has been much speculation in the past, namely, the age to which the monument belongs, and how the stones were squared and the mortises and tenons wrought. Dr. Gowland has found a large number of palæolithic implements and some sarsen and syenite chippings, and it is thought that these discoveries clearly point to the fact that the monument dates back to the Stone Age, and that the stones if not wholly were partly dressed on the spot. These are believed to be the first stone implements that have been found in the vicinity of Stonehenge. When research was made in the barrows in the district sarsen stone chippings and bronze tools were found, and from these the opinion was formed by many that the stones were erected by a bronze-using people. If the further excavations which have to be made go to confirm these initial discoveries there will not be much doubt as to the age to which the ancient monument belongs. At present Dr. Gowland is reluctant to express a definite opinion, but antiquarians are agreed that the discoveries which have been so far made are very significant and important. The tools found by Dr. Gowland consist of hammers and axes, and some of them are remarkably well formed. They were discovered about 3 feet from the surface and about 5 feet from the south-east face of the monolith around which the excavations are being made. There is no doubt that further discoveries will be made as the work proceeds, and Sir Edmund Antrobus is to be congratulated on the fact that whilst he is doing all that science and engineering skill can suggest to preserve the stones, he has given antiquarians an opportunity of solving a mystery which has for ages baffled the most learned men.

THE ISLE OF ATHELNEY.

IT was fitting, says a correspondent of the *Daily News*, that Winchester, his capital and his burying-place, should have been chosen as the scene of the celebration of the passing of one of the very greatest in all the long line of English kings, of the death of one of the most heroic characters in history. But the famous place associated with his name lies, not near Winchester, but in the heart of Somerset. Few historic spots are better known to us by name than the Isle of Athelney, and certainly there were few things that had more attraction for us when we first began to listen to the early pages of our rough island story than the tale of Alfred and the Cakes. With the career of the great king, with his indomitable courage, his long struggle against the Danes, his care of the navy, his love of learning and of song, the writings of Pauli, of Freeman and of Green have made us all familiar. But what we remember best is the record of that terrible winter when the fate of England was trembling in the balance, when the king, hard pressed by swarming enemies, fell back for a brief breathing-space to the heart of the Somersetshire marshes. We are too apt to think of him as a solitary fugitive. But although those who were with him in his retreat were few, his army was at no great distance, and the Anglo-Saxon Chronicle expressly says that he was able to make frequent attacks upon the Danes. "It was only later legend," says Green, in speaking of King Alfred's gallant stand, "that changed it into a solitary flight, as it turned the three months of Alfred's stay into three years of hiding. The three months were, in fact, months of active preparation for a new struggle."

The scene of the king's retirement is one of the spots about whose identity there is no dispute. We may stand to-day upon the very ground where Alfred built his fortress—an insignificant rising in the vast green plain that stretches so far across the heart of Somerset hardly to be noticed in the wide expanse of moor. But the ten centuries have changed the face of things altogether. This is not the Athelney that Alfred knew. In his time, as we learn from his friend and biographer, Asser, the island was surrounded by vast peat-bogs, crossed only by paths known to none but to the moor-men, by forests of alder-trees, the haunt of the red deer and the roebuck, while beyond all lay wide sheets of shallow water. The meres have long been drained. The peat is there still, but the bogs are gone. Gone, too, are the red deer and the roebuck. And in the rich meadows that fringe the slow, moving moorland streams whose meeting-place is a mile distant from the island is some of the best grazing-ground in England. The Isle of Athelney of our times consists of rather more than twenty acres of ground divided by a slight hollow into nearly equal parts. On the top of the eastern half stands the monument, a stumpy and inconspicuous obelisk that was set up just a hundred years since to commemorate Alfred's deliverance from his enemies. On the slight slope below it is a farm which occupies, it is believed, the very spot where, ten years after Guthrum's overthrow, the king established a monastery as a mark of gratitude for his victory, and in fulfilment, so the legend says, of a vow that he had made after St. Cuthbert had appeared to him in a vision and assured him of his coming triumph. Athelney, as has been well observed, was endeared to the king by many memories. It had afforded

shelter in his dark hour. It was here that he saw the forlorn vision of St. Cuthbert. Here he divided his one with the beggar. From here he went out alone to reconnoitre the hostile camp, venturing boldly among the armed riors, who gathered round the wandering minstrel.

Unconscious of the coming fight,
When that skilled hand, that swept so light
The harp-strings, would with sterner grasp,
The shaft of vengeful war-axe clasp.

e, too, were spoilt those famous cakes, the smell of whose ring has lasted for a thousand years. There is nothing probable, by the way, in the cake story. And the men of West Country note with pleasure that some high authorities, at any rate, no longer regard it as an idle tale. Of the monastery itself not one stone is left standing on cher. In 1674, when some of the ruins were still to be seen, were being cleared away, the foundations of the abbey arch were discovered, and the workmen found, with other things, a golden spur. A century later a vault was found some yards from the present farmhouse, and parts of what may have been an oratory. Encaustic tiles have frequently been brought up on the spot, and these, together with a few fragments of carved stone, a coin or two, and a leaden water-pipe, lost here perhaps by some pilgrim, are all that remain to judge from the descriptions of those who saw it in prime, must have been one of the most beautiful, though at the same time, as was to be expected from the limited area of the site, far from being one of the largest monasteries in the county. Its history Mr. Hugo collected some very curious details, which, however, present no striking features. One interesting fact is that the abbot, like others of his rank in the county, was fined by Henry VII. for having "aided and comforted" Cornish rebels in their march across Somersetshire. The famous jewel, often said to have been found at Athelney, was dug up in 1693, not here, but at Newton, more than three miles west-north-west of the island, but there can be little doubt that it really is a relic of the monastery. It is of gold, shaped something like the head of a tennis-racket, about 2½ inches long, nearly 1½ inch broad, and not more than ½ inch thick. In front is an oval plate of rock-crystal, half an inch thick, through which is seen the figure of a man holding a fleur-de-lys in each hand. The figure and the space surrounding it are covered with coloured enamel, red, blue and green. Round the edge of the jewel is the legend in Old English characters—AELFRED . MEC . HEHT . GEWERCAN . (Alfred had me made"). The lower part of the gem forms a tube, in which a gold rivet is still visible. This tube, no doubt, once held a slender stem of wood or ivory, and the late Mr. Clifford's suggestion is probably the right one, that the tube was a pointer for a reader or a precentor, and that it was presented to the abbey by King Alfred himself. The site of the battle of Ethandune, in which Alfred broke the power of the Danes, and the position of the fortress where Guthrum still held out for a fortnight after his defeat, are to some extent matters in dispute. It is true that most authorities seem inclined to identify Edington in Wiltshire with the place of battle. But Bishop Clifford considered that there was good evidence that the fight took place not in Wiltshire, but in Somersetshire itself, at another place, on the Polden Hills, seven miles north of Athelney. Three miles to the east of the island, built, like all the moorland villages, on a slight rising in the great plain, so as to be out of the way of the winter floods, is Aller—Oller, as the people call it—in whose little church may still be seen what is believed to be the very font in which were baptized the beaten leader and thirty of his captains. Wedmore, the scene of the "Christm-loosing," and the place where was signed one of the most memorable treaties in our history, is twelve miles north of Athelney. It was at Wedmore, in the summer palace whose massy foundations were brought to light some years since, that the English king entertained his humbled antagonist. That Somersetshire should have been chosen for the site of a royal palace is not surprising. The Mendip Hills, from whose southern verge Wedmore is but four miles as the crow flies, were a favourite hunting-ground of the Saxon kings. In the village town of Axbridge is still preserved a copy of an ancient manuscript which records how King Edmund was nearly killed over the edge of the Cheddar cliffs by a runaway horse while hunting in the Mendip Forest; and the same document mentions that Athelstan, Edred, Edgar and the sainted Edward were accustomed to come down here in the summer to follow the red deer among the hills. The ancient setting of the Isle of Athelney has long since disappeared. No trace of Alfred's fortress or of the abbey that occupied its site is left. But there is no change in the ever-changing hills. The forest, it is true, is gone. But the parish boundaries, the very fields, some even of the old cart tracks, are much as they were in that memorable winter a thousand years since, when the greatest of the Saxon kings sought shelter in the Somersetshire marshes.

DUMMER AND OVERTON.

AN excursion to Dummer, Overton, and the adjacent district, which had not been visited by the Hampshire Field Club for about seven years, was organised for the 12th inst. The party was conducted by Dr. Andrews (vice-president of the club) and Messrs. T. W. Shore and W. Dale (hon. secretaries). There was a field south of Dummer Clump, where Sir R. Rycroft had given consent for a remarkable burial site to be inspected. Large urns containing cremated remains were found in the field in 1888, and on Thursday three more urns were uncovered.

The history of the discovery of the urns was told by Dr. Andrews, who said that twelve or thirteen years ago sheep were being fed with turnips in the field. The shepherd was making holes to put the hurdle sticks in, but in one spot he could not get his iron far enough in the ground. He thrust it in the ground in another place, but still met with hard stone. He began to investigate, and found the largest stone, which was a piece of table flint, measuring 8 or 10 inches across. After removing this he thrust the bar down again, and on withdrawing it again found it had been thrust into a black substance. That led them to investigate the site, with the result that they found several large urns, some of better workmanship than those now uncovered. Two of them were removed to Reading and others were at Southampton and Winchester. They found as many as sixteen, but some were in pieces and were difficult to handle. Some contained nothing but plain earth, and others had burnt flint and bones in them. Dr. Andrews explained that although no trace of bone weapon or metalwork was found, and the calcined remains were too much reduced to give very definite history, it was generally considered by Mr. Shore and the late Dr. Stevens, of St. Mary Bourne and Reading, that it was a burial-place of early Celtic date. Specimens of the vessels were given to Winchester, Southampton and Reading Museums, where they may be seen. No traces of sepulchral mound are visible on this site, nor suggestions of other occupation beyond the bank and ditch just within the copse on the east side. A few rudely-worked flints have been picked up on the field, which Dr. Stevens considered of a rude type of Neolithic age work.

In a discussion which followed, Mr. Shore suggested that the three urns now uncovered after some trouble by Dr. Andrews might go to the British Museum, where Dummer was not as yet represented; their age was "anything over 2,000 years."

At Dummer Church the party was met by the rector (the Rev. G. Jones). The church contains the remains of Norman, Early English and Decorated architecture, as well as old brasses of the fifteenth and sixteenth centuries. An exhaustive paper containing the results of researches carried on during recent years was read by Dr. Andrews, who had collected sufficient information to form an interesting book. From this he read several extracts, dealing mainly with history and with boundaries. As to the church, he pointed out on the south side a blocked doorway with a circular head, suggestive of Norman work, but the curious feature of the massive chancel wall with small openings was probably Saxon work. The corresponding short or apsidal chancel has been replaced by a longer one of Early English type, with lancet windows and priest's door on north side. In the north wall of the nave is a recessed tomb. The porch has small windows and woodwork of Decorated period. The east end is quite recent. The register dated back to 1540, and some of the old Dummer family were mentioned down to 1589. In 1794 there was the signature of George, Prince of Salm-Salm, as witness of a marriage of a sister of the rector. This was during the time that George, Prince of Wales, was tenant of Kempshott. In the Almanack de Gotha there is a present Prince of Salm-Salm, a minor principedom of Luxembourg.

The fine plate, the parish registers, the Jacobean pulpit and the monuments were inspected with great interest under the guidance of the vicar.

After luncheon the party drove through North Waltham (where the recently restored church was admired) and Overton to Quidhampton, where the remains of its ancient Saxon cell were inspected. This, said Mr. Shore, was one of the oldest buildings in the county, and all the authorities agreed that it was Saxon.

The Rev. Canon Stenning joined the members here, and on the way through the fields to Overton Church pointed out the source of the Test at Polhampton, and also one of the four mills mentioned in Domesday Book.

The president of the club, Mr. William Portal, with whom was Mrs. Portal, met the party at the gates of the fine old church of Overton, an interesting account of which was afterwards given by the rector, Canon Stenning.

After welcoming the Society, Canon Stenning said Overton was a very interesting place, and they still dug up Roman coins and Romano-British pottery. He thought that probably near the station the Romans had a fort, because in the garden

of a house there Roman coins are dug up now. The great high road from Silchester to Sarum ran three miles to the north of them, and it might be that the Romans in occupation found it necessary to have a station in the neighbourhood in order to safeguard the supply of water they had at Overton. With regard to the church the porch was quite modern, and the south door also was what was generally a failure, modern Norman, and he was afraid they could not say their church was any exception to the general rule. Sixteenth-century work in the fabric was pointed out by Canon Stenning, and a fine old doorway also referred to. The huge key of the door was of local manufacture, and in the churchwardens' accounts for 1680, something there was payment for was a key made by the village blacksmith. He thought that was the identical key. The great feature of the architecture of the church was its Norman columns, and another interesting thing was the beautiful old roof. In 1855 or 1856 there was a great restoration of the church, but it had not yet been fully carried out, and when it was he hoped they would have a chancel arch more worthy of the church. The old chancel with its thirteenth-century roof still remained exactly as it was put up. The north-east window was Early English, but as the stonework was wearing away they built a new vestry outside it at the restoration, and they hoped that would preserve it. The extreme length of the chancel and its narrowness were commented on.

Mr. Shore then read some notes prepared by him on the history of the church and the parish, giving many interesting extracts from the papal records at Rome, recently made available for historical purposes, and from British Patent Rolls, registers, &c.

After mentioning the fact that he had recently seen the beautiful maps of Overton of Bishop Fox's, which were at Corpus, Mr. William W. Portal said he could never look at the chancel of that church without remembering that as far as his own family was concerned it was there that the Huguenot refugee who founded their family was married. His name was Henri de Portal, and he married Miss Dorothy Hasker, of Northington, in 1715.

The day ended with a most enjoyable visit to Southington, the residence of Mr. and Mrs. William Portal, who extended to the party a cordial welcome. After tea Mr. Portal's numerous souvenirs of travels were inspected with much interest.

Before leaving the grounds the Rev. G. W. Minns proposed a hearty vote of thanks to the president for the way in which he had entertained the club, and Mr. Portal suitably replied.

Basingstoke was reached again about 7.15, from whence the party dispersed in various directions. Everyone taking part in the excursion spent an enjoyable and instructive day, and the warm thanks of all were given to Dr. Andrews and the hon. secretaries for the excellent arrangements.

THE ALFRED JEWEL.

A LETTER from Lady Huggins appears in the *Times*, in which it is said:—

Since 1698, when Dr. Musgrave, a Fellow of the Royal Society, published the first notice of the jewel in the "*Philosophical Transactions*" (No. 247), it has been suggested that the jewel may have been (1) an amulet (Dr. Musgrave's suggestion); (2) a pendant to a chain or collar; (3) an umbilicus, or head of a roller for a manuscript; (4) the top of a stilus; (5) the head of a book-pointer; (6) the top of a standard; (7) the head of a sceptre; (8) an ornament for Alfred's helmet. This last is the recent suggestion of Professor Earle, and is most engagingly presented in his interesting book, "*The Alfred Jewel*."

Without criticising in detail these various views, and before offering a new suggestion or two, I should like to point out, apropos of the book-pointer view—the one favoured by Sir John Evans in his address at Winchester—that the jewel is by no means uncomfortable in the hand. A little experimenting with one of the excellent facsimiles which we owe to the Millenary proves this. Also the view that the jewel may have been the head of a sceptre scarcely seems to have received sufficient consideration. The illumination from the Book of Kells, which Professor Earle refers to for his own view, at least suggests a sceptre with a flat head.

In considering any suggestion as to its probable use, it must be remembered that the Alfred jewel is not unique. A jewel, smaller, it is true, and circular, but of similar structure, with the same provision for a stem or pin, exists in what is known as the Minster Lovell jewel, also in the Ashmolean Museum. The use of the one jewel was, one can hardly doubt, the use of the other.

The motto on the Alfred jewel—"Alfred ordered me to be made"—taken in connection with such other relics as the rings of Queen Ethelswith, King Ethelwulf, and the gold ring with the motto "Ethred me owns, Eanred me engraved," which belong to the same period, points it would seem to the jewel

having been designed (very possibly by himself) as a personal ornament for Alfred.

Is it not worth considering whether the jewel was not used by Alfred as a decorative pin or pin-brooch? Two interesting MSS. of the ninth century support this view. One is a splendid illuminated "*Gospels*" written for the Emperor Lothaire. As was not unusual, a portrait of the Emperor precedes the Gospels. He is represented in his royal robe with the chlamys fastened on the right shoulder by what is evidently a pin with a somewhat large decorated head, enriched with gems. The head of the pin stands up from the robe in a remarkable way. (Du Sommerard Album, Série 8, pl. fig. 4.) The other MS. is "*The Bible of the Monastery of Paul*." At the beginning of this work there is a magnificent representation of Charles the Bald on his throne in full state. Here, too, the chlamys is fastened by an ornament which projects up above the shoulder, and which gives distinctly the impression of being the head of a pin from the way in which it is set in. It is interesting to note that some Benedictines were so struck by the projecting character of the ornament that they actually supposed it represented the head of a sceptre. It is clearly this was a mistake. The ornament is a pin of some sort. (Westwood, J. O., "*The Bib. of the Mon. of St. Paul*."

Smaller and round ornaments are frequently shown in MSS. of the period, holding together cloaks or robes, and though some of these may have been brooches or buttons, others may have been decorated pins. Such pins would represent a separate and extended use of the pin portion of the pin-and-ring form of brooch, specimens of which were often of large size in their two parts, and often very elaborately decorated. It is not difficult to find reasons why the pins for such ornaments as the Alfred and Minster Lovell jewels were attached by rivets. The pins used by the Kabyles, some of which are of large size and form remind one of the Alfred jewel, usually have pins affixed by rivets. There may have been a sliding pin on the pin of the Alfred jewel—as in Kabyle ornament—to catch the pin, which has been lost.

Another but less probable suggestion may be thrown out. The Saxon ladies used long pins for their hair. To this day long pins with large decorated heads are used by the peasant women in many places abroad for sustaining the hair. Conceivably the jewel may have been a gift from Alfred to a queen for such a purpose.

ROMAN CAMP AT DELVINE.

IN the Anthropological Section of the British Association Mr. Thomas Ross read a paper on "*The Roman Camp at Delvine, Inchtuthill*." The camp, the excavation of which has just been completed, is situated on the north bank of the Tay, about six miles down the river from Dundee, in the parish of Caputh. Inchtuthill is a plateau, elevated about 600 feet above the surrounding low-lying fields, which no distant date were probably covered with water. The camp is of triangular shape, about three-quarters of a mile from north to south. About three-fourths of this area is cut off from the camp by a rampart and ditch. The camp is situated in front of Delvine House. It is square, and occupies an area of fully 50 acres. It is defended by a single rampart and ditch on the south, and the rampart is double. On the north the defence is a steep bank of 60 feet. Four circular ovens were found in the east ditch. The "*via principalis*" leads through the centre of the camp down to the river on one side and to the edge of the bank at the other. There is a south gate. At a distance of about 130 yards eastwards there is a similar camp overlooking the river, and defended on three sides by rampart and ditch. It extends to about 5 acres. No gateway entrance was found. A destroyed work, defending the "*via principalis*," was found near the river. In the south-east corner of the inch very complete remains of baths were found, with two brick-built hypocausts and a stoker; one cold water bath 12 feet by 7, with steps and lead pipes; *in situ* hot-air flues, cement floors—one showing indications of having been tiled with various chambers, with four circular apses. At the extreme south horn of the inch there is a very strong fort, extending about 3 acres, of which space more than one-half is taken up by defences. Those against the camp consist of five parallel rows of ditches or ramparts of uncommon depth and height. This is probably a native work. The finds consisted of a few usual Roman pottery, bricks, tiles, lumps of lead, a lead ring (4½ inches by 3½ inches) and a Roman coin found in the floor of a sooty stone hearth.

Sir John Evans, in the course of some remarks, said that the existence of the baths at Inchtuthill gave colour to the impression that there had been a lengthened occupation of the camp. These excavations threw light on what was a dark part of the Roman occupation of the southern part of Scotland.

The author was thanked for his paper, and a vote of thanks was also passed to Hon. John Abercromby, who defrayed the expense of the exploration.

OGHAM WRITING IN IRELAND.

PAPER on "The Age of Ogham Writing in Ireland" was read by Mr. R. A. S. Macallister, Cambridge, before the meeting of the British Association. The question whether ogham writing was of a Christian or Pagan origin was not yet settled. There was a large proportion of inscriptions in this character found associated with Christian graveyards or churchyards, or bearing Christian symbols, and these might hesitatingly be put down as Christian monuments. But there were some monuments even of this class which showed evidence of appropriation, and whose inscriptions might antedate the crosses cut upon them. In these cases the Pagan and Christian period overlapped. The stones not marked with crosses they had been accustomed to look upon as pre-Christian. He showed on the screen examples of four classes of these stones. The first was from a tumulus between Tralee and Dingle. The mound was of stones and earth overgrown with furze, round which were little standing-stones, two of them with names inscribed. It was called in the neighbourhood "The little hill of blood." The second type was a rude standing-stone of which few examples existed. He showed one at Craggs, near Tralee, and it was interesting as the latest monument to a poet in the British islands. The third type of stone was the alignment. Of this he showed an example from a hill-top at Dromatouk, near Kenmare, and the fourth was a standing-stone on a lonely moor on Kenmare river. The lesson drawn from these and similar monuments was that the majority of the existing inscriptions were certainly Christian in origin. There were several of whose Christian nature it was at least legitimate to admit a doubt, and if the doubt was well founded the origin of the ogham script must be traced back into the pre-Christian period.

Mr. Coffey said that so many extravagant statements had been put forward with regard to this subject that scientific men were disposed to fear that their reputations would suffer by being associated with it. But Mr. Macallister had shown a higher courage, and his paper was of the greatest value.

ASCOT RACECOURSE.

PREPARATIONS have been begun at Ascot for the erection of the extensive buildings which by the King's command are to replace the old royal and other stands recently demolished upon the south side of the racecourse. The architect is Mr. C. W. Stephens, of Hans Road, Brompton, and the work has been entrusted to Messrs. John Allen & Sons, of Wilburton, who have already taken possession of the ground, which is being got ready for the foundations by a number of labourers. Instead of the heterogeneous group of buildings almost swept away there will be three commodious and well-appointed stands. The new Royal stand will be situated between those of the Jockey Club and the Master of the Horse and Lord Chamberlain, its position being similar to that which the old building occupied. It will be 70 feet in length and 10 feet high. Panelled balconies projecting from the front will overlook the course, and the verandahs above are to be covered with copper. The lawn will be reached by two curved staircases leading down from the principal tier and sheltered by a canopy, also roofed with copper. The brick wall at the rear will be provided with an ornamented iron portico, where the Royal or other visitors will alight or enter their carriages. The Jockey Club stand will be placed next the subscribers' private stand, which latter, as well as the clock tower and grand stand, remain as they were. It is to be 6 feet 9 inches in length and 54 feet high, and will have a light iron roof for an awning and verandahs facing the heath. Dressing-rooms and other apartments will be provided in the building, and there will be separate entrances for members and visitors. The third stand, which will be reserved for the Master of the Horse, the Lord Chamberlain and others, is the largest of the group. It will be erected on the west of the Royal stand, and here Major Clements and the clerks will have offices. Staircases will lead to the Press stand, accommodation will be provided for owners and jockeys, and there will be several luncheon-rooms and lifts. The work is to be finished by April next.

TESSERÆ.

Unity in Architecture.

WITHOUT unity and without harmony architecture lacks an essential of its true character, and fails in its true mission. An imperfect art may continue to satisfy the cravings of an indifferent multitude, but it will never elevate nor refine. Moreover, in order to confer any real or lasting benefit upon men, that art must be something like universal; not a little bit scattered here and there, one portion teaching one lesson, and another the reverse; one man pulling one way, and one another; but each one must aid the other by the communication of his own experience and knowledge. Not at random,

imparting all he knows to the whole community, but freely to all members of his own fraternity; and then, if all members mutually agreed to place themselves under one code, and to follow the same principles, all being bound together by the same interests and in the same common cause, not deviating, either for fear or favour, from their self-imposed restraint, what weight would they not have in forming the standard of taste, what influence with all the non-professional community who have the true interests of our art at heart, what confidence amongst those who are at present uncertain and indifferent about the way in which architectural works are to be carried out. Any number of men, however small, thus bound together, all prosecuting the same ends, all employing the same means, cannot but carry with them over the works of a whole community a weight and influence which any number of men in an independent and isolated position could never gain. Self, self, self is the bane of art as it is of social life, even though a certain amount of self-interest is needful for self-preservation. Not that the individual must needs be by any means merged in such an aggregation and combination of units, for each separate spark of genius would still shine forth with increased lustre, whilst the sphere of its influence would be manifoldly increased, extending as it then would through those immediately surrounding it to an unthought-of and unlooked-for distance. The individual would still hold his own; he would lose nothing, and he would gain much by his new position. For one may as well try to smother a flame of fire in a barrel of gunpowder as to stifle the aspirations of genius in the trammels of routine.

The Pomoerium, or Symbolic Wall.

The custom of making a pomoerium was common to the Latins and Etruscans, and the manner in which it was done in the earliest times, when a town was to be founded, was as follows:—A bullock and a heifer were yoked to a plough, and a furrow was drawn around the place which was to be occupied by the new town in such a manner that all the clods fell inward. The little mound thus formed was the symbolical wall, and along it ran the pomoerium, within the compass of which alone the city auspices could be taken. That the actual walls or fortifications of a town ran near it may naturally be supposed, though the pomoerium might either be within or without them. This custom was also followed in the building of Rome, and the Romans afterwards observed it in the establishment of their colonies. The sacred line of the Roman pomoerium did not prevent the inhabitants from building upon or taking into use any place beyond it, but it was necessary to leave a certain space on each side of it unoccupied so as not to unhallow it by profane use. Thus we find that the Aventine, although inhabited from early times, was for many centuries not included within the pomoerium. The whole space included in it was called *ager effatus* or *finis effati*. The pomoerium of Rome was not the same at all times; as the city increased the pomoerium also was extended, but this extension could, according to ancient usage, only be made by such men as had by their victories over foreign nations increased the boundaries of the empire, and neither could a pomoerium be formed nor altered without the augurs previously consulting the will of the gods by augury, whence the *jus pomoerii* of the augurs. The formula of the prayer which the augurs performed on such occasions, and which was repeated after them by the people who attended, is preserved in Festus. The original pomoerium of Romulus ran, according to Gellius, around the foot of the Palatine, but the one which Tacitus describes as the pomoerium of Romulus comprised a much wider space, and was, as Niebuhr thinks, an enlargement of the original compass, taking in a suburb or borough. Niebuhr also believes that pomoerium properly denotes a suburb taken into the city. Servius Tullius extended the pomoerium, but the Aventine was not included, either because the auspices here taken by Remus had been unfavourable, or, which is more probable, because there stood on this hill the Temple of Diana, the common sanctuary of the Latins and Romans. Dionysius states that down to his time nobody had extended the pomoerium since the time of King Servius, although we know from authentic sources that at least Augustus enlarged the pomoerium, and the same is said of Sulla and Julius Cæsar. The last who extended the pomoerium of Rome was the Emperor Aurelian, after he had enlarged the walls of the city.

Sixteenth-Century Architecture.

During the sixteenth century Gothic architecture gradually declined till it became almost extinct, and a semi-Grecian style took its place, in which, nevertheless, Gothic features were occasionally employed. Sir Christopher Wren's London churches are mostly of this description. The introduction of this debased style took place on the Continent earlier than in England, and if it be true that the dissolution of the monasteries in this country checked church building and church restoration, there can be little doubt that fewer remains of the Middle Ages would have been handed down to us had they remained. Church restoration and church building would

have been prosecuted with all the old activity, but in the spirit which originated St. Peter's, at Rome, and replaced old St. Paul's with the present Italian structure. Now that architectural knowledge has attained a high standard among us, while we rejoice at every new instance of correct and yet conservative restoration, some are occasionally heard to express regret that much was done before sufficient knowledge was attained. Had the zeal for church restoration sprung up 300 years ago, without doubt many of the great cathedrals would have been irreparably disfigured and Mediæval Oxford itself "Italianised" throughout. While the pseudo-Classical styles were brought into general use first on the Continent, and afterwards in England, Gothic architecture lingered at Oxford. Wadham College is a remarkable example, the chapel of which is well known for its apparently fifteenth-century architecture, and yet it was built in the reign of King James. The hall of Exeter College is of the same date, and equally good: the greater part of Jesus College and the Fellows' Quadrangle at Merton were also built at a period when Gothic architecture was elsewhere a lost art. The Schools are believed to be of the same date, and Gothic of a kind, but not likely to be ever very much admired. The famous staircase to the hall at Christ Church was built in 1640, and though meagre in some of its details, all must admit that the design and effect are worthy of the fifteenth century.

Revenues of Greek Temples.

In ancient times every temple of any importance had property belonging to it, besides its furniture and ornaments, and a treasury where such property was kept. Lands were attached to the temple, from which rents accrued; fines were made payable to the god; trophies and other valuables were dedicated to him by the public, and various sacred offerings were made by individuals. There were officials who had the custody and management of these funds. The wealthiest of all the temples at Athens was that of Minerva in the Acropolis, in which were kept the spoils taken from the Persians, besides magnificent statues, paintings and other works of art. To the goddess large fines were specially appropriated by the law, or given by decree of the courts or the assembly, and besides this she received a tenth of all the fines that went to the state, a tenth of all confiscations and prizes taken in war. Her treasurers were called "tamiai." They appear to have existed from an early period. Herodotus relates that the tamiai, with a few other men, awaited the attack of Xerxes upon the Acropolis and perished in its defence. They were ten in number, chosen annually by lot from the class of Pentacosiomedimni, and afterwards, when the distinction of classes had ceased to exist, from among the wealthiest of Athenian citizens. The treasurers of the other gods were chosen in like manner, but they, about the 90th Olympiad, were all united into one board, while those of Pallas remained distinct. Their treasury, however, was transferred to the same place as that of Minerva, viz. to the Opisthodomus of the Parthenon, where were kept not only all the treasures belonging to the temples, but also the state treasure, under the care of the treasurers of Pallas. All the funds of the state were considered as being in a manner consecrated to Pallas; while, on the other hand, the people reserved to themselves the right of making use of the sacred moneys, as well as the other property of the temples, if the safety of the state should require it. Payments made to the temples were received by the treasurers in the presence of some members of the senate, just as public moneys were by the apodectæ, and then the treasurers became responsible for their safe custody.

Old English Gardens.

The only purpose contemplated in the formation of an English garden appears to have been an enclosed place in which the owner might walk in seclusion, or in which sport might be had with contrivances like mazes and labyrinths formed of close-cut hedges; a few fruit trees were added, but no such object as that entertained by the refined Italians of collecting rare and beautiful plants from foreign countries for pleasure or for scientific purposes, was thought of. In the gardens of Nonsuch, the palace of Henry VIII., executed about the year 1540, we hear of shady walks, columns and pyramids of marble, fountains that spout water one round the other like a pyramid, upon which are perched small birds that stream water out of their bills and of similar objects, but nothing of the more essential part of a garden—its plants. Pleasure-grounds of this description had existed in England from the time of the Conqueror. Antiquaries have rarely attended to the subject, and a rich field of investigation certainly still remains open to whomsoever is disposed to enter upon it. It is stated by Fitzstephen that in the time of Henry II. (1154-89) the citizens of London had large and beautiful gardens to their villas. In the reign of Edward I. (1272-1307) it may be collected from "Holinshed's Chronicle," that the cultivation of the garden was extended to the more curious and delicate productions, but the wars of York and

Lancaster destroyed all these occupations, and gardens general ceased to be more than pleasure-grounds or kitchen gardens of the rudest kind till the time of Elizabeth. King James I. of Scotland describes the garden at Windsor Castle where he was confined by Henry V., as a place set thick with trees and alleys of hawthorn hedges, with an arbour in each corner. Much later (1512) the great Earl of Northumberland whose household consisted of 160 persons, "had but a gardener, who attended hourly in the garden for setting out and clipping of knottis, and sweeping the said garden clean. Nay, it should seem as if sometimes there was not even one, for among the workmen of the household is mentioned the gardener of the place where my lord lyeth, if he be one."



Red Gum Paving.

SIR,—Permit me to make a correction to your preface copy of my report on "Red-gum Paving" in your issue of September 20, p. 22. I am not employed by the Colonial Office, and should much regret that this statement should be uncorrected. My work, which is the discrimination of various kinds of timber by means of their anatomical character, is specially useful in new countries, and particularly applicable to the colonies, and has the very kind approval and most valuable assistance of the Colonial Office.—Faithfully yours,

Little Hay House, near Lichfield: HERBERT STONE.
September 22, 1901.

GENERAL.

A Public Meeting was held at Newcastle last week where it was resolved to erect a statue and complete the buildings of the College of Science, in memory of the late Lord Armstrong.

The Marquis of Bute has accepted an invitation to lay the foundation-stone of the new town hall at Cardiff on October 23. On the same date the Mayor of the borough will preside at the stone-laying of new law courts there.

M. J. Bouvart, principal architect to the city of Paris and of the Universal Exposition of 1900, has received the Grand Cordon of the Order of St. Anne from the Emperor of Russia.

The Dover Corporation ordered last Tuesday that all classified advertisements should be removed within a fortnight.

The Foundation-stone of a new church to be erected at Blackham, Sussex, was laid last Monday. The total cost will be £1,256. The church will consist of a nave and chancel with a stone bell turret. It is being built of stone from the Hackenden quarry at East Grinstead, with Bath stone dressing prepared by Messrs. Jenner & Grynner, of East Grinstead. Mr. Charles Day, of Cowden, is the builder, and Mr. Lacy V. Ridge, the architect. The accommodation to be provided for 156 persons.

A Runic Cross has been erected at Ship Hill, Chobham, as a memorial of Queen Victoria, and was unveiled this week. The cross, together with a cannon used in the Crimean war, has been placed on the common at Chobham, where the late Queen reviewed her troops before they left for the Crimea.

The Death is announced of the well-known landscape painter, Professor Karl Ludwig. He was born in 1839, at Römhild, in Saxe-Meiningen, and studied painting at Munich under Piloty. His favourite subjects were Alpine scenes.

An Inquiry was held at East Grinstead on Tuesday respecting the application of the Urban Council to borrow £5,800 in order to provide working-class dwellings.

The Application by the British Electric Traction Company, Ltd., for an order to construct light railways within the borough of Crewe, and from the borough to Haslington, has been refused. The proposed lines were a little more than six miles in length, and were estimated to cost £73,000.

The Edinburgh Architectural Association has acquired new rooms, and the address in future will be 117 George Street, Edinburgh.

Messrs. Doulton & Co., Limited, announce that owing to the largely increased demand for their manufactures, and in order to meet the convenience of their numerous clients in the Midlands, they have opened commodious showrooms in a central position at 30A Paradise Street, Birmingham, for the display of high-class sanitary fittings of every description, and specialties in glazed fireplaces, wall panels, &c. The showrooms will be in addition to their existing wharf at Granville Street.

Mr. Fredk. E. Bristowe, engineer, informs us that he has changed his office address to 12 Dartmouth Street, Queen Anne's Gate, Westminster, S.W.

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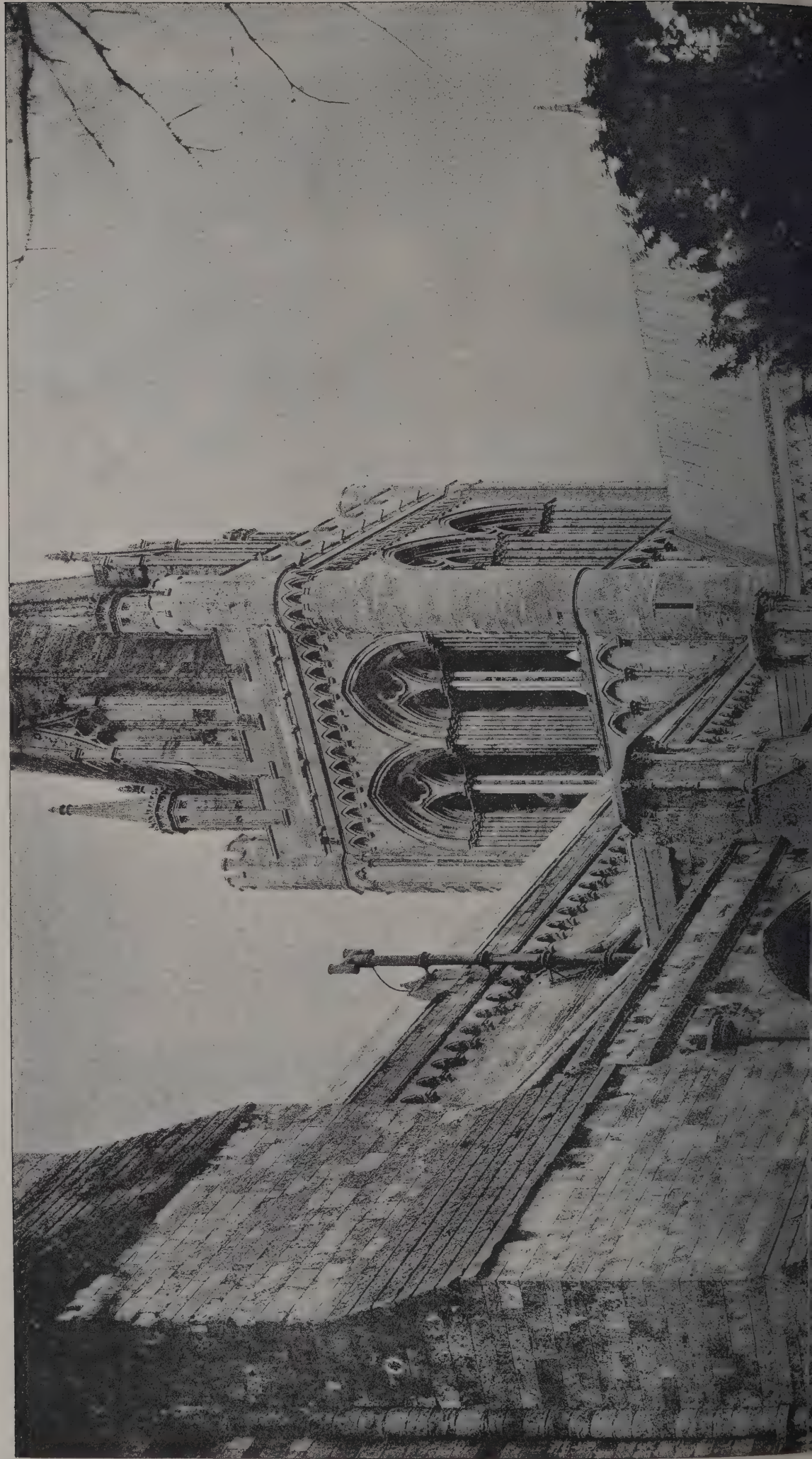


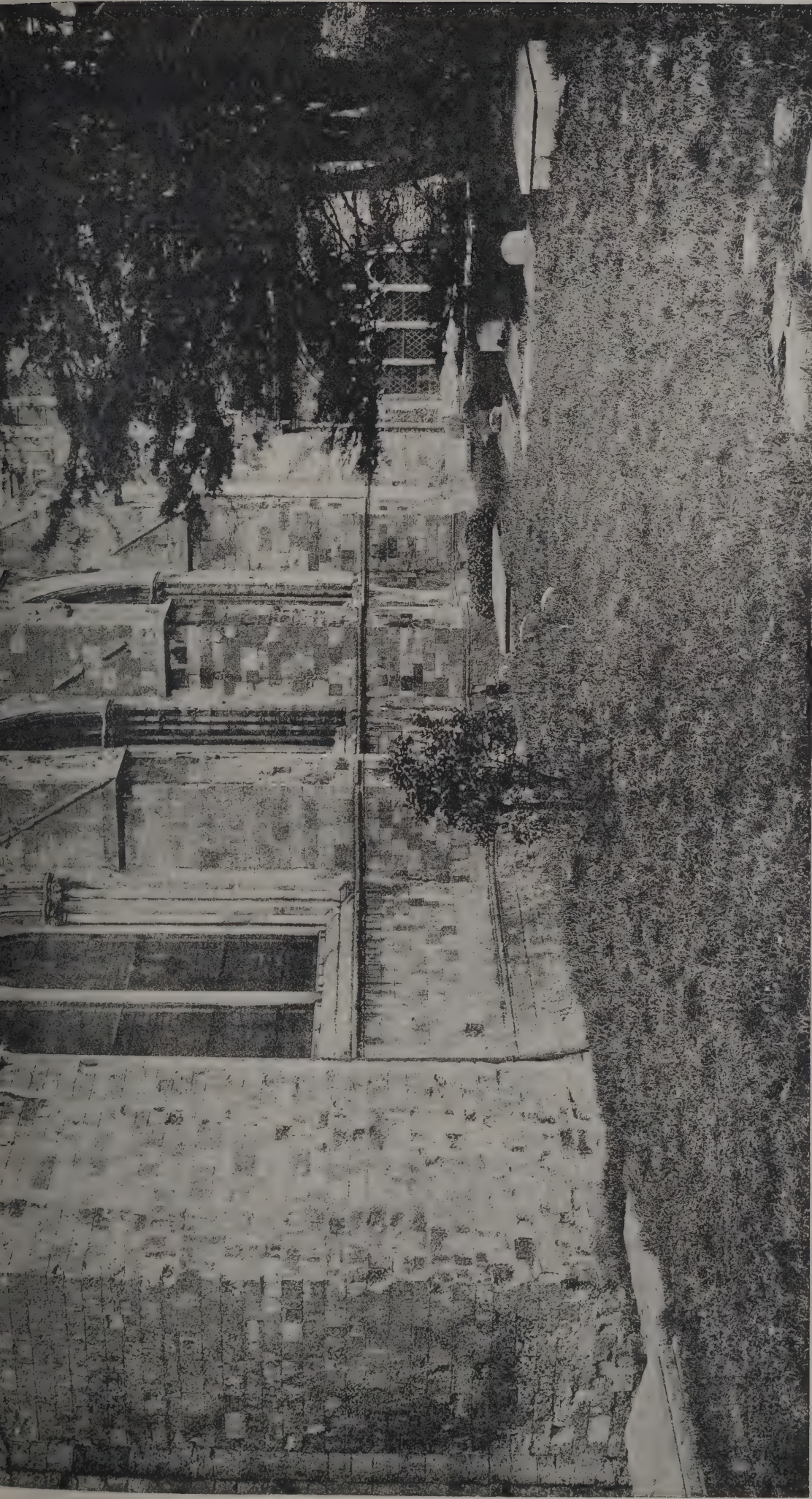
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TEWKESBURY ABBEY: SOUTH AISLE, LOOKING WEST.

The Architect, Sep. 27th 1901.

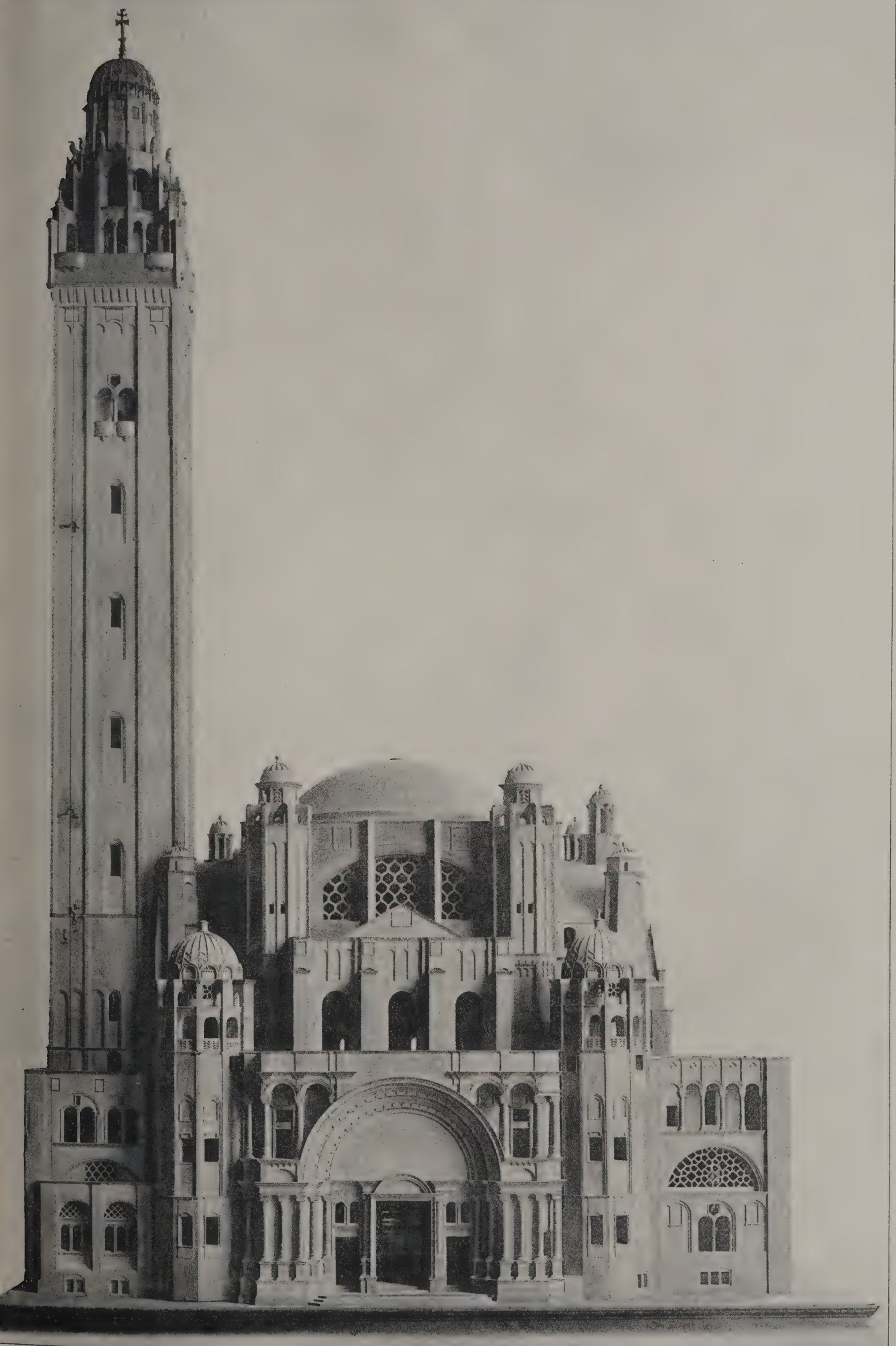




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CATHEDRAL SERIES, No. 355.—CHICHESTER: TOWER AND SOUTH TRANSEPT.



GRAPHED BY S. B. BOLAS & CO. 69, OXFORD STREET, W.

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THE NEW CATHEDRAL, WESTMINSTER.

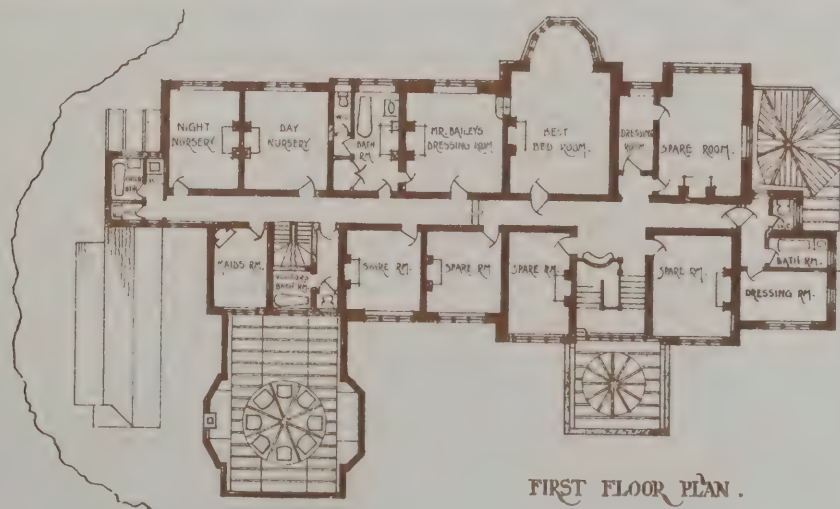
J. F. BENTLEY, Architect.

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By J. W. Cobb. Architect.



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THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CHELSEA.—Oct. 1.—Competitive designs are invited for proposed new baths in King's Road, Chelsea. Premiums, 100 guineas, 50 guineas and 30 guineas respectively. Particulars at the office of the committee, 171 King's Road, Chelsea.

SHEFFIELD.—Sept. 30.—Designs are invited for a Memorial to Her late Majesty, Queen Victoria, on the site now occupied by the monolith in Fargate, such Memorial to include a statue of Her late Majesty. Prizes of 100l., 50l. and 25l. respectively will be awarded to the three best of the unsuccessful competitors. Messrs. Wm. E. Clegg & George Franklin, honorary secretaries, Town Hall, Sheffield.

CONTRACTS OPEN.

ALDERSHOT.—Oct. 1.—For opening, filling and making good trenches for electric-light cables and mains. Mr. W. E. Foster, clerk to Urban District Council, Council Offices, Aldershot.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

BARKING.—Oct. 9.—For erection of an entrance-lodge, tool-house, building, and cart-shed at the recreation-ground, Longbridge Road, Barking, Essex. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BEXHILL.—Oct. 4.—For erection of the new coastguard buildings at Bexhill, Sussex, consisting of houses for an officer and twelve men, boathouse, watchroom, &c. Contract particulars may be seen at the Director of Works Department, Admiralty.

BIDEFORD.—Oct. 5.—For sewerage works in connection with the sewerage and disposal of the sewage of East-the-Water, Bideford. Mr. Baldwin Latham, Parliament Mansions, Victoria Street, Westminster.

BIRMINGHAM.—Oct. 8.—For erection of receiving wards, porter's lodge and new pavilion, stores and offices, workshed, at the workhouse, Selly Oak. Mr. Edwin Docker, clerk to the Guardians, 10 Newhall Street, Birmingham.

BRAINTREE.—Oct. 1.—For pulling-down and rebuilding two gables, returns and porch of chapels and two gate piers at Baintree cemetery. Messrs. A. & H. J. Cunningham, clerks to the Urban District Council, Baintree.

BRIDLINGTON.—Oct. 8.—For erection of central schools and caretaker's residence at Oxford Street, Bridlington. Mr. J. Earnshaw, architect, Bridlington.

BRIDLINGTON.—Oct. 8.—For heating the Central schools with hot-water (low pressure). Mr. J. Earnshaw, architect, Bridlington.

BRIGHTON.—Oct. 1.—For reroofing a covered way in the exercise yard adjoining the south ward at the workhouse, Elm Grove. Mr. B. Burfield, clerk to Guardians, Parochial Offices, Brighton.

BRISTOL.—Sept. 30.—For erection of an infants' school and special class centre at Wilson Street, St. Paul's. Messrs. Philip Munro & Son, architects, 6 St. Stephen's Chambers Baldwin Street, Bristol.

BRISTOL.—Oct. 1.—For erection of ten workmen's dwellings on the west side of Mina Road, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BUCKFASTLEIGH.—Oct. 15.—For following works in connection with the water-supply scheme, viz.:—(Contract No. 1) covered service reservoir; (2) excavating and laying about six miles of 4-inch and 3-inch cast-iron pipes and other works in connection therewith; (3) supplying about 150 tons of 4-inch and about 80 tons of 3-inch cast-iron pipes, together with all the necessary special pipes required. Mr. T. W. Stainthorpe, engineer, Gate House, Totnes, Devon.

BURLEY-IN-WHARFEDALE.—Oct. 1.—For supplying, laying and jointing of 1,548 yards of 6-inch cast-iron socket pipes and 850 yards of 3-inch cast-iron socket pipes, with sluice and air valves, &c., at Burley-in-Wharfedale. Mr. Malcolm Pater-son, engineer, 35 Manor Row, Bradford.

CAMBORNE.—Oct. 1.—For erection of a dwelling-house at Barrigger Road, Camborne, Cornwall. Mr. J. F. Pearce, Camborne.

CARLISLE.—Sept. 30.—For erection of four houses, Courtfield Gardens, Warwick Road, and two houses in Close Street. Messrs. Briggs Bros., Market Street, Carlisle.

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CARLISLE.—Oct. 1.—For erection of seven houses in Melbourne Road. Mr. James Beaty, Old Post Office Court.

CHEADLE.—Oct. 7.—For erection of mortuary buildings and chapels at the new cemetery, Stockport Road, Cheadle, Cheshire. Mr. Geoff. H. Brady, architect, 18 Little Underbank, Stockport.

CHELTENHAM.—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

COLCHESTER.—Oct. 14.—For heating the whole of the workhouse and suppling the baths, lavatories, &c., with hot water; also for supplying and fixing baths and sinks. Mr. Charles E. White, 57 North Hill, Colchester.

CONISTON.—Oct. 7.—For additions and alterations to the Sun hotel, Coniston. Mr. John Y. M'Intosh, architect, 6 Cornwallis Street, Barrow-in-Furness.

DALSTON LANE, N.E.—Sept. 30.—For erection of a portion of the new building for the North-East London Institute. Mr. Arthur W. Cooksey, architect, 4 Adam Street, Adelphi, W.C.

DEVIZES.—Oct. 12.—For erection of new visiting-rooms at the Wilts county pauper lunatic asylum, Wilts. Mr. Charles S. Adye, county surveyor, County Offices, Trowbridge.

EAST DONYLAND.—Oct. 12.—For sinking a borehole in the parish of East Donyland, Essex, to obtain a supply of water. Messrs. Sands & Walker, engineers, Angel Row, Nottingham.

ENFIELD.—Oct. 2.—For sinking a well, lining same with cylinders, driving adits, &c, on the site of the new pumping-station, Hadley Road. Mr. Richard Collins, surveyor, Court House, Enfield.

ERITH.—Oct. 7.—For construction of a galvanised iron building to accommodate twelve patients, as an extension of the infectious diseases hospital. Mr. Charles H. Fry, clerk, District Council Offices, High Street, Erith.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FELIXSTOWE.—Oct. 2.—For erecting seven groynes in front of Hamilton Terrace. Mr. F. B. Jennings, town clerk, Felixstowe.

GATESHEAD.—Sept. 30.—For additions to offices in Swinburne Street. Mr. J. Bower, borough surveyor, Gateshead.

GATESHEAD-ON-TYNE.—Sept. 30.—For extensions to wire rope factory of Messrs. Dixon & Corbitt and R. S. Newall & Co., Ltd., Teams, Gateshead-on-Tyne. Messrs. Marshall & Tweedy, architects, 4 Northumberland Street, Newcastle-on-Tyne.

GREAT YARMOUTH.—Oct. 1.—For erection of cemetery chapel, superintendent's lodge, office, toolhouse, entrance gates and fencing at Caister. Mr. J. W. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

HALIFAX.—Oct. 1.—For erection of stalls, &c., at the Borough Markets (late fish market). Mr. James Lord, borough engineer, Town Hall, Halifax.

HALIFAX.—Oct. 2.—For supply of a lathe at the tramway dépôt, Skirecoat Road. Mr. F. Spencer, tramways manager, Skircoat Road, Halifax.

HALIFAX.—Oct. 2.—For erection of a mild-steel overhead storage cistern at the tar-works, Charlestown Road. Mr. Thomas Holgate, gas engineer, Town Hall, Halifax.

HALIFAX.—Oct. 10.—For erection of stabling for twelve horses, cart-shed, &c, at Stone Trough Brewery. Mr. W. H. D. Horsfall, architect, Tower Chambers, Halifax.

HARROGATE.—Oct. 2.—For erection of steam laundry at Starbeck. Mr. F. Bagshaw, borough surveyor, Municipal Offices, Harrogate.

HINDLEY.—Sept. 30.—For erection of a residence on Castle Hill, Hindley, Lancs. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

HORNCHURCH.—Oct. 2.—For erection of school to accommodate 200 boys and 200 girls at Hornchurch, Essex. Mr. S. J. Adams, architect, Weston Chambers, Weston Road, Southend.

HORNSEA.—Sept. 30.—For extension and removal of ereosoted wood fencing at the cemetery, Southgate, Hornsea, Yorks. Mr. W. G. Warburton, surveyor, Public Rooms, Hornsea.

HOUNSLOW.—Sept. 30.—For erecting twenty-two houses for the working classes. Mr. P. G. Parkman, surveyor, Town Hall, Hounslow.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

HUDDERSFIELD.—Sept. 30.—For supply and erection at the electricity works, St. Andrew's Road, Huddersfield, of one 600-kw. alternating-current generating plant. Particulars may be obtained at the Town Clerk's Office, Town Hall.

HULL.—Oct. 5.—For erection of a pumping station at Hessele, near Hull, for the North-Eastern Railway Company. Mr. William Bell, company's architect, York.

ILFORD.—Oct. 7.—For erection of a boundary wall and fence, coal store, &c., at the electric-lighting station and depot, Ley Street, Ilford. Mr. H. Shaw, surveyor, 7 Cranbrook Road, Ilford.

ILFRACOMBE.—Sept. 30.—For sinking and lining with masonry two shafts to a depth of about 40 feet in a field in the parish of Bratton Fleming. Mr. C. G. Barnett, clerk, Town Hall, Ilfracombe.

ILKESTON.—Oct. 3.—For laying a line of 18-inch pumping main, about 2½ miles in length, from the site of the proposed pumping station at Meerbrook Sough to the intended Chadwick Nick reservoir. Messrs. G. & F. W. Hodson, Ilkeston and Heanor Water Board, Ilkeston.

IRELAND.—Oct. 1.—For sinking a well and erecting a pump in the townland of Charlestown. Mr. Bernard Halpenny, rural district councillor, Charlestown, Ardee.

IRELAND.—Oct. 1.—For cementing walls, flooring rooms, painting and general repair at Shiels's Institution, Carrickfergus. Particulars from the Superintendent.

IRELAND.—Oct. 5.—For erection of a manse at Hillsborough, near Belfast. Mr. Samuel Stevenson, architect, 83 Royal Avenue, Belfast.

IRELAND.—Oct. 5.—For erection of a masonry wall, with concrete coping, to enclose ground for cemetery, and erection of a gatehouse for caretaker of cemetery, Carrickfergus. Mr. W. D. R. Taggart, C.E., 17A Donegall Street, Belfast.

IRELAND.—Oct. 7.—For erection of two semi-detached villas, Upper Newtownards Road, Belfast. Mr. Thomas Houston, architect, Kingscourt, Wellington Place, Belfast.

IRELAND.—Oct. 7.—For proposed Killea extension of the Londonderry waterworks. Mr. J. J. S. Barnhill, engineer to the Council, 1A Strand, Londonderry.

IRELAND.—Oct. 19.—For improvement of Annalong harbour, co. Down. Mr. Robert MacIlwaine, secretary to the County Council, Court House, Downpatrick.

KEIGHLEY.—Oct. 2.—For erection of conveniences in Sun Street. Mr. W. H. Hopkinson, borough engineer.

KINGTON.—Sept. 30.—For taking-down existing old bridge and erecting a steel trough decked bridge over the Hindwell Brook at Broadhurst, Little Brampton, Hereford. Mr. A. Temple, clerk, Kington, Hereford.

LEEDS.—Sept. 30.—For erection of club premises at the corner of Sussex Street, Upper Accommodation Road. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEEDS.—Oct. 7.—For extension of the Burmantofts carshed. Particulars may be obtained at the City Engineer's Office, Leeds.

LEICESTER.—Sept. 28.—For erection of competitors' room at the Belgrave baths. The Chairman of the baths committee, Town Hall, Leicester.

LINCOLN.—Sept. 28.—For erection of a boiler shop about 435 feet long and 222 feet wide, and erection of about 960 tons in steel stanchions, girders, roof principals, &c. Messrs. Ruston, Proctor & Co., Ltd, Sheaf Ironworks, Lincoln.

LITTLEHAMPTON.—Oct. 2.—For construction and erection of steam-engine, boilers and pumping machinery in buildings on site of well at Warningcamp, near Arundel, Sussex. Mr. H. Howard, engineer, Town Offices, Littlehampton.

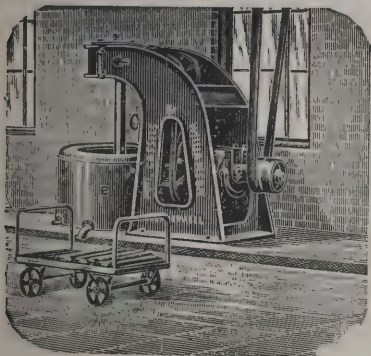
LONDON.—Oct. 3.—For construction of five steel gas buoys and two steel transport receivers for compressed gas, for the Corporation of Trinity House, London, E.C. Mr. Chas. A. Kent, secretary, Trinity House.

LONDON.—Oct. 3.—For erection of one Alliot & Paton's improved Washington Lyons steam disinfecter together with all the necessary buildings, fittings, &c., at the infirmary, Cambridge Heath, N.E. Mr. D. Thomas, clerk, Bishop's Road, Bethnal Green, N.E.

LONDON.—Oct. 8.—For supplying and fixing lifts, motors, pumps, ventilating fans, lamps, cables, wires, conductors, switchboards and columns, &c., required for the electrical equipment of the Greenwich footway tunnel and its approaches. Particulars may be had at the Engineer's department, County Hall, Spring Gardens, S.W.

LONDON, S.E.—Oct. 15.—For erection of a receiving ward for children at the workhouse, Renfrew Road, Lower Kennington Lane, S.E. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

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LIVERPOOL.—Oct. 2.—For alterations to Richmond Lodge Children's Home, Wavertree. Mr. Walter W. Thomas, architect, Lord Street, Liverpool.

MALLOW.—Oct. 2.—For erection of labourers' cottages, out-offices, with piers and gates, &c. Mr. Maurice Regan, clerk to Rural District Council, Mallow.

MALTON.—Oct. 11.—For water-supply works for the village of Welburn, Yorks, and the erection of wheel and pump-house and reservoir, together with the necessary pumping machinery, collecting and distributing works, mains, fountains, &c. Mr. Robt. Richardson, engineer, Town Hall, Malton.

MANCHESTER.—For erection of Primitive Methodist church at Chorlton-cum-Hardy. Messrs. Moulds & Porritt, architects, 77 King Street, Manchester.

MANCHESTER.—Oct. 2.—For erection of a washer-scrubber at the Rochdale Road gas-station, capable of passing 175,000 cubic feet of gas per hour. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

MANCHESTER.—Oct. 2.—For supply of a 10-ton locomotive tipping-crane for Bradford Road station. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

MANCHESTER.—Oct. 2.—For supply and delivery of ampere-hour and watt-hour meters. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Oct. 9.—For supply, delivery and laying of the following cables, for the electricity committee:—(a) Three-core three-phase high-tension feeders, approximate length, 74 miles; (b) traction feeders, approximate length, 7 miles; (c) lighting feeders, approximate length, 3½ miles; (d) distributors, approximate length, 33 miles; (e) potential wires, approximate length, 11½ miles; (f) arc-lighting cables, approximate length, 15½ miles; (g) telephone cables, approximate length, 3½ miles. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Oct. 16.—For erection of a police and fire station at Mill Street. Particulars can be obtained at the City Surveyor's Office, Town Hall, Manchester.

MENSTON.—Sept. 30.—For erection of an isolation hospital at Menston, Yorks, consisting of administrative block, scarlet-fever pavilion, typhoid-fever pavilion, isolation pavilion, laundry, engineering and stable block, mortuary and discharge block, porter's lodge, roads, drainage, &c. Messrs. Blackwell & Thomson, architects, Leicester.

NEWHAVEN.—Oct. 9.—For removal of the old and the supply and fixing complete of a new penstock at the outfall of the sewer, Fort Road, Newhaven, Sussex. Mr. F. J. Rayner, Town Surveyor's Office, Newhaven, Sussex.

OLDHAM.—Oct. 8.—For erection of a generating station at Greenhill, Oldham. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

PEMBROKESHIRE.—Oct. 15.—For extension of Rosslare Pier. Mr. Otway, engineer, Inchicore, Dublin.

PLYMOUTH.—Oct. 1.—For erection of schools in Salisbury Road. Mr. H. J. Snell, architect, 11 The Crescent, Plymouth.

RAWMARSH.—Oct. 7.—For repairs to the gas and water mains and sewage pipes, also repairs to the roadway and footpaths in Dale Road. Mr. J. W. Bellamy, clerk, Council Offices, Rawmarsh, Yorks.

ROCHDALE.—Oct. 2.—For supply of feeder and distributor cables. Mr. C. C. Atchison, borough electrical engineer, Electricity Works, Dane Street.

ROCHDALE.—Oct. 15.—For laying about 4½ miles of cast-iron pipes, 13 inches in diameter, from Bottoms, in the borough of Todmorden, to Littleborough, with all accessory works. Mr. James Mansergh, engineer, 5 Victoria Street, Westminster.

RUSHDEN.—Oct. 2.—For erection of fire station and cottage, Newton Road, Rushden, Northants. Mr. W. B. Madin, town surveyor, Vestry Hall, Rushden.

SCOTLAND.—Sept. 30.—For erection of a stationmaster's house at St. Fillans, for the Lochearnhead, St. Fillans and Comrie Railway Company. Messrs. Crouch & Hogg, engineers, 53 Bothwell Street, Glasgow.

SCOTLAND.—Sept. 30.—For construction of additional settling ponds, for the Edinburgh and District Water Trustees. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SCOTLAND.—Sept. 30.—For cutting tracks and laying and jointing about 2,320 yards of 33-inch cast-iron pipes, for the Edinburgh and District Water Trustees. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SCOTLAND.—Sept. 30.—For reconstruction of the buildings 75-101 Union Street, in connection with the extension of the Glasgow Central Station. Mr. James Miller, architect, 15 Blythswood Square, Glasgow.

SCOTLAND.—Oct. 1.—For erection of a church at Burghead. Messrs. A. & W. Reid & Wittet, architects, Elgin.

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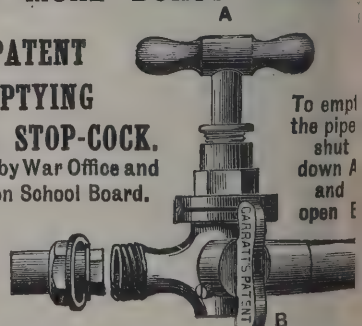
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SCOTLAND.—Oct. 2.—For additions and alterations to the Barnhill poorhouse, Glasgow. Messrs. MacWhannel & Rogerson, architects, 59 West Regent Street, Glasgow.

SCOTLAND.—Oct. 2.—For provision of a water supply for the village of Dumlithie, Stonehaven, Kincardineshire. Mr. J. Graham, county sanitary inspector, County Public Health Office, Stonehaven.

SCOTLAND.—Oct. 3.—For construction of a timber pier and stores at Stromness. Mr. C. Dick Peddie, secretary, Northern Lighthouse Board, Edinburgh.

SCOTLAND.—Oct. 7.—For laying 1,617 yards of 6-inch S. and F. fireclay pipes, &c., in connection with providing a new water-supply for the villages of High and Low Banton, in the parish of Kilsyth, Stirlingshire. Specifications and schedules can be had on application at the County Sanitary Inspector's office, 48 Barnton Street, Stirling.

SCOTLAND.—Oct. 14.—For supply, delivery and erection of a main switchboard at Kirkcaldy. Mr. Wm. L. Macindoe, town clerk, Kirkcaldy.

SHEFFIELD.—Oct. 8.—For works in connection with the public baths and library, Duke Street Park. Mr. C. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SIDCUP.—Oct. 10.—For installation of boilers, laundry fittings, &c., at the new children's homes at Halfway Street, near Sidcup, Kent. Mr. Thomas Dinwiddy, architect, 12 Crooms Hill, Greenwich, S.E.

SLOUGH.—Oct. 15.—For erection of new gasworks at Upton Lea, Slough. Mr. R. Martin, chairman, Gas and Coke Co., Castle View, Chalvey, Slough.

STANWAY.—Oct. 1.—For erection of a laundry at Stanway, Essex. Mr. G. H. Page, architect, Trinity Chambers, Colchester.

ST. ANNES-ON-SEA.—Oct. 8.—For erection of a goods warehouse, offices, stables, &c., at St. Annes-on-Sea, Lancs, for the Lancashire and Yorkshire and London and North-Western Joint Railways. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

SWINDON.—Oct. 2.—For erection of buildings and chimney-shaft, for the Corporation electricity works in Corporation Street. Messrs. Lacey, Clirehugh & Sillar, engineers, 2 Queen Anne's Gate, Westminster.

THORNABY.—Oct. 5.—For alterations and additions to Thornaby police-station. Particulars can be obtained at the County Surveyor's Office, Northallerton.

TOOTING, S.W.—Oct. 8.—For erection of 276 cottage dwellings for the working classes on part of the Totterdown Fields Estate. The Architect's Department, L.C.C., 18 Pall Mall East, S.W.

WALES.—Sept. 30.—For erection of hotel in Brynhyfyrd Road, Rhymney. Mr. T. Roderick, architect, Glebeland, Merthyr Tydfil.

WALES.—Sept. 30.—For rebuilding a slaughter-house at Capcoch. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—Sept. 30.—For erection of a Calvinistic Methodist chapel at Clwydyfagwr, Merthyr Tydfil. Mr. T. Roderick, architect, Glebeland, Merthyr Tydfil.

WALES.—Sept. 30.—For additions, &c., to the Fforchneol inn, Cwmaman, Aberdare. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Sept. 30.—For erection of schools at Machynlleth. Mr. J. Cook Rees, architect, St. Thomas Chambers, Neath.

WALES.—Sept. 30.—For erection of thirteen houses at Trelewis. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Oct. 1.—For enlarging Llechyfedach schools, Llannon. Mr. Wm. Griffiths, architect, Falcon Chambers, Llanelly.

WALES.—Oct. 1.—For erection of a chapel, caretaker's house, outbuildings, fencing and entrances (one contract) at the new cemetery, Abercarn. Mr. George Stevens, surveyor, Council Offices, Abercarn.

WALES.—Oct. 2.—For erection of a school at Brynmawr for 420 boys, and for converting the three departments of present schools into two departments and executing various repairs at the Brynmawr Board schools. Mr. F. Baldwin, architect, 13 Frogmore Street, Abergavenny.

WALES.—Oct. 3.—For steel girderwork required for the Blackmill, near Bridgend, joint bridge, and for the fixing of the same in place. Mr. H. Dawkin Williams, engineer, Blackmill, near Bridgend, South Wales.

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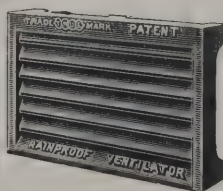
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WALES.—Oct. 10.—For erection of the proposed hospital for Pontypool and district on a site abutting Leigh Road. Mr. Robert Williams, architect, 10 Clifford Inn, Fleet Street, E.C.

WAKEFIELD.—Sept. 30.—For extension of the water supply at Sandal Magna. Mr. Frank Massie, Council Offices, Sandal, Yorks.

WELLINGTON.—Oct. 1.—For erection of sixteen workmen's dwellings in Wellington (Salop). Mr. J. W. Littlewood, clerk to the Urban District Council, Church Street, Wellington, Salop.

WESTON-SUPER-MARE.—Oct. 2.—For erection of boundary walls of the new school site on the Uphill manor estate. Mr. Wadsworth B. Lillington, clerk to the School Board, 46 Waterloo Street, Weston-super-Mare.

WEST TARRING.—Sept. 30.—For laying about 250 yards of 4-inch water main, &c., in Parkfield Road, West Tarring, Sussex. Mr. H. Bartlett, surveyor, Railway Approach, Worthing.

WIGAN.—Sept. 30.—For erection of three dwelling-houses, branch grocery and provisions and butchery stores, in Park Road. Messrs. Heaton, Ralph & Heaton, architects, King Street, Wigan.

WINDSOR.—Oct. 1.—For erection of workshops and stores at the Windsor Royal Gasworks. Mr. John Henry Strange, secretary, 2 Victoria Street, Windsor.

WINLATON.—Oct. 10.—For erection of a boys' school, master's and caretaker's houses, conveniences and boundary walling at Rowlands Gill. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-on-Tyne.

WOMBWELL.—Sept. 30.—For erection of six houses for Mr. Wm. Johnson, four houses for Mr. John Carr, and a villa for Mr. G. A. Hollin. Mr. John Robinson, architect, Park Cottage, Wombwell, Yorks.

WOOLWICH.—Oct. 3.—For erection of reception-house for dead bodies upon a site adjoining St. John's Church, Eltham. Mr. Frank Sumner, borough surveyor, Maxey Road, Plumstead.

WORTHING.—For erection of two houses in Bath Road. Mr. R. Singer Hyde, architect, Worthing.

WREXHAM.—For erection of a drill hall for the 1st V.B., R.W.F. Mr. M. J. Gummow, architect, Egerton Street, Wrexham.

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C. Smith	£11 10 0
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For erection of a mortuary in Livingstone Street, Birkenhead. Mr. C. BROWNRIDGE, borough engineer and surveyor, who supplied quantities.

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Accepted tenders.

G. Chadwick, 10 Clarendon Road, for Snow Street. Dewhurst & Hindle, Whalley Old Road, for Rosehill, Rawstorne Street, back road between Malvern Avenue and Abbotsford Avenue.

J. Eddleston & Son, Pleasington, for back road between Jessel Street and Young Street.

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T. Lindley, plasterer	178	5	0
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B. Dennison, smith and founder and plumber and glazier	200	12	0
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Section 4.

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For erection of thirty four-roomed artisans' dwellings in Dewe Road, Lewes Road. Mr. FRANCIS J. C. MAY, borough engineer.

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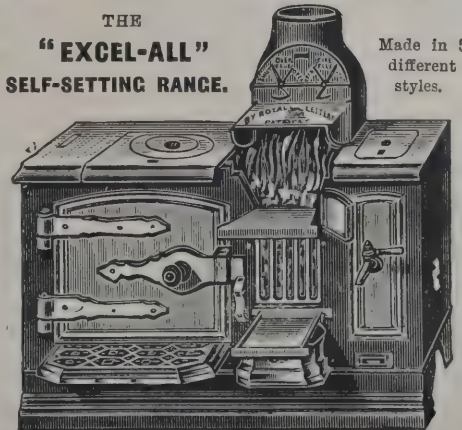
With Open and Close Fire and Fall Bar (A 1923 as drawn).
FITTED WITH PATENTED FLUE NOZZLE.

Sizes	...	24	26	28	30	32	34	36	39 inches wide.
Oven and Sham	26/-	28/-	32/-	35/-	37/-	38/6	39/9	50/-	each.
Sizes	27	30	32	34	36	39	42 inches wide.
Oven and Boiler with Tap	36/-	38/-	39/9	42/-	46/6	58/-	65/- each.

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are double the usual
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Setting.

BRISTOL.

For erection of a disinfecting station.

GODDARD, MASSEY & WARNER (accepted) . £468 0 0

For alterations to the kitchen department at the Royal Infirmary. Mr. A. P. I. COTTERELL, architect, 28 Baldwin Street, Bristol.

B. H. Howell £724 0 0

A. J. Bevan 680 0 0

S. R. Gorvett 675 0 0

E. Love 629 0 0

L. Browning 600 0 0

L. Thomas & Son 596 0 0

Hatherley 574 0 0

A. DOWLING, 125 North Road, St. Andrews, Bristol (accepted) 552 0 0

BROCKLEY.

For erection of water-closets and urinals at the Brockley cemetery.

HALL BROS., New Cross, S.E. (accepted) . . £116 10 0

CHELMSFORD.

For street works in the parish of Springfield. Mr. H. GLYNN WARNE, surveyor, Market Road, Chelmsford.

Queen's Road.

H. Potter £520 0 0

Bonnat & Co. 389 15 6

F. Johnson 385 0 0

J. Jackson 347 0 0

Burgoyne & Son 312 1 6

WILSON, BORDER & Co., Ilford (accepted) . . 322 15 9

Navigation Road.

H. Potter 575 0 0

Bonnat & Co. 481 10 6

Burgoyne & Son 472 3 0

J. Jackson 417 0 0

F. Johnson 415 0 0

WILSON, BORDER & Co. (accepted) 367 15 13

COCKERMOUTH.

For widening a portion of the road from Portinscale to Newlands and near the former place. Mr. J. B. WILSON, surveyor, Court Buildings, Cockermouth.

Hodgson & Birkett £269 10 0

W. WEIGHTMAN, Helvellyn Street, Keswick (accepted) 135 2 3

COTGRAVE.

For erection of Wesleyan church, Cotgrave, Notts. Mr. A. E. LAMBERT, architect, 22 Park Row, Nottingham.

A. E. Smith £1,375 0 0

H. Green & Sons 1,368 10 0

T. Cuthbert 1,330 0 0

J. Walker 1,324 0 0

W. Mawle 1,205 0 0

J. Lewin 1,166 0 0

G. T. Tegerdine 1,140 0 0

J. Musson 1,133 7 6

T. BARLOW, Nottingham (accepted) . . . 1,090 0 0

DARLINGTON.

For painting at the gasworks.

DAVISON & SONS (accepted).

DEPTFORD.

For street works at Sanford Street and Whitcher Street.

Sanford Street.

J. E. ETHERIDGE, Deptford (accepted) . . £900 5 10

Whitcher Street.

J. E. ETHERIDGE, Deptford (accepted) . . . 777 9 0

DEVIZES.

For streetworks in Avon Road, Salisbury Street and Beuchere Street.

H. ASH (accepted).

ERITH.

For erection of an engine and boiler-house (Section L); chimney-shaft (M); for sanitary work, water and fire services (N); the construction of rain and surface water drains (O); approach roads (P).

RADFORD & GREAVES, Derby—Section L, £3,275 4s. 4d.; Section M, £524 9s. 1d.; Section N, £292 11s. 2d.; Section O, £331 1s. 7d.; Section P, £104 8s. (accepted provisionally).

FLOOKBURGH.

For rebuilding farm premises at Field Head, Flookburgh, Lancs. Mr. C. P. CHAMBERS, architect, 34 Cornwallis Street, Barrow-in-Furness.

W. Blair £521 1 9

R. HUTTON, Cart-in-Cartmel (accepted) . . 458 7 6

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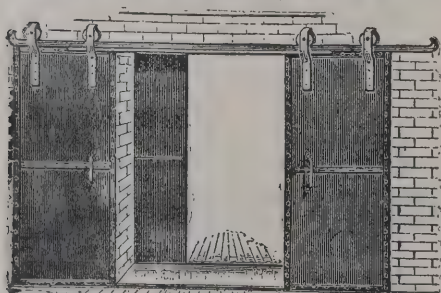
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ENFIELD.

For erection of a junior mixed school at Chesterfield Road Enfield Lock. Mr. G. E. T. LAURENCE, architect, 22 Buckingham Street, Adelphi, W.C.

For buildings complete for 540 children.

J. & M. Patrick, Wandsworth, S.W.	£10,050	0	0
P. Banyard, Cambridge	9,987	10	0
C. G. Hill, Coventry	9,535	0	0
C. H. Hunt, High Wycombe	9,391	0	0
Treasure & Son, Holloway	9,231	0	0
Martin, Wells & Co., Vauxhall, S.E.	9,054	0	0
A. Porter, Tottenham	9,002	0	0
A. & B. Hanson, Southall, Middlesex	8,892	0	0
A. F. Almond, Enfield Highway	8,761	0	0
A. Monk, Lower Edmonton	8,599	0	0
H. Knight & Son, Tottenham	8,521	0	0
T. Almond & Son, Ponder's End	8,409	0	0
J. Chessum & Sons, Bow, E.	8,375	0	0
R. L. Tonge, Watford	8,181	0	0
W. Lawrance & Son, Waltham Abbey	8,149	0	0
A. Fairhead & Son, Enfield*	8,093	0	0

For buildings complete for 420 children.

J. & M. Patrick	9,431	0	0
P. Banyard	9,421	0	0
C. G. Hill	9,020	0	0
C. H. Hunt	8,798	0	0
Treasure & Son	8,650	0	0
Martin, Wells & Co.	8,493	0	0
A. Porter	8,440	0	0
A. & B. Hanson	8,310	0	0
A. F. Almond	8,190	0	0
A. Monk	8,069	0	0
H. Knight & Son	7,996	0	0
T. Almond & Son	7,891	0	0
J. Chessum & Sons	7,837	0	0
R. L. Tonge	7,650	0	0
W. Lawrance & Son	7,640	0	0
A. Fairhead & Son	7,568	0	0

* Accepted subject to the approval of the Board of Education.

GLOUCESTER.

For construction and erection of a sanitary convenience at the cemetery.

W. Byard	£134	0	0
J. C. Leat	128	15	0
J. Gurney	128	3	6
W. T. Nicholls	127	18	6
Davis & Kendall	119	16	8
H. J. ANNANDALE, Barton Street (accepted)	103	19	5

HOMERTON.

For repairs and redecoration to cottages in Sydney Road. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

Barrett & Power	£400	0	0
W. J. Clark	333	0	0
G. Moore	287	10	0
Silk & Son	285	0	0
STARLING & SON (accepted)	248	0	0
Gibb & Co.	247	0	0

HOUGHTON REGIS.

For additions to the Upper Houghton Regis Board school, Dunstable. Messrs. J. R. BROWN & SON, architects, Castle Street Chambers, Luton.

Taylor & Son	£447	10	0
F. F. White	376	0	0
Ayre & Son	300	0	0
Pitkin & Son	297	0	0
J. LIGHTFOOT, Dunstable (accepted)	280	0	0

HUNWICK.

For cleaning and painting Primitive Methodist chapel.

G. Temple	£25	15	0
E. Hay	19	10	0
J. T. Barker	17	4	6
J. & J. J. Burdon	15	18	6
W. Wilson	12	0	0
F. CALDCLEUGH, Bishop Auckland (accepted)	11	0	0

KNUTSFORD.

For internal painting and limewashing of certain blocks of the workhouse buildings. Mr. ROBERT J. MCBEATH, architect, Birnam House, Sale.

COX & EMBLETON, Knutsford (accepted)	£60	0	0
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HAM HILL STONE. DOULTING STONE.

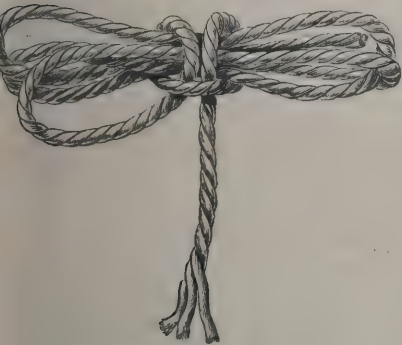
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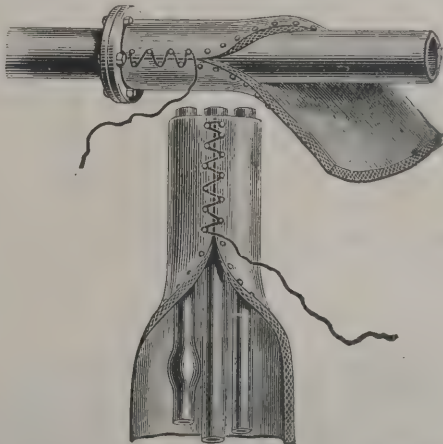
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KETTERING.

For erection of masonic hall and cottage, York Road.

Hall.

Goodman & Murkett	£884	0	0
C. Andrews	832	0	0
C. & F. Henson	796	0	0
W. J. Payne	795	0	0
Co-operative Building Company	780	0	0
Howard & Lewis	770	0	0
J. Goodwin	769	0	0
A. Lewin & Son	756	0	0
Smith, Edmunds & Co.	752	0	0
C. C. Sharman	730	0	0
Smith & Bunning	725	0	0
JOHNSON & PHILLIPS, Kettering (accepted)	659	0	0

Cottage.

Goodman & Murkett	307	0	0
C. Andrews	296	0	0
Co-operative Building Co.	289	0	0
Howard & Lewis	288	0	0
J. Goodwin	284	0	0
Smith, Edmunds & Co.	281	0	0
W. J. Payne	277	0	0
C. & F. Henson	270	0	0
C. C. Sharman	270	0	0
A. Lewin & Son	269	0	0
Smith & Bunning	249	0	0
JOHNSON & PHILLIPS, Kettering (accepted)	229	0	0

LIVERSEDGE.

For erection of buildings, &c., for the proposed new cemetery, Mr. ALFRED E. RHODES, architect, Cemetery Road, Heckmondwike.

Accepted tenders.

G. Horsfall & Son, excavator, mason and bricklayer.
J. H. Muffitt, carpenter and joiner.
J. H. Jemison, plumber.
J. B. Greenwood, Heckmondwike, plasterer.
W. H. Thompson, Batley, slater.
J. Plett, painter.
W. H. Wormald, Lower Hopton, Mirfield, smith.

LAMBETH.

For extension of kitchen accommodation at Prince's Road Workhouse.

Castle Bros.	£1,177	0	0
J. Parsons	1,075	0	0
H. Kent	1,069	0	0
J. Westbrook	1,050	0	0
W. Pearce	1,025	0	0
H. BRAGG & SONS, Brixton (accepted)	960	0	0

LONDON.

For erection of casual wards in Little Gray's Inn Road, W.C. Messrs. SMITH & COGGIN, architects, York Buildings, Adelphi, W.C.

J. Smith & Sons	£11,343	0	0
Staines & Sons	11,300	0	0
C. G. Hill	11,146	0	0
Johnson & Son	11,030	7	6
A. Bush	11,009	0	0
B. E. Nightingale	10,788	0	0
W. Smith & Sons	10,740	4	6
W. Wallis	10,595	0	0
Patman & Fotheringham	10,593	0	0
H. Wall & Co.	10,491	0	0
F. & F. H. Higgs	10,382	0	0
H. L. Holloway	10,358	0	0
Prestige & Co.	10,353	0	0
F. G. Minter	10,163	0	0
Foster Bros.	10,161	0	0
Martin, Wells & Co.	10,134	0	0
Davis & Leaney	9,921	15	0
J. Richardson	9,783	0	0
W. Reason	9,615	0	0
LAWRENCE & SON, Canal Works, Waltham Abbey (accepted)	9,372	0	0

LYTHAM.

For construction of sewers, sewage tanks, pump-well, &c. Mr. A. J. PRICE, engineer, Lytham, Lancs. J. S. DAWSON, 11 Windsor Avenue, Blackpool (accepted).

MILTON-NEXT-SITTINGBOURNE.

For erection of a wharf and sundry additional piling works at Craft's Marsh. Mr. W. A. FARNHAM, surveyor, Town Hall, Milton. J. C. RYDER, Rainham, Kent (accepted) £310 0 0

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POOLE.

For street works in Alton Road, Parkstone. Mr. JOHN ELDFORD, borough surveyor.

S. SAUNDERS, Newtown, Poole (accepted). £399 11 0

RAMSGATE.

For sinking a deep well on the hospital site at Haine Road.

R. F. Batchelor £480 18 2

A. Baldock & Sons 155 0 0

G. Shoemsmith 148 10 0

Padget & Sons 140 0 0

A. Dagg 98 0 0

W. W. MARTIN, Ramsgate (accepted) 70 0 0

RAWTENSTALL (LANCS).

For rebuilding a portion of the Holt Mill (county) Bridge over the river Irwell.

O. ASHWORTH, Crawshawbooth, Rawtenstall (accepted).

SHOREDITCH.

For alterations to the laundries at the workhouse and infirmary.

J. IVORY, 102 Great Cambridge Street, E (accepted) £142 10 0

SOUTHAMPTON.

For laying-out the grounds of the new workhouse infirmary.

W. H. ROGERS & SONS (accepted) £460 0 0

SOUTHBOROUGH.

For erection of a chapel and cottage in connection with the proposed new cemetery. Mr. WILLIAM HARMER, surveyor, 137 London Road, Southborough, Kent.

Whibley £1,900 0 0

Gallard 1,492 0 0

Gam & Co. 1,380 0 0

Martin & Co. 1,300 0 0

K. C. Jarvis 1,240 0 0

Tapner & Co. 1,235 0 0

Leeney & Son 1,228 0 0

Beale & Son 1,220 0 0

Marshall 1,205 0 0

Crates & Son 1,179 0 0

Punnett & Son 1,175 0 0

POTTER, Southborough (accepted) 1,172 8 10

STOCKTON-ON-TEES.

For extensions at the Imperial Boiler Works. Mr. W. H. LINTON, architect, 13 Exchange, Stockton.

Palfreeman & Coulthard £932 0 2

D Rowell & Co. 931 19 9

Bastiman Bros. 852 2 6

S. Coates 764 18 7

A Atkinson & Co. 733 6 6

Hudson Bros. 704 0 0

T. Hanby 669 11 8

J. DAVISON, Stockton-on-Tees (accepted) 640 2 0

ULVERSTON.

For improvement works at High Bridge.

ASHBURNER'S, Elliscales Quarries, Dalton-in-Furness (accepted).

TRADE NOTES.

THE entire warming, ventilation and hot-water supply for the new reading-room, baths and club at Tankersley is being carried out by Messrs. John King, Ltd, engineers, Liverpool.

THE ventilation of Coal Clough school, Burnley, has been carried out by means of Mackay's patent direct-acting ventilators, supplied by the sole makers, Messrs. Cousland & Mackay, ventilating engineers, Glasgow and Manchester

WE have received from Mr. James Melling, Dashwood House, E.C., particulars of the Pure Air Radiator, the heat being generated by the current from any electric supply main, further particulars of which we hope to give in our next issue

A LARGE clock has just been erected upon the parish church of Little Gransden, Herts, which strikes the hours upon the largest church bell and shows time on a large dial facing north. The work has been carried out by Messrs John Smith & Sons, Midland Clock Works, Derby.

MESSRS. PARKER'S JOINERY AND CABINET COMPANY, LTD., of Conybere Street, Birmingham, write us that they have been instructed by the Birmingham city surveyor to erect two pavilions for the accommodation of extra nurses at the Fever Hospital, Yardley, and also instructions from Dr. Beazeley, the medical superintendent, for the furnishing of these pavilions, and several other articles of furniture for other parts of the hospital. A contract has also been accepted for the whole of the joiners' and cabinetwork in the erection of a new billiard-room and other extensions to the house of Mr. F. Bowden at Nottingham, and another by Mr. E. Fletcher for the supply of the whole of the internal fittings to the new extension at the Louvre, High Street, Birmingham.

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"PERFECT" Universal Cleaner, for removal of Old Paint and Varnish from Wood, Iron, Steel, or Stone. Magical in action. Guaranteed not to injure material, and new Paint or Varnish may be at once applied.

ROPHYRINE.—A Liquid for Dressing Walls of New Houses, to prevent Damp, and so that Paint or Paper may be put on at once, and for Removing Damp in Old Houses. This is a really wonderful preparation.

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THE NEW CATHEDRAL, WESTMINSTER.

PROPOSED HOUSES AT HAMPSTEAD; LISS, HANTS; AND
WALTON-ON-HILL, SURREY.**VARIETIES.**

THE memorial-stone of Prestwick, N.B., High school was laid on Monday.

AT Southend on Tuesday Lord Avebury laid the foundation-stone of the new technical schools which are being erected there at a cost of upwards of 19,500*l*.

THE Bishop of Rochester dedicated the new church of St. Thomas, Telford Park, Streatham Hill, on the 19th inst. The building, which is not yet finished, will on its completion have cost 12,000*l*.

AT Grimsby on Tuesday the foundation-stones of the new Harold Street Board schools were laid by Mr. J. Whiteley Wilkin, vice-chairman of the Board, and the Rev. Father Hawkins, a member.

THE Countess of Derby has consented to open the Liverpool Sanatorium at Delamere Forest on the 18th proximo. The foundation-stone of this building was laid by Lord Derby on the 6th of October last.

AN open competition resulted in twenty designs being submitted for a proposed new market hall, &c., at Llanrwst, in North Wales. The successful competitor is Mr. E. Grubb, of South Shore, Blackpool, to whom the premium of 20*l*. has been awarded.

A NEW college which has been erected on the Weaponness estate on the Southcliff at Scarborough was opened on the 18th inst. The cost of the building and site has been about 11,385*l*., and when the grounds are laid out the approximate total cost will have been 13,000*l*. The accommodation of the building is for 100 boarders.

A NEW church for the United Methodists of Lambeth was opened on Saturday. It is situated in a prominent position in Fentiman Road, South Lambeth, and has been erected in place of an old building in Miles Street, which has served its purpose for over half a century. It has, with the schools adjoining, cost altogether 10,500*l*.

THE employes of Messrs. Stanley, opticians, of Great Turnstile, Holborn, experienced a shock on Monday morning, when on opening the premises they found the remains of Percy Coles, a young clerk who, as shown at the inquest, committed suicide by taking cyanide of potassium on Saturday afternoon, and had lain where fell till discovered some forty-five hours after.

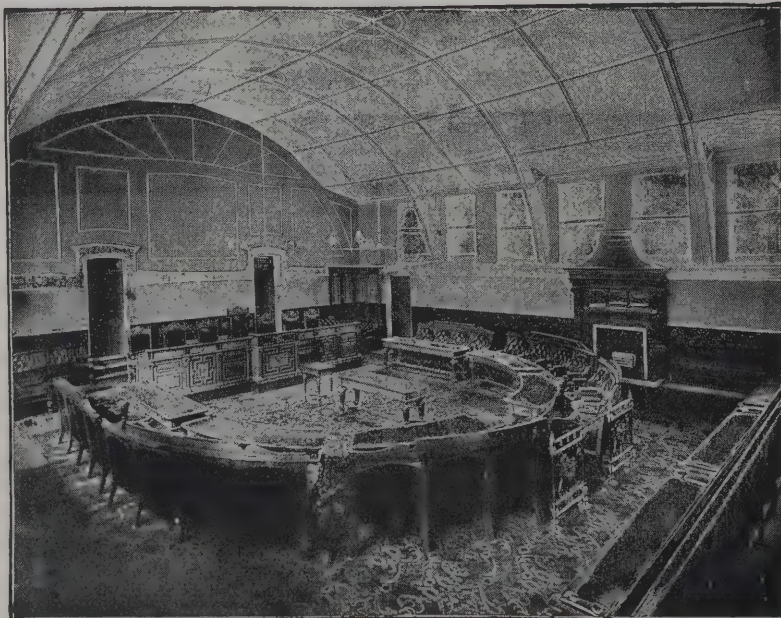
AT Balterley, Staffs, which has been erected by his widow as a memorial of the late Mr. Thomas Fletcher-Twemlow, of Betley Park, was opened on the 19th inst. by the Bishop of Chester. It has been built from the designs of Messrs. Paley & Austin in Accrington red brick, with red sandstone dressings. It is 55 feet long by 17 feet 6 inches wide, and affords accommodation for about 100.

THE new waterworks which have been erected for the burgh of Wishaw, at a cost of upwards of 100,000*l*., were formally opened at Peden, in the parish of Crawford, on the 19th inst. The water, which is of excellent quality, is drawn from three burns—the Potrail, Portrenick and Peden—rising in the Lowthers, in the borders of Dumfriesshire, and pipes have been laid capable of delivering 2,220,000 gallons per day.

THE Mayor of Chester opened on Wednesday the new public baths which have been erected in that city, at a cost of close upon 13,000*l*. Hitherto the only baths in Chester have been the floating structure on the Dee, and better provision has long been strenuously advocated by the citizens. The new baths are up to date, and rank amongst the finest in the country. There are two large plunge baths, slipper and vapour bath for men and women, &c.

HORSFORTH CHURCH, which was erected about twenty years since from the designs of the late Mr. J. L. Pearson, R.A., has only now been completed. The tower, which stands at the south side of the chancel, was then left temporarily roofed at a height of 58 feet, and has now been carried to a height of 83 feet, to the design of Mr. James B. Fraser, of Leeds. The spire rises to a height of 173 feet, and within the belfry is of sufficient size to accommodate a peal of eight bells, but as yet no arrangement has been made for these.

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HUISH EPISCOPI CHURCH, Somerset, was on Sunday evening, just after the festival service, the scene of a curious accident. The tower is one of the finest in the county and contains five bells, the tenor weighing one ton. They were being rung down when the entire cage, 70 feet above the floor, collapsed. Fortunately the falling mass jammed before reaching the floor on which the ringers were. In the vestry below were the vicar (the Rev. J. Stubbs) and the Rev. Edgar Hornsby. The tower was much damaged. Nobody was injured.

AT Golders Green, among the open fields to the north of Hampstead Heath, the London Cremation Company have acquired 12 acres of land, which will be set apart for the cremation of the dead. A beautiful chapel is being built, the design of which, by Mr. Ernest Yeates, was exhibited at the Royal Academy this year, and the grounds, instead of being a wilderness of gravestones, will be laid out as a pleasantly-wooded garden, surrounded by arched cloisters containing niches for the urns and caskets of the departed.

THE Oldbury Urban District Council are making application to the Local Government Board for a provisional order authorising them to put in force the powers of the Lands Clauses Consolidation Act, 1845, to enable the Urban Authority to purchase otherwise than by agreement land situated at Warley, which is required for the erection and construction of a pumping station and other works in connection with the scheme for the sewerage of the Warley district. The total quantity of land in respect of which the compulsory powers of purchase are sought is over 2 acres.

THE great east window of Dunblane Cathedral, which has been filled with stained glass at the expense of Mrs. Hay, was dedicated on Sunday last. The two side lancet windows are filled with figures of the Prophets David, Micah, Isaiah, Jeremiah, Jonah, Ezekiel, Hosea and Zechariah. Between the central mullions are scenes in the closing life of Christ, beginning with the "Agony in the Garden," "Christ before Pilate," "Procession to Calvary," "Crucifixion," "Charge to St. Peter," "Appearance to Mary Magdalene," the last scene being "The Burial of Christ." The whole colouring is a fine example of the glass-stainer's art.

COUNT SUZOR, the president of the Russian Theatre Safety Commission, who is now on a visit to London inquiring into the effect of our regulations, was entertained at luncheon at the Carlton Hotel by Mr. Edwin O. Sachs, chairman of the British Fire-Prevention Committee, to meet the chairmen of

the sub-committees, the chief officer of the Salvage Corps, and other experts on the subject. Count Suzor afterwards inspected the committee's new testing-station with a view of creating similar facilities for research at St. Petersburg, under a scheme mooted in connection with the terrible fire losses which have occurred in Russia during recent years.

AN addition to the church of St. Saviour, Ravensthorpe, Yorks, has been opened by the bishop of the diocese, Dr. Eden. Mr. W. Hodgson Fowler, architect, of Durham, has designed the extension in thirteenth-century Gothic, and, as far as carried out, it consists of chancel, transepts (with a rose-window in the south transept), morning chapel, organ-chamber, enlarged vestry, &c. These are completed, and form the portion just consecrated. There remains to be added a tower to occupy the site of the present campanile, and a clerestory and arcading for the nave and north aisle. The cost of the whole will be 8,600*l.*, and seats will then be provided for 850 persons.

THE Knaresborough Urban Council is carefully considering the advisability of introducing a Bill in Parliament for further improvements in the town. One of the principal projects is to establish a public market. The present offices used by the Council are not considered suitable, and power will be sought to erect a council chamber and offices. The erection of a public slaughter-house, the closing of existing slaughter-houses, the extension of the Council's area of supply for gas and water, the control of boating on the Nidd at Knaresborough, the provision of electric light and power, the laying of tramways, and the purchase of a recreation-ground are other items in the proposed new Bill.

THE famous building south of Wych Street, which was known as the birthplace of Jack Sheppard, is now being demolished in the course of clearing the site of the new street from the Strand to Holborn. It was a dwelling-house with gabled roof and projecting window, and was among the first sights to be seen by Americans on a visit to this country. Further down the street was another old-fashioned building, now, however, razed to the ground; and it is said that it is here that Jack was apprenticed to Woods, the carpenter, and where his master found his apprentice busily engaged, not at his legitimate work, but in carving out on a huge piece of wood the words "Jack Sheppard."

MARYPORT Harbour Commissioners have received the report of Messrs. Baker & Hurtzig, the engineers called in to advise on the improvement of the dock. They recommend a

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new entrance to Senhouse Dock, 60 feet wide and 29 feet deep, the dock to be widened 140 feet and deepened, the construction of a timber jetty and new quay, and an installation of hydraulic power, at a cost of 148,000*l*. The report goes on, "For the trade dealt with at Maryport, steamers of 500 feet length may become common, and this would involve the entire reconstruction of the port at three or four times the present estimate." The Commissioners' idea, in view of the difficulty of raising the money, was to limit the expenditure to 100,000*l*.

MR. THOMAS FLETCHER, of the firm Fletcher, Russell & Co., gas engineers, Warrington, has issued a circular to the employes of the firm in which, after referring to a presentation which he made to them at an excursion to which he had invited them with their wives and families, in celebration of his silver wedding, goes on to say:—"We have grown since, and at Christmas next, as a memorial of my thirtieth year in connection with the gas industry, I shall have the pleasure of presenting the employes with the sum of 1,000*l*. in cash. No man will receive less than 5*s* and no youth less than 2*s*. 6*d*. in any case. All in Warrington, Pendleton, Manchester and London will participate equally; no preference will be shown. The amount will be paid in cash on the day before Christmas next.

THE new waterworks just completed at Craigendunton, on the Fenwick moor, about eight miles from Kilmarnock, were formally opened on Saturday. The water supply undertaking was acquired from a private company in 1892, and in order to meet the growing wants of the community a new reservoir was projected. Considerable engineering difficulties were encountered, and the operations have occupied nearly six years. The scheme was designed by Messrs. Leslie & Reid, Edinburgh, and after the death of the senior partner of that firm, Mr. Wilson, the work was taken in hand by Mr. Niven, C.E., Glasgow, by whom it has been successfully carried through. The reservoir covers an area of about 30 acres, and its greatest depth is about 40 feet, while the storage capacity is 135,000,000 gallons, the source of supply being the Dunton burn and tributaries. The total cost of the undertaking, including price of land, piping and three large filters and a clear water tank at Amlaird, is fully 62,000*l*.

COLEY CHURCH, Yorks, which has been closed for about eight months, in the course of which it has undergone a process of renovation and improvement, was reopened on the

14th inst. The architect for the work is Mr. J. Hodgson Fowler, of Durham, and under his supervision quite a metamorphosis has taken place. The floors have been removed and the whole area covered with cement concrete, above which is laid a solid wood-block flooring. A new chancel has been formed in the two eastern bays of the nave, and the organ placed on the side at the end of the north aisle. The old vestries are removed and new ones take their places—one for the choir opening out of the north aisle and the other for the clergy from the east aisle. The removal of the organ from the west end opened out a large space, where a gallery has been built large enough to accommodate about a hundred persons, and thus the seating capacity of the church is much enlarged. The old system of heating was found inadequate, and a new hot-water apparatus has been fixed. In addition to these changes the whole interior of the edifice has been thoroughly cleaned and decorated in quiet but tasteful colours, and the whole of the woodwork in the pews, gallery, &c., being of plain dark oak, a good effect is obtained.

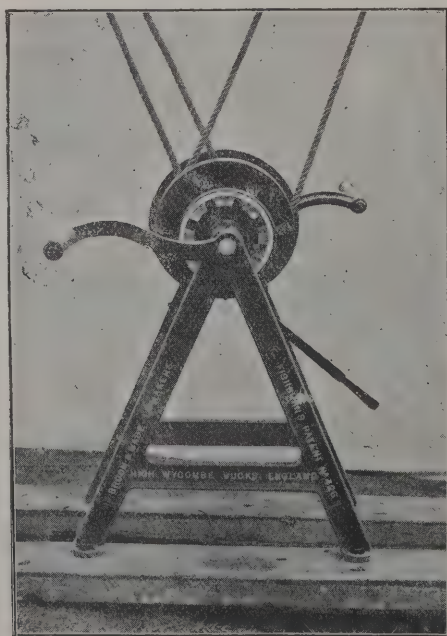
NORTH MORNINGSIDE United Free church, Edinburgh, which has been closed for nearly two months, having undergone complete renovation, was reopened on Sunday. The church is one of the finest examples of Norman architecture in the city, and with so fine a building to work upon the adoption of a harmonious colour scheme was most important. The interior is mainly lighted by the clerestory windows, and the walls above the string-course, on which the whole of the shafts of the windows seem to rest, have been treated in a fine quality of yellow, while a very soft red has been adopted on the walls between the string-course and the spandrel spaces above the arches. The walls of the aisles and under the gallery are painted in a much richer red. A similar treatment has been given to the great arch which divides the chancel from the body of the church. The side walls of the chancel are treated in full red, enhancing the appearance of the chancel, while it tones well with the front pipes of the organ, which are in solid gilding. The woodwork of the pulpit and platform are in dark oak colour, finished with dull varnish. Additional touches of colour and gilding are introduced by the rich treatment of the capitals of the pillars supporting the gallery. The hall and offices of the church have also been renovated. An important improvement has been the introduction of electric light throughout the church buildings. The whole of the outside stonework of the church has been cleaned and repointed.

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A SPECIAL meeting of the Stretford (Lancs.) District Council was held on Tuesday evening to consider a proposal to apply to the Local Government Board for sanction to borrow 14,000*l.* to defray the cost of the erection of public baths at the corner of Northumberland Road and Cooke Street. Mr. E. Talbot, chairman of the baths committee, in proposing the resolution, said the site which it was proposed to purchase covered some 4,000 square yards, on which it was intended to erect a building containing two plunge baths, one for men 75 feet by 31 feet, and another for women 60 feet by 26 feet. There would be in addition thirteen slipper baths for men and six for women, and a vapour bath in each department. The site of the new baths was nearly a mile from the Leaf Street baths and over a mile from the other bath controlled by the Council. There was a large number of day schools in the vicinity of the site, whilst the population of the Clifford, Trafford and Cornbrook wards, which it was intended to serve, was about 20,000. The chairman (Mr F. W. Bates) observed that the plans of Mr. Ernest Woodhouse, which the committee had selected, were such as would commend themselves to all, and he was sure the new baths would prove a source of usefulness and would be an ornament to the district. They had spent much money, especially on the new technical school, which he was glad to say was proving such a success, and he was sure their latest venture was an equally wise one. The resolution to apply for borrowing powers was carried without dissent.

NEW Board schools in Hatherley Road, Gloucester, were opened on the 17th inst. They were designed by Mr. Alfred J. Dunn, A.R.I.B.A., who has provided the following accommodation for 992 children at a cost of 11,548*l.* 10*s.*—Central hall for boys and girls with contiguous classrooms, central hall for infants with contiguous classroom, complete control of each department by the head teacher, one playground for boys and a separate playground for the girls and infants, direct access from each central hall to playground, direct access from each classroom to playground, direct access from each classroom to central hall. These points were of the utmost importance, as they prevented classes being disturbed by the assembling or dismissing of other classes. The buildings are warmed by hot water on the low-pressure system by means of pipes and radiators proportioned to the size of the various rooms. The radiators are connected with flues to the open air outside, so that fresh warmed air can be admitted and controlled by valves as required. The important question of ventilation received the most careful attention, the fresh air being admitted

as above mentioned, in addition to which the lower parts of all the windows were made to open. The foul air is carried away as it accumulates by means of air-shafts in the ceiling connected with automatic air-pump ventilators. The upper portion of all the windows are provided with swing casements to still further facilitate the ventilation in summer weather. A notable feature is the electric-bell installation, which provides communication between each central hall and the various classrooms, and from each central hall to the caretaker's house. The external elevations throughout are of red brick in white mortar, with terra-cotta dressings supplied by Messrs. Gibbs & Canning, the roofs being covered with best brindle-coloured tiles, while the internal walls have dadoes of salt-glazed bricks. The floors of the central halls and classrooms are of wood blocks on concrete beds. The floors of corridors, cloakrooms and lavatories are of concrete finished on the face with granolithic. The internal joiners' work is stained and varnished.

BUILDING AND BUILDERS.

THE foundation-stones were laid on Saturday last of a new mission hall which is being erected in Baker Street, Wolverhampton, by the Protestant Association.

A NEW hall which has just been erected in connection with St. Stephen's U. F. church, Paradise Place, Perth, was formally opened on Sunday. It has cost between 1,800*l.* and 2,000*l.*, is capable of holding about 400 adults, and is intended for use in connection with the Sabbath school and other such meetings.

MEMORIAL-STONES for the Lawson Temperance Hall which is being built at Lincoln, at a total cost of about 6,500*l.*, were laid on Wednesday in the presence of a large assembly. The building will be of red brick with stone dressings, and the front will be embellished with four oriel windows. A large hall is to be provided capable of seating 1,000 persons, a lecture hall; a workmen's café, reading and recreation-rooms, lodge-rooms, &c.

FOUNDATION-STONES of a new Primitive Methodist Sunday school have been laid at West Lane, Keighley. The school, which takes the place of a wooden structure, occupies a site adjoining the chapel, and is to accommodate 400 scholars. There is a large assembly room, with gallery, eleven classrooms, infants'-room and lecture-room on the ground floor, and

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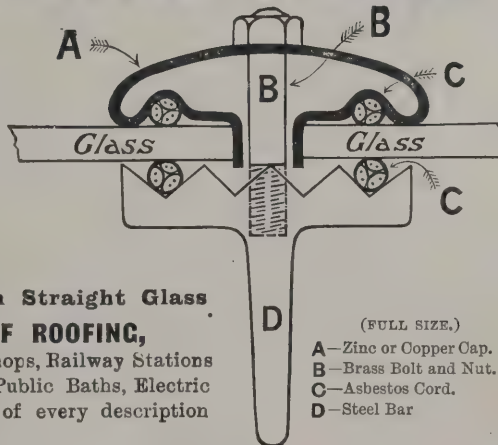
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two classrooms above. The cost of the building and furnishing is estimated at 2,500*l*.

SOME electric-light workmen engaged on operations at the Solicitors' Department of the Treasury, Whitehall, have made a discovery. Upon taking up a corridor floor they found underneath a long deep unknown passage. Explorations of this secret chamber have not been completed, but among the documents unearthed is a petition to George III. from several officers of the Army and Navy, praying that they might be released from the debtors' prison in order to fight against Napoleon. It is dated 1803.

THE report of the cleansing sub-committee of the Town Council of Aberdeen, who recently visited a number of towns where refuse-destructors were in operation, has been issued. They recommend the erection of a destructor plant in the first place capable of destroying not less than 160 tons a day near the Upper Justice Mills, a second to be afterwards installed in the northern district. The value of the residuum in the shape of clinkers capable of being utilised for concrete-making and the like is estimated at upwards of 375*l*. per annum.

THE Local Government Board have written to Halifax Town Council on the question of the refuse destructor proposed to be erected by the Corporation in the valley near North Dean railway station. Objection had been raised to it by the Board of Guardians, who have provided a new workhouse hospital on the tableland above, and also by owners of residential property in the district, on the ground that the fumes from the chimney would create a nuisance. The Local Government Board state that the destructor will only be sanctioned on condition that the chimney is built 300 feet high.

AT the meeting of the Walsall Town Council a recommendation was received from the special committee that the tender of Messrs. Armitage & Hodgson, of Leeds, to erect the new municipal buildings for the borough for the sum of 67,650*l*. be accepted. The new buildings, which have been designed by Mr. James S. Gibson, are to include council chamber, committee-rooms, &c., offices for all the Corporation officials, and a town hall to accommodate about 1,700 people. The site is in Lichfield Street, and includes the land upon which the Liberal Club at present stands.

IN view of the Brighton Corporation taking over the Aquarium by purchase at the end of next month, the Town Council have discussed a report as to adapting the institution to the purposes to which it is to be applied. The works

advised as imperatively necessary at this preliminary stage were the reconstruction of the concert-room and of the fernery and waterfall, installing the electric light, improving the tanks and various structural repairs. A sum of 25,000*l*. will be required, which will include provision for an aviary. The proposals are to be further considered at another meeting.

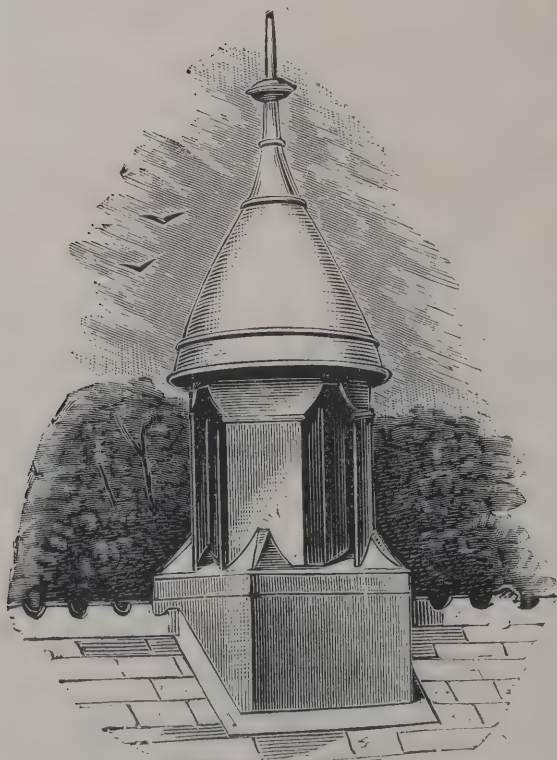
THE building scheme in connection with the parish of St. Margaret's, Leeds, is from its novelty attracting some notice. The vicar-designate (the Rev. A. Hastings Kelk) has intimated that the foundations for the new wing to the schoolroom are now ready. These have been prepared by voluntary workers, not a single sixpence being expended in labour, and to-day the bricklayers, also unpaid, are to begin work. The plans, bricks and a four-light leaded window were all given free, and now quite an army of workmen of different trades and members of the congregation are engaged in erecting the school wing.

THE tender submitted by Messrs. W. Johnson & Co., Wandsworth, has been accepted for the Baptist Church, Lewin Road, Streatham, S.E., and the work is to proceed at once. Accepted amount, 3,033*l*. A bold square tower and spire above forms a prominent feature of the design and front elevation. The building is faced with red bricks, and the dressings are of white Costessey work. The roof is to be covered with green slates. The architects, whose designs were selected in a competition held some years ago, are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, W.C.

THE foundation-stone of the new Episcopal church for Lockerbie, N.B., was laid on Saturday. The new church is situated in Ashgrove Terrace and is of Early English architecture. The estimated cost is about 1,600*l*., and there will be accommodation for seating 150. In addition to the organ-chamber there will be a capacious vestry and heating chamber with all the other necessary conveniences. The stone used is from Corncockle Quarry, and the roofs are to be covered with red tiles, while the floor of the nave will be of wood blocks and the chancel flagged. The chancel is designed with an apsidal end, and the altar is to be elevated above the nave floor. The height of the spire from the level to the top will be 40 feet.

WITH the progress of the Manchester Corporation system of electric tramways and the construction of additional cars, new sheds for storing the latter have become a necessity. The cars which are running over the present routes are stored in the Queen's Road depôt, but several sheds will be necessary when the 430 cars which are now on order, and of which 200 are said

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to be ready for delivery, are completed. It has been practically decided by the tramways committee to erect the second of these sheds in Hyde Road, on land now covered by a large timber yard. With regard to other sites, it is not expected that anything will be done until the arbitration proceedings between the Corporation and the Carriage Company have been completed.

THE foundation-stone of a new asylum to be erected for the Aberdeen District Lunacy Board at Kingseat, Newmachar, was laid on the 14th inst. It will be built on the plan of the Alt-Scherbitz lunatic home in Saxony, and will be the first segregated asylum in Scotland. The grounds cover an area of between 30 and 40 acres, and will cost about 70,000*l.* The intention is to break down the institutional character of the asylum, and, as in the case of the Prussian village, no walls or railings will mark off the ground, and there will be no separation of the asylum grounds from the surrounding country. As little restraint as possible will be put on the patients, who will be expected to look upon the "colony" as a home more than as a place of detention. The ceremony on Saturday was attended by a large and representative company, including Lord Provost Fleming and other civic dignitaries.

THE work at St. Stephen's Church, Avenue Road, Regent's Park, is drawing to a close. The chancel is rich in colour and gold. On the upper part of the east wall are painted angels with censers, in adoration of the Agnus Dei. On each side of the window, under elaborate canopies with mosaic backgrounds, are the figures of St. Stephen and St. Andrew. The reredos, yet to be finished, will be in gold ornament, and the four evangelists on gold gesso backgrounds. The side walls are diapered with arcading, emblems of the Passion in gold, and a rich dado in reds, green, vellum and gold. The nave walls are diapered, with borders to the wall-plate and window headings. The spandrels are filled with ornament in salmon, green, vellum and red, with various devices in white on red shields. Round the nave walls a text is introduced. The work has been designed and carried out by H. G. Bartlett & Co., Brixton.

THE Lowestoft Town Council has under consideration a loan of 35,853*l.* for sea-defence works, and the Local Government Board requires that under the circumstances this loan shall be repayable within a term of thirteen years. This will involve an addition of 8*d.* in the pound to the general district rate of Lowestoft, which has already risen from 3*s.* 8*d.* in the pound per annum in 1891 to 4*s.* 10*d.* in the pound per annum

in 1901. The general district rate in 1902 may accordingly be carried to 5*s.* 6*d.* in the pound per annum, to which, of course, the poor rate would also have to be added. The sea difficulty is believed to have arisen from a shifting of the sands, which have hitherto served as a virtual protection to the town. The Council has been endeavouring to obtain from the Local Government Board an extension of the term during which the sea-defence loan must be repaid, but the Local Government Board has refused to grant the extension. Mr. Douglas, C.E., the engineer consulted by the Council, has accordingly been requested to attend a special Council meeting for the purpose of suggesting a modified scheme for the protection of the beaches, both north and south.

ELECTRIC NOTES.

THE Marquis of Abergavenny, lord-lieutenant of Sussex, on Saturday formally inaugurated the system of electric lighting at Worthing, which has been carried out by the Corporation at a cost of 32,000*l.*

THE inauguration of a new installation for the electric lighting of Longton took place on Wednesday last. The site of the electricity works is included in the area of the gasworks, and the cost of putting down the plant, &c., has amounted to about 21,000*l.*

AT a meeting of the Kilmarnock Town Council it was resolved by twelve votes to ten not to accept the offers, amounting to 29,000*l.*, recommended by the committee for the proposed electric lighting. The effect of this decision will be to delay the scheme indefinitely.

AT the town hall, Darlington, Mr. W. O. E. Meade-King held an inquiry on the 18th inst. into the application of the Darlington Corporation for powers from the Local Government Board to borrow 12,250*l.* for electric-lighting purposes and 14,000*l.* for gasworks. Mr. H. G. Steavenson stated that the Corporation already were providing power for 8,400 lamps of 8 candle-power to 106 consumers, and by the end of the year they estimated that power would be required for 18,000 lamps. The liabilities incurred were 3,593*l.* 2*s.* 2*d.* in excess of the powers.

SHORTLY after nine o'clock on Sunday night one of the electric arc-lamps in Church Street, St. Helens, fell with a



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crash, alarming several people who were in the immediate vicinity. The street was momentarily illuminated by a brilliant flash, and then the five arc-lamps on the circuit went out as, for other reasons, they had done on previous occasions. The cause of the mischief was that one or two of the guard wires had come into contact with the trolley wires, the result being that the current was turned on to the pole, which broke at the top. Nobody was hurt. Curiously enough, an arc-lamp fell from the same pole through a tramway wire accident a few months ago.

THE town of Boyle, co. Roscommon, was on Saturday night illuminated for the first time with electric light, and the experiment was a complete success. There are about half a dozen arc lamps in the principal thoroughfares, and numerous incandescent installations light up all the side streets and surrounding roadways. The introduction of the electric light here is due to the enterprise of a local miller, Mr. Hugh Stewart, with whom the Town Commissioners have entered into a contract for three years for the public lighting of the town at the rate of 80% per year. The water power of the Boyle river, which runs close by Mr. Stewart's mills near the bridge, is utilised to generate the electricity, and the light, it is expected, will be generally used by the townspeople.

AN inquiry with reference to an application on the part of the Middlesbrough Corporation for sanction to borrow 34,100*l.* for electric-lighting purposes, the loan to extend over a period of thirty years, took place at the Middlesbrough Municipal Buildings on Tuesday. The inquiry was held by Mr. W. O. E. Meade-King, Local Government Board inspector, and there were present Mr. Alf. Sockett (deputy town clerk), Mr. Parnaby (borough accountant) and Mr. R. Hammond, representing the Corporation. Mr. Sockett explained that an order had previously been agreed to for the borrowing of 36,000*l.* over a period of twenty-five years, and the present application was for sanction to borrow 34,100*l.* for a period of thirty years, 13,100*l.* being expenditure in excess of the amount previously sanctioned and 21,000*l.* the cost of providing additional plant for the extension of the mains. The inspector asked if the present site was big enough and if any land had been purchased, and Mr. Sockett replied that the site was large enough and that no land had been purchased. There was no opposition to the application.

OWING to the vast and increasing demand for electric current for lighting and power in Manchester, some little

uneasiness has been felt with regard to the supply for the approaching winter. The only generating station at present in use is that in Dickinson Street, which has been working at full pressure for some considerable time. The new works in Bloom Street, which when completed will produce electricity equal to 14,000 horse-power, are still far from finished. It is only within the last few weeks that the authorities themselves have felt free from anxiety as to the rate of progress at this station. It is now stated, however, that the boiler-house, which with the chimney-flues is the most pressing work at present, will soon be completed. It is therefore hoped that by the end of October the Bloom Street works will contribute as a first instalment an additional horse-power of 3,500, which will considerably relieve the Dickinson Street plant, and enable an adequate supply of power to be maintained throughout the winter. The work at Stuart Street is also being pushed forward. The voltage of the current contributed from the works at Dickinson Street only amounts to 400, but when the new works in Stuart Street are completed the sub-stations will be fed with a current of 5,000 volts, generated by six three-phase alternators. The total output of these works is estimated at 15,000 horse-power.

GREAT progress has been made in the development of electricity in Bradford since the Corporation took in hand the task of supplying the current. From the first there has been a constant and ever-increasing demand, and the electricity committee has no sooner got one extension out of hand than they have had to prepare for another. The foundation-stones of another new generating station in Valley Road have now been laid. In his remarks on the occasion of the laying the chairman quoted figures to demonstrate the progress that had been made. He said that in 1889 the capital expenditure stood at 18,456*l.*, whereas in 1900 the capital expended was 280,469*l.* Since he had been chairman of the committee, about two years, they had obtained borrowing powers for 210,000*l.* In 1889 the committee supplied 22,449 units, and last year the number supplied was 3,424,658 units; whilst the number of consumers in the same period had risen from 43 to 1,277, and the number of lamps had increased from 4,889 to 172,041. This showed the necessity for carrying out the extensions, and proved how rapid had been the increase. Electricity was superseding every other form of motive power in Bradford, and it was being used by every trade. Such, indeed, was the demand that the committee scarcely knew how to meet it. He trusted that the present rate of progress would

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be continued, and that the future would demonstrate the necessity of the building now founded. The portion of the new building that is being built at present will be capable of accommodating three engines having a total horse-power of 1,000; two of these are now on order with Messrs. Cole, Marchant & Morley, Ltd., of Bradford, and are practically finished. The electric generators, each having a capacity of 1,000 kilowatts, have been built by the British Westinghouse Electric and Manufacturing Co., Ltd., and have already been delivered.

MR. M. K. NORTH, A.M.I.C.E., Local Government Board Inspector, held an inquiry on Friday last at the Warrington town hall with regard to the application of the Corporation for powers to borrow 15,000*l.* for electric-lighting purposes. Mr. Lyon Whittle (town clerk) represented the Corporation, and here were also present Major Cardew (consulting electrical engineer), Mr. Grimsdale (electrical engineer), Mr. T. Longden (borough surveyor), Mr. J. Fairhurst (hon. treasurer), Mr. S. Wilson (deputy town clerk), Mr. C. Madeley (librarian), Ald. Shaw Green and Mr. A. Boyle. In reply to the inspector, the town clerk said the population of the borough at the last census was 64,242, the assessable value 212,853*l.* and the balance of outstanding loans under sanitary acts was 208,434*l.* The Corporation wished as long a period as possible for repayment. No opposition being offered, the town clerk explained that the application was made under the Warrington Electric-Lighting Act of 1898. Powers had already been sanctioned to borrow 4,966*l.* and this had been spent on the erection of an electric station, plant, the supply and laying of mains for the whole of the compulsory area, and, in addition, they had ninety-two customers and public lighting of streets. The application for 15,000*l.* was to meet the growing demands of the town. Mr. Grimsdale proceeded to give details of the additional work required. He said that in January last there were 546 eight candle-power lamps in the town, and now there were 10,910. In February next, when the tramways would commence working, there would be a largely increased demand, and there was also every prospect of an increase in lighting. The Borough Treasurer said that the actual amount of money spent on the last loan was 40,668*l.*, but there was really a liability of 4,418*l.* over the loan for which no money had been borrowed. So far as he could see at present, there was every prospect that the electric lighting would be a success, but of course the works had not been opened twelve months yet. Major Cardew observed that it was the best policy for a corporation to have

an adequate supply beforehand. Should they not be able to give a good supply dissatisfaction was caused, and it was then some time before confidence was restored. The inquiry then terminated.

A USEFUL HAT-RACK.

THERE are few among our readers, we think, who have not at some time or other had to deplore the damage sustained by their headgear at church, theatre, or public meeting, owing to the lack of accommodation for the cumbersome, if necessary adjunct to the toilet, whether it assume the bowler or the cylinder form.

With a view to meeting this universally-admitted and long-felt want, Mr. Grice, of 21 High Street, Leicester, has devised a neat and ingenious contrivance which can be conveniently fitted under the seat well out of everybody's way, and will safely hold and securely guard the hat from all chance of damage or injury. Its inventor claims that it is simple, effective and unique. Simple and effective it assuredly is, and it has, moreover, the advantage of being inexpensive.

ALL-ROUND excellence characterises the numerous turns which make up the attractive programme provided for his patrons by the indefatigable Mr. C. Dundas Slater, at the Alhambra Theatre. In addition to the bright and bustling ballet, "The Gay City," and the more elegant and poetical one, "Inspiration," of the exceptional beauty of which we have already written, Hood's sensational cycling exhibition of racing on a track which is constructed at an elevation of about 60 degs. may certainly be regarded as one of the *pièces de résistance*. The riding exhibited in this turn by Messrs. Fred Staig, A. Wood, Henry Irving, Bert Burgess and William Watson is of a most sensational description, and meets with a deservedly appreciative reception. Misses Cooke and Clinton go through a smart performance with a neatness and precision which do much to justify their claim to the title of "champion sharpshooters." The droll parodies of Schwarz Bros., eccentric cycling by Charles and Frederick, amusing tricks by Miss Ada's admirably trained troupe of fox terriers, and five or six other capital turns, of which the *finale* is the Imperial Bioscope views of recent events, make up a brilliant programme, to the brightness of which the admirable orchestra, under the skilful leadership of Mr. G. W. Bing, contributes in no small degree.

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NEW TECHNICAL SCHOOL AND MUSEUM EXTENSIONS, LIVERPOOL.

THE architecture of Liverpool has been notably enriched by the new building which has just been erected in William Brown and Byrom Streets, and which is in part to be used as an extension of the museum and for the rest as a technical school.

The new building, which forms part of the group which includes the Walker Art Gallery, the Rotunda reading-room and lecture hall, the Brown library and museum and the county sessions house, is in what is described as nineteenth-century Classic style, and is from designs by Mr. E. W. Mountford, who gained the award in open competition. It is built in Stancliffe stone from the quarry which supplied the stone for the Walker Gallery.

The principal frontage, which is in Byrom Street, is originally and effectively accommodated to the exigencies of the site by a bold curve, in the centre of which is situated the main entrance, approached by two flights of steps leading to a broad and ample landing. The steps are flanked by a circular balustrade, terminating on either side in large pedestal piers, upon which will be erected large bronze lamps, to be fitted with the electric light. From either side of the entrance rise heavy columns supporting a pediment bearing finely modelled statues of heroic size from the studio of Mr. Pomeroy, who has executed the whole of the sculpture which adorns the building. The figures over the entrance-hall represent Art holding the mirror up to Nature and holding the famed anatomical study by Michel Angelo, and Science veiled and with a crucible. Immediately above the main entrance pediment, and extending along the whole front, rise sixteen Ionic columns with carved capitals and volutes, and these support a richly decorated cornice, which is surmounted by the balustrade above. The large columns, over 30 feet high, harmonise with those of the other buildings in William Brown Street, and they are practically upon the same level. This seems curious in view of their height above the street level, but so great is the fall of the roadway between the entrance to the present museum on the plateau and Byrom Street that the bases of these columns are actually 2 feet above the columns on the plateau. While the curved frontage in Byrom Street presents a handsome appearance, much can be said for the William Brown Street

elevation, where the fine sculpture of Mr. Pomeroy is conspicuous. The features of this frontage are the bold projecting bays, with their deep vaulted arches enriched with simple decoration and surmounted in the pediments by finely modelled groups of statuary. The character of the Byrom Street front is reproduced in the marking of the divisions of the building, the lower portion coinciding in design, while from the museum level there rise bold square pilasters supporting the main cornice and pediments.

In the groups of figures occupying the pediments Mr. Pomeroy has sought to represent by allegory the prevailing spirit of the city. Minerva, as representing the wisdom of the city, with shield and spear protects and presides over the education of the community. On one hand is the bearded figure of an old man instructing an eager boy in the mysteries of science, and on the other a young mother is carefully directing the thoughts of her child to some sheep, typifying the agricultural interest. The second pediment contains another dignified group, of which the principal is a majestic seated figure holding a globe and sceptre, representing Liverpool, this being supported on either side by female figures typical of commercial life and industrial occupations. The sculptured figures on the pediments of the arches represent Astronomy, Navigation, Geography and Agriculture.

A feature of the entrance-hall is the fine oak-screen which surrounds the interior doorway, leading to a lofty vestibule, of which a prominent feature is the foundation-stone of polished granite, recording the fact that it was laid by Sir William Forwood on July 1, 1898. The vestibule is surrounded by a dado of oak, and the same material lines the hall, in which fluted oak columns with carved capitals carry the handsome cornice, and from this spring the arches supporting the high-domed ceiling. Black and white marble tiles form the floor, and columns of red-veined Devonshire marble, above which is a superstructure adorned with panels illustrating the rise of shipbuilding, and the handsome marble fireplace, which forms a feature of the hall, is surmounted by a representation in relief of the city crest.

Broad corridors branching right and left of the entrance hall give access to the various rooms, while two spacious and well-lighted staircases in the side passages establish ready communication between the different floors. The corridors, staircases and all the classrooms and workshops throughout the building are extremely well lighted, of cheerful appearance, and well adapted for the purposes for which they are intended. The light for the internal elevations is obtained from a very

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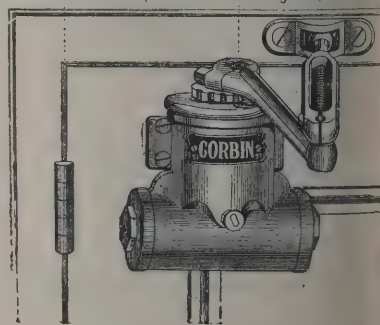
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large courtyard on the east side of the building and two smaller ones in the centre, which are all faced with white glazed bricks. The ground-floor corridor on the entrance side, which is lined with bird's-eye marble from Derbyshire, has a semicircular vaulted and panelled ceiling, and the deep windows are filled with leaded lights of elegant design, containing shields with scrolls recording the names of the chairmen of the building and technical instruction committees. Immediately opposite the entrance are the swing doors of the large lecture-hall, a well-proportioned chamber of a quiet, restful tone and simple but pleasing design.

The floor of this apartment is of polished oak, and the walls are lined with a high dado of light canary-wood in its natural colour. From this dado springs the bold outline of the ribs supporting the vaulted ceiling, in which are placed large circular windows. At the north end is a raised platform, above which appears an elaborate panel representing a group of students receiving awards from the hands of the presiding genius of education. An adjacent corridor gives access to the committee-room. This is lined with a panelled dado painted a dead or "flatted" white, and fluted columns with carved Ionic capitals support the panelled ceiling with its large encircling wreath of modelled fruit. The floor is of polished oak, and the mantelpiece is formed of Irish green marble and red-veined alabaster. There is a niche in the mantelpiece in which a bronze bust of the late Queen Victoria will be placed.

The aim throughout has been, so far as was compatible with cost and the limits of decoration in a building devoted to classrooms, workshops and the like, to use work not only of good design, but such as would appeal to the students as meritorious specimens of handicraft and technical ability.

The museum occupies the upper portion of the building, and entrance to it is only gained from the existing museum premises, which are upon the same level. The addition consists of two U-shaped galleries, running without interruption the entire circuit of the building. The lower gallery, of over 400 feet in length and 34 feet wide, has a flat ceiling, and is lighted by large windows in the inner and outer walls. Lined all in white plaster, it is a bright airy and spacious apartment, but in this respect is surpassed by the upper gallery, which is a magnificent room, noble in proportion and brilliantly lighted. Bold, semicircular arched ribs, finely moulded, spring from the side piers to support a roof, which is a long dome with skylights running the entire length of the gallery, which is remarkable for the bright and cheerful aspect.

TRANSPORT OF TIMBER.

A PAPER was read before the Botanical Section of the British Association by Mr. Samuel Margerison, on "The Transport of British Timber." He said that in this country it cost about 5d. to grow a cubic foot of fir timber. On the average it cost about another 5d. or 6d. to get it into the market, and it sold for 8d. to 9d. per cubic foot. The chief reason why it sold for less than cost price was that foreign fir was sold at the figure specified, and the growers and importers could make it pay. He had selected fir as an extreme case in order to emphasise the fact that the handling charges on home-grown timber were much higher than those on imported timber of the same species. We could grow Scots fir and spruce practically as cheaply as the continental forester, but we could not afford to sell it at the same price and at the same time compete on equal terms with him, because it cost us more to transport it from the plantation to the consumer, sometimes even when both were in the same county; and until we could do it as cheaply the splendid efforts of our scientific botanists to produce good and cheap timber were greatly spoiled by the hard facts of £ s. d. This, it might be said, was an old story about all native produce. Yes, but because of its bulky nature it was more ruinous in relation to native timber than, say, to home-grown corn, because of its greater handling charges in proportion to its value. A ton of wheat was sold for, say, 6l. 15s. Of this 5 per cent. (6s. or 7s.) would be paid for cartage and railway carriage. But a ton of spruce sold for 33s. would cost 21s. (or 60 per cent.) for cartage and carriage. A ton of spruce grown in a Baltic country cost in transport from the forest there to the consumer here about 40 per cent. of its selling value, and a ton of spruce grown in Canada very little more. Of course the discrepancy and extra cost did not seem so great proportionately on the value of the higher priced timbers. But these took longer to grow, and except in favourable surroundings the final results were about the same. There was little commercial encouragement to produce timber if there was no reward but that which virtue was said to bring. Preferential railway rates in this country were costing timber growers nearly as much as the rental value of the land on which the timber was growing. Why was there this great check upon the efforts to make forestry pay? One reason was that foreign timber imports were handled generally in larger quantities, so that detail work was done more cheaply.

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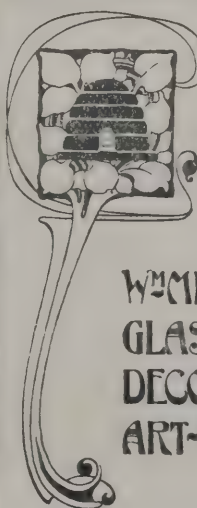
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But it was not only in railway charges that our expenses were higher. The overland carriage cost us more. We had not the advantage of water shoots and great rivers, or sufficient snows and frosts to make water or ice a generally available means of transport. Could these overland forest to railway handling charges be reduced? He had made some inquiry about tramway and other mechanical appliances, but did not see any advantage to be gained from them under the conditions ruling in this country. The chief drawback to their use was that our small and scattered plantations would not pay for the profitable employment of costly plant and machinery for transport. A tramway, cheap as it was in working, was costly in instalment, and although it would effect considerable reduction in the cost of transporting a large lot of timber grown in a suitable environment, and could be used again under similar circumstances, would, in a large number of cases, be much dearer than the present system of removal by horse waggons. Besides, public roads would have to be used and crossed, and county councils would not be ready to allow this. Under favourable circumstances, again, traction engines would effect considerable economy in haulage. A load of 12 or 15 tons might, on some roads, be carried for less than one of three or four tons drawn by horses. But good roads did not often penetrate into the woods, and there were weak bridges and sharp corners to contend with, which would not be negotiable with long, heavy loads such as would be required to use the full available power. The pole-waggon at present in use, drawn by horses, was the best appliance at present in existence for collecting timber from our comparatively small timber areas in the first instance. But if we could have partial conversion of the timber at centres close to large areas of timber, we could considerably cheapen the cost of transport, both by using traction engines and tramway for the local work and traction engines for "through" traffic to reasonable distances. It was easy to complain of the iniquities of railway companies in charging more for carrying native produce than foreign, and there was considerable reason for the complaint, especially under the present chaotic system of measurement and the newly-insisted-on wharfage charges. But the question was not a one-sided matter. There was no gainsaying the fact that native timber did, on the whole, cost somewhat more to transport than foreign. It was often in clumsy, dangerous forms, crooked and knotty, whilst imported timber was generally wholly or partly converted into tidy, straight pieces, making more compact and

firmer loads. And being dealt with at ports in larger quantities at one place, much of the work was centralised and specialised, with the result that there was a large saving in details. Railway managers were practical business men, who could not afford to do work on philanthropic principles, and they saw this difference in the nature of the two classes of merchandise. But, at the same time, we had no practical indication that, if any effort was made by our home producers and merchants to centralise their work, make their loads more compact, and arrange for regular and large consignments, the railway companies would make their charges equal those for imported timber. Straight and crooked, large lots and small, compact loads and light ones, all were charged at the same rate. The question was a large one, and its importance was not sufficiently realised by those who were most affected by it, namely, growers of timber. Whilst persevering in the efforts which had been made of late years to improve our forestry, it behoved growers to pay special attention in future to the relation of transport to concentration of production, the producing of timbers of the higher values, compactness of loads, and regularity of supply of consignments.

NOTTINGHAM'S ELECTRIC TRAMWAYS.

OWING to the rapidly extending suburbs of Nottingham, a system of electric trams has been found necessary, and to house these premises of unusual extent are now being erected upon a site which was formerly used, in part, as the playing-piece of the Forest Football Club. Here provision has been made for an exceedingly commodious shed to accommodate about 80 cars, with repair and fitting, carpenters, blacksmiths' and paint shops in convenient proximity, together with buildings to be used as stores, carriage-house, cart-shed, mess and recreation-rooms and a foreman's cottage. The buildings as a whole occupy an area of about 7,500 square yards, while the car-shed alone is sufficiently large to accommodate conveniently no fewer than eleven parallel lines of rails. The work of erection was only commenced towards the end of May, and to avoid the possible inroads of floods a vast amount of underground work, in the shape of filling up and constructing unusually stout foundations, had to be accomplished ere the superstructure could be undertaken, but already, so great has been the progress that the contractors have made, the buildings are practically ready

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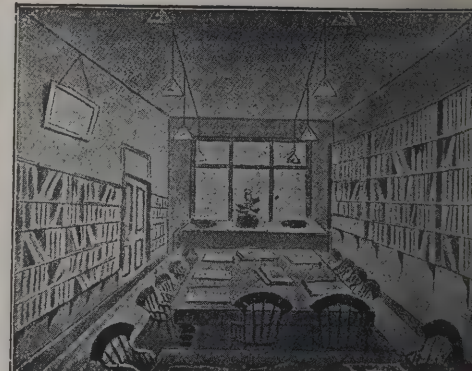
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men on the work, and in one week upwards of 260,000 bricks were laid. Architectural elaboration has been carefully avoided, but, within the limits prescribed by prudence and economy, premises are being constructed which will be imposing in their appearance and commodious in their accommodation, and will secure the utmost convenience and facility in working. The plans have been prepared under the supervision of the city engineer, Mr. Arthur Brown, M.Inst.C.E. Mr. Walters is acting as clerk of the works, and Mr. E. Wilson discharges the duties of foreman-in-charge on behalf of the builders.

MANCHESTER WATER-SUPPLY.

IT has been decided to place still more stringent limitations upon the water-supply in Manchester. This is simply the natural result of the prolonged drought and the rapid reduction of the stock in the reservoirs. On the 18th inst. there were only 972 million gallons available, and this is no more than about 24 days' supply, calculating on the basis of an average daily consumption of 35,000,000 gallons. No rain fell at Longden- dale on the Thursday, and the springs yielded about 10 million gallons. The responsibility of further curtailing the supply, if it became necessary, was left by the waterworks committee at their last meeting in the hands of the chairman, Alderman Sir John Harwood, and the deputy-chairman, Sir Bosdin Leach, and the following notice was issued to the public last week in the name of the committee:—"Notice is hereby given that in consequence of the prolonged drought the Corporation are reluctantly compelled to place further restrictions on the supply of water, and that from and after Sunday next, the 22nd inst., the supply will be shut off between the hours of six o'clock at night and six o'clock in the morning until further notice.—By order, WM. HENRY TALBOT, Town Clerk."

Sir John Harwood has stated in reference to the notice that it is only with great reluctance that the committee have been compelled to limit the supply still further. It was impossible to say how long the new restriction would last. Even if there were a heavy rainfall it would be imprudent to take advantage of it at once. A good deal of the water would be flood-water, and would have to pass through the settling tanks before it could be used. The Chairman again appealed to the public to use as little water as possible until better times.

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ELECTRIC LIGHTING AT SHREWSBURY.

ON Friday morning Mr. H. Boulnois attended at the Guild Hall, Shrewsbury, to hold an inquiry with regard to an application made by the Town Council to the Local Government Board for sanction to borrow 16,526*l.* for extending the electric lighting in the borough. There were present the mayor (Mr. R. S. Hughes), Mr. T. P. Deakin (chairman of the lighting committee), Mr. H. C. Clarke (town clerk), Mr. V. C. L. Crump (financial clerk), Mr. J. Williams (borough committee clerk), Mr. W. C. Eddowes (borough surveyor) and Mr. C. M. Johnston (electrical engineer). The town clerk said the area of the borough was 3,470 acres. The population at the end of 1890 was 26,967, but at the last census it had increased to 28,395. The annual assessable value was 142,638*l.* The outstanding loans under the Public Health Act amounted to 125,158*l.*, while the amount outstanding on the electrical account was 35,900*l.* In October 1898 the Corporation applied for sanction to borrow 30,463*l.*, to enable them to purchase the Shropshire Electric Light and Power Company's undertaking. The Local Government Board sanctioned the borrowing of the sum with the exception of 3,011*l.*, which they withheld pending further inquiries. The purchase of the undertaking was afterwards completed, and the Corporation entered into possession on January 1, 1899. As soon as they had acquired the undertaking, the Corporation built a new boiler-house, fixed an economiser, and raised the engine-room roof to permit the fixing of an overhead crane, in order that the machinery could be more easily handled. They had lighted with electricity the Corporation waterworks, the public baths, free library, general market, butchers' market, old market hall, the police station, sewage pumping station, and, latterly, the borough technical school. For this purpose the distributing mains had to be extended in order to supply the current. The mains had also had to be extended to supply private consumers in Bellstone, Frankwell, Abbey Foregate and Kingsland. At the time the Corporation took over the undertaking great complaints had been made about the lighting of the streets—particularly the main streets—and for more efficiently lighting the streets the Town Council caused thirty-eight arc lamps and thirty-two incandescent electric street lamps to be fixed. One of the Council's objects in lighting the streets was because the gas had to be purchased from a company. Last winter they found the electric-lighting works were very heavily loaded, and in consequence thereof it became

necessary to provide more machinery to carry on the current throughout the winter. Notwithstanding that, however, there was practically no spare plant for the ensuing winter. The Council had already entered into contracts for the supply of additional machinery, including cables, and the loan asked for would also include the cost of feeders and of extending the distributing mains in the compulsory area, for the further extension of street lighting and also for probable consumers. The committee were in hopes that the sum they now asked for would carry them over a period of three years. The machinery at the works had been overhauled thoroughly, and partly renewed out of revenue, and he (the town clerk) thought that on his inspection of the works Mr. Boulnois would see that it was in a very good condition. Mr. Johnston then gave a brief history of the undertaking since its acquirement by the Corporation, and submitted plans of the proposed alterations and extensions. The town clerk said he was asked specially to press upon Mr. Boulnois the necessity of the granting of an extension of the period for the repayment of the two former loans, which was fixed at twenty-three years to twenty-five years. He also asked that the repayment of the present loan should extend over a period of twenty-five years from the present time. If the Local Government Board could not see their way to do so, he asked that the period of the repayment of the present loan should be thirty years. He thought he was not asking anything unreasonable in this, because their machinery was as good as new. Mr. T. P. Deakin said he noticed from a paper which was an authority on financial matters connected with electric-light undertakings that their sinking fund was very much heavier than the general run. In Burnley, with a capital of 51,000*l.*, they had to pay to the sinking fund 99*l.* In Burton, with a capital of 40,474*l.*, the sinking fund was 99*l.* He noticed that with capitals a great deal more than double theirs the sinking fund was considerably less. Mr. Boulnois said the Board generally granted periods of twenty-five years after the installation had been started, but as he did not hold the first inquiry in Shrewsbury he could not say why they only allowed them twenty-three years in which to repay the money. However, he would lay all the facts before the Local Government Board. Mr. Deakin, on behalf of the Mayor, who had been called away, thanked Mr. Boulnois for his courtesy during the inquiry. Mr. Boulnois said he was much obliged to Mr. Deakin and to the officials for the manner in which they had laid the matter before him, and the inquiry closed.

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The Architect.

THE WEEK.

NOT many years have elapsed since Dr. HELBIG, the German archæologist, publicly expressed his doubts about the genuineness of several of the objects found in the Etruscan Museum which had been set up in the villa of Pope Julius, in the suburbs of Rome. The Italian Government became alarmed, for a party question might be made out of the subject; and, in consequence, the Press that could be regarded as directly or indirectly official, was up in arms against Dr. HELBIG and his theories. If judgment could be determined by the quantity of printed matter, there is no doubt it would be in favour of the Italian Minister of Instruction, and the Ministerial position was saved. But archæology had also some claim. There has been a reaction on non-political grounds, and the statesman who now controls public instruction has misgivings about the infallibility of his predecessor. It is expected that when the next Historical Congress is held at Rome in the spring of 1902 it will be found that the collections in the Etruscan Museum have undergone rearrangement and renaming. Several of the purchases may also be eliminated. This should be a satisfactory lesson in other cities as well as in Rome. Experts are often deceived when they purchase antique objects with a view to profit, and it cannot be expected that the officers of museums are less liable to be deceived. Dealers bear their losses quietly, for it would not serve their interests to reveal that they had no immunity against errors of judgment, but in all countries officials will never acknowledge their errors, and they make pretence that the attacks against them are inspired by selfish motives.

In the last part of the Proceedings of the Deutschen Orient-Gesellschaft Dr. KOLDEWEG announces the latest discovery in the excavations on the site of the palace of NEBUCHADNEZZAR. In the southern part the foundations of a great court were revealed, the south side of which must have been especially rich in architectural decoration. The enamel tiles were adorned with flowers and other plant forms. Some stones which were evidently used as roof-covering were ornamented in a way that recalls cloisonné enamelling. But instead of metal the outlines were formed of glass, and the enamel was then placed within the partitions. Inscriptions, coins, fragments of tablets of yellow stone were also met with amongst the ruins. Dr. KOLDEWEG has no doubt that eventually he will be able to prepare the most complete plan of a Babylonian palace which has yet appeared. It is believed that the great room of the palace measured about 160 feet by 60 feet. Opposite the entrance is a niche in which it is conjectured the king's throne was placed. Explorations are about to be undertaken in that part of Babylon which is supposed to have corresponded with the city of London. For it was there that in 1894 the Arabs were able to discover the countless documents relating to the great firm of EGIPT & SONS, the details of all their transactions having been carefully recorded on tablets of baked and sun-dried clay, some of which are now in the British Museum.

FRANCE is becoming more official as the years run on. As one of the delights of the official mind is whitewash, it has been decreed that all the sketches in black, or in colour, or in pseudo-relief which adorned the walls of the loges in the Ecole des Beaux-Arts are to be annihilated. The walls are to be replastered, and will, of course, finish in brilliant white. In that way the officials hope to make all the competitors concentrate their thoughts on the work they have to execute. It is expected, no doubt, that after 1901 French art will assume a new character. There is to be as little gaiety as liberty, and the students of the future are to raise the standard of art because there is no temptation to attract their eyes from their easels, drawing-boards or models. It is overlooked that the scribbling revived associations and favoured the production of good work. A student must have felt ambitious when he discovered that among the temporary occupants of his loge were those who

had gained reputation, and he would not have the artist's mind if he did not endeavour to prove himself worthy of his predecessors. But officialism is not liable to feelings of that kind, and therefore it cannot realise they are worth encouraging. Accordingly, the loges of the Ecole des Beaux-Arts are to be as mute as any prison cells. It is a pity, however, that the change cannot be ascribed to somebody else than M. BERNIER, the architect, who, of course, simply followed the instructions he received from his official superiors.

THE last number of *L'Art* is representative of the aims of the conductor, for with the best of wills it is not always possible for M. PAUL LEROI to attain what he seeks. The first illustration is an etching in two colours by M. LALAZE, which will sustain comparison with eighteenth-century work. An original etching by M. KRIEGER is decisive in style, and shows the church of St. Paul in Antwerp, a building which is rich in carvings and paintings, but is almost unknown to English tourists. A lithograph after a picture by METSU suggests the fitness of the process for copies of paintings. Then there are phototype plates, one after MEISSONIER, and several reproductions of pictures and designs by painters and sculptors. M. MOLINIER describes the *Topographia Christiana* by COSMAS INDICOPLEUSTES, of which there are only two copies in existence, one in the Vatican and the other in the Laurentian Library of Florence. It reveals the notions about geography which were accepted as true in the sixth century. The author was a traveller, and he was confident from his own observations that the world was a square, divided into two parts which were separated by high mountains, around which the sun was guided by the hands of angels. He therefore believed that PYTHEAS was telling the truth when he said he had seen the bed where the sun took repose after the labours of the day were over. As a record of the knowledge of learned men the *Topographia* is an important document. M. LHOMME contributes an amusing epistle which is supposed to come from VICTOR HUGO in the Champs-Élysées, where he finds he is not appreciated as he had anticipated. Writers of all countries appear to shun his acquaintance, and even SHAKESPEARE was vexed when HUGO began to read his volume on the English poet. M. PAUL LEROI continues his exhaustive criticism on the Salons of 1901, which are remarkable for their trenchant analysis.

THE Journal of the Royal Society of Antiquaries of Ireland, as usual, contains several interesting papers. The first relates to the Castle of Carrickmines, a few miles from Dublin. Unfortunately the only part of the historic building which has survived forms one of the walls of a pigsty. The castle must have been of importance, for it was intended to defend the Pale or English settlement against invasion by the clans of Wicklow. There are accounts of many attacks upon it. In 1642 the place was occupied by the mountaineers, and the siege of the castle was directed by Sir SIMON HARCOURT, an ancestor, in the female line, of Sir WILLIAM VERNON HARCOURT, M.P., about whose combativeness there can be no question. HARCOURT was mortally wounded, but an entrance into the castle was gained, and hundreds of the inmates were slaughtered. The castle was then blown up and the walls levelled to the ground. In the paper on Inchiquin a swan legend is introduced not unlike that which was utilised by WILLIAM MORRIS in the "Earthly Paradise." From the paper we learn that the Irish chiefs did not erect castles of stone until the thirteenth century. In 1207 an attempt was made without success, but in 1216 one was, it is supposed, constructed at Killaloe. One chief, who died in 1268, claimed to have built a permanent stronghold with earthworks, but it is said that up to the time of his death no stone castle existed in the county of Clare. Of King TURLOUGH a chronicler wrote:—"Like a good man, he prepared for himself six white castles of stone in which to dwell and spend his affluence, thence also to discipline his borders and to ward the marches of his dominion." There are also papers on Sepulchral Stones and Free-Standing Crosses, Prehistoric Remains and descriptions of various ruins. Several excellent illustrations are introduced.

THE HOUSING PROBLEM.

A FEW years ago a Swiss Jesuit, the Rev. A. BAUMGARTNER, visited Glasgow, and spent several days in exploring the wynds and other regions wherein the poor congregate. He was amazed at the facilities offered to Death for passing from family to family. In the account which he published he is careful to discriminate between the different classes of occupiers. The conclusion must be drawn from his descriptions that in a great many cases improvidence, idleness and drink are the main causes of the misery. As the men are generally the guilty parties, it is impossible to resist the conviction that any suffering they endure is well deserved, and that if justice were meted out a still heavier punishment should be awarded. On the other hand, we read of weaklings who from physical causes are unable to improve their condition, and who are never likely, unless philanthropy becomes predominant, to enjoy more suitable accommodation in this world. The Jesuit seemed to think that nothing less than a miracle would establish in the wealthy city of Glasgow sanitary conditions for the poorer classes.

It is satisfactory to find that Glasgow is no longer disposed to treat such evils as insignificant and to cloak them by the aid of the numerous respectable people who live in the city and fill the churches on Sundays. Glasgow is not alone in possessing vast numbers of unhealthy dwellings. England has also to deal with the housing problem, and that not only in its large cities, but even in some of its small villages. There are very few holiday resorts which do not present the spectacle of having houses built in backyards, and even passages are encroached upon without scruple. As the Lord Provost of Glasgow said at the recent conference, "As a matter of fact and experience, the unimpeded action of the law of supply and demand had built up all our 'back lands,' had crowded tenants on one stairhead, and, if a sterner law than itself had not interfered, would have perpetuated those narrow lanes and dark closes and sunless, dark rooms which were a scandal to our social condition." There is no denying Dr. CHISHOLM's indictment. Indeed, the terrible thing about the present state of affairs is that the strongest language does not seem adequate to express the full extent of the evil, and for the sake of conventionalism much has to be left unsaid.

In Glasgow the height of many buildings aggravates the discomfort. A pamphlet was published lately by Mr. FYFE, the principal sanitary inspector of the city, in which there are photographic illustrations of places where the poor reside. They show how small houses are overshadowed by the grim walls of surrounding buildings, and when children are first brought to prison they must see little difference between their new quarters and their wynd. The minds of even the humbler classes are subject to impressions from surrounding objects, and those who are reared in little courts, where the sky would be excluded if it brought any additional profit, must conclude from what they see around them that the world is implacable and that the dark walls are like the people with whom they are destined to deal, and for whose enriching they are doomed to suffer.

If prudent regulations had been enforced much of the evil might not now exist, but as property was supposed to have rights and no duties, the covering of small portions of land with wretched dwellings was tolerated, and the dangers arising from the first neglect have been accumulating until it is now almost impossible to deal with them. Let HERCULES himself do what he may he would have to acknowledge he had failed. The Glasgow Corporation have devoted much time to the remedy of abuses and they have expended large sums in improvements. But labour and money were to a great extent unavailing, and it is confessed that the Corporation are no nearer the solution of the onerous problem than when they started.

If the conditions of the case related only to the providing of suitable dwellings, the difficulty of dealing with the question would be lightened. But every one who has any knowledge of the subject is aware that the dwellings cannot be always expected to exercise a reforming influence, and in a little time the "new houses" would be in as bad a state as those which were superseded. The human problem is more puzzling than the constructional. CARLYLE in such cases proposed that the hordes of "ne'er-do-weels" should

be allowed the option of improving themselves and their surroundings, or of standing up before a file of loaded muskets. Schemes of that kind, like many others relating to housing, will never be adopted. At the same time, it cannot be contested that if occupiers were well disposed, and regardless of their own interests, there would be a mitigation of ills which are now accepted as inevitable. But the lower class of tenants will always consider that care and cleanliness are rather for the landlord's benefit than for their own. As long as that notion prevails we must not expect much self-help from the tenants. But it is different when a constituted authority takes the place of the landlords, for even the most ignorant cannot believe that public officers are SHYLOCKS, and insist on compliance with sanitary regulations for their own gain. Municipal trading may have disadvantages, but in cases of this kind it would be well to purchase property and demonstrate how far it can be improved without demolition and rebuilding. What has been done in St. Giles by Miss OCTAVIA HILL indicates how much is practicable with a larger staff of workmen and with materials purchased at wholesale prices. The law, however, insists that when building work in the humblest classes of dwellings is undertaken it must be of a superior character and comply with regulations which were framed for a different class of buildings.

It is a misfortune in dealing with the subject that everyone is on the look-out for a remedy which can be universally applied. The danger is so vast not one but several courses of action are demanded. The utilising of the Hill system should not be taken as meaning that model dwellings are to be avoided, and the erection of such structures as the Peabody and Waterlow model dwellings need not be a bar to the erection of simple cottages in the suburbs of large towns. Most of those who assume to be authorities on housing have their pet system, and in consequence become inimical to those of other reformers. All the co-operation that can be obtained should be welcomed, but owing to the diversity of opinions the law on the subject is not uniform, and in consequence it is difficult for local authorities to determine what course they are to follow. A member of the Corporation of Liverpool described the excellence of the Act under which their operations were carried on, but he assured the congress that it would be impossible for any other city or town to obtain a similar Act. A measure which has been beneficial in Liverpool deserves to have general application, but as Parliament is now conducted there is hesitation about dealing with Improvement Bills in a broad way. Another speaker, who came from Hull, recommended the utmost decision, for as he said, if they appeared to be disposed to compromise, the judges would become doubtful and the law could not be applied to deal with a difficulty. With a multitude of projects it is impossible for Parliament or the Courts not to be dubious about what should be done.

One cause of the diversity of remedies, no doubt, arises from the difficulty of defining such phrases as the houseless, the working classes, the provident poor, and so on. In all such cases there is a tendency to take a representative man or family and suggest how his or their requirements can be met. But the inhabitants of unhealthy houses are of innumerable varieties. It is a pleasing duty to provide dwellings for policemen, clerks, storekeepers and respectable workmen; but when they obtain homes much else needs to be done. Caretakers naturally desire to let rooms to men of that class, who pay their rent regularly. The question of profits cannot be ignored, and without being a little exacting there would be few investors in workmen's dwellings receiving 4 per cent. There is, however, a residuum from whom still less profit can be expected, and to provide for that class the least costly means should be sought, for what is desirable is the removal of a danger that menaces the public health.

The Tablets in the "Hall of Fame," which is being erected in connection with the Art Institute of Chicago, will be inscribed with the names of Sir Joshua Reynolds, Viollet-le-Duc, Ruskin, Da Vinci, Winckelmann, Vitruvius, Vignola, Vasari, Taine, Pugin, Lessing, Benvenuto Cellini, Symonds and Washington Allston.

DEAD CITIES OF THE ZUIDER ZEE.*

IT suggests the impartiality of Sir JOSHUA REYNOLDS when we find him praising the Dutch painters. His ideal school was the Roman, and in spite of their splendid colouring, he was not captivated by the Venetian masters. With the latter he combined the Dutchmen. According to him, a Dutch history-piece is properly a portrait of themselves, and he goes on to say that "whether they describe the inside or outside of their houses, we have their own people engaged in their own peculiar occupations," working or drinking, playing or fighting. The landscapes, he said, were "always a representation of an individual spot, and each of its kind a very faithful but very confined portrait."

The President's words are to some extent applicable to the drawings of old buildings near the Zuider Zee by Messrs. NIEUWENKAMP and VELDHEER. They represent the selected buildings in a matter of fact style without much regard for pictorial effect, or anything beyond the subject before them. In Holland, however, it is possible to have as much pleasing light and shade as we can see along the middle reaches of the Thames, but the advantage which can be derived from such effects was not much appreciated by the two artists who have depicted old buildings in the district of Holland singled out for treatment. Apparently they prefer darkness to light, and some of their houses therefore are from their blackness suggestive of being haunted or of having been the scenes of crimes. In that respect the draughtsmen differ from the old Dutch painters, who were fond of letting the sun play over their houses and around the goods displayed for sale in their market-places. Most English visitors who have gone to Holland for their holidays would allow that CUYP in his sun-illuminated fields, where the grass is as green as in England, and in his canals, in which the bright skies are reflected, was a true realist and came nearer the truth than any photograph of similar scenes. HOBEMA, although he painted woodland views, was not afraid of sunshine. The greatest of the Dutch architectural painters, EMANUEL DE WITTE, would appear to have chosen interiors of churches as his favourite subjects, mainly because of the conditions under which light and shade are combined in them and the new qualities which light assumes when it passes through stained glass. When he painted an out-of-door scene like *The Fish Market of Amsterdam*, it was owing to the beautiful light in which he saw it bathed on an evening, and through which the sordid scene was exalted to the ideal. It is only necessary to compare RUYSDAEL's forests with those of WYNANTS to realise that misery had compelled the former to see nature enveloped in gloom. REMBRANDT, it has been said, can make his darkness equal light, but it could not be asserted that he always preferred darkness, and the so-called *Night Watch* is as dazzling in parts through the sunshine as any of TURNER'S Italian landscapes.

The places from which the subjects have been selected for illustrations in the new volume on Dutch buildings are sometimes called Dead Cities, and it is allowable for an artist to adopt any means at his command in order to impart a weird character to remains which belong to the past rather than to the present. The absence of figures, as well as the strong lines in which details are drawn, and the deep shadows which overspread most parts, are all means to an end. ALBERT DÜRER'S *White Horse* is perhaps a less graceful animal than one of WOUVERMANN'S or LANDSEER'S, but it is more full of mystery, and the longer we gaze on it we are the more puzzled to discover why the horse and the knight who owns it should stand so patiently, as if waiting for some mysterious portal to open which is destined to be always closed. As we look on the plate, by Mr. NIEUWENKAMP, of Dutch fishing-boats with sails set, we must ask, Where are the sailors who should have stowed them, but have abandoned them? The churches are deserted, and have not even a bat to enliven the loneliness. The figure in the one picture on the wall in the Edam Museum looks as if it were about to descend from its frame in order to give some animation to so large and deserted an interior. The weigh-houses are without commodities, and the East India tower, where life

once reigned and merchants haggled in many tongues, is now desolate. Like the immortal RIP VAN WINKLE, everything in Mr. NIEUWENKAMP'S volume seems to be asleep, and we ask ourselves, When is a human voice to disturb the silence? Holland has had, no doubt, its enchanters, and the Dead Cities will remain entranced until somebody can seize the magic garment and the potent wand.

There are thirty plates. The first represents the north side of the church at Monnikendam. Between the porches we see the gable of the sexton's lodge, and the man who could have had such a residence must have been an important official. Over one of the doors of the church porch is inscribed, "This door is built in all good faith with the money that has come free upon the death of SIMON NOEDZOEN. Pray for his soul." A convent existed near the church in the beginning of the fifteenth century, and it was succeeded in 1612 by the Tobias House for old folk. It measured 220 feet by 160 feet, but political economy found its way to Holland, and the Tobias House was demolished, like the convent, and turned into a market garden. The dedication of the church to St. NICHOLAS shows it was used by mariners. It is a fifteenth-century building. According to Mr. TUVN, it is basilican, as are most of the churches in the northern provinces, and especially in North Holland. The tower is a landmark, and stands on the west side of the church. The bell-tower of Monnikendam once stood beside a town hall, which has vanished. The tower is somewhat fantastic, considered as a work of architecture, but is none the less suited for a town in dream-land. We are informed that "on the south side just below the first balustrade is a projecting wooden niche in seventeenth-century style. It contains four tiny wooden horsemen, and every time the full hour strikes, as soon as the last sound of the bell has died away, these ride out from the pent-holes, and the figure of FAME above the niche raises the trumpet to her mouth and produces a few grating sounds far from melodious." From Edam, the south porch of the church, which is also dedicated to St. NICHOLAS, and a couple of views of the museum are given. There is a great dam, which is crossed by a stone arch, that was the cause of many lawsuits. It is characteristic of the people that on either side of the dam are seats, with fine wrought-iron backs. The museum is an old and most interesting dwelling-house, which was purchased in 1893. We give a reproduction of one of the blocks, showing the steeple of the church of Our Lady at Edam. The church was removed about twenty years ago. The steeple has a carillon of sixteen bells. The lower structure is of brick and hewn stone, the octagonal part is of hewn stone, and the spire is of wood cased in lead.

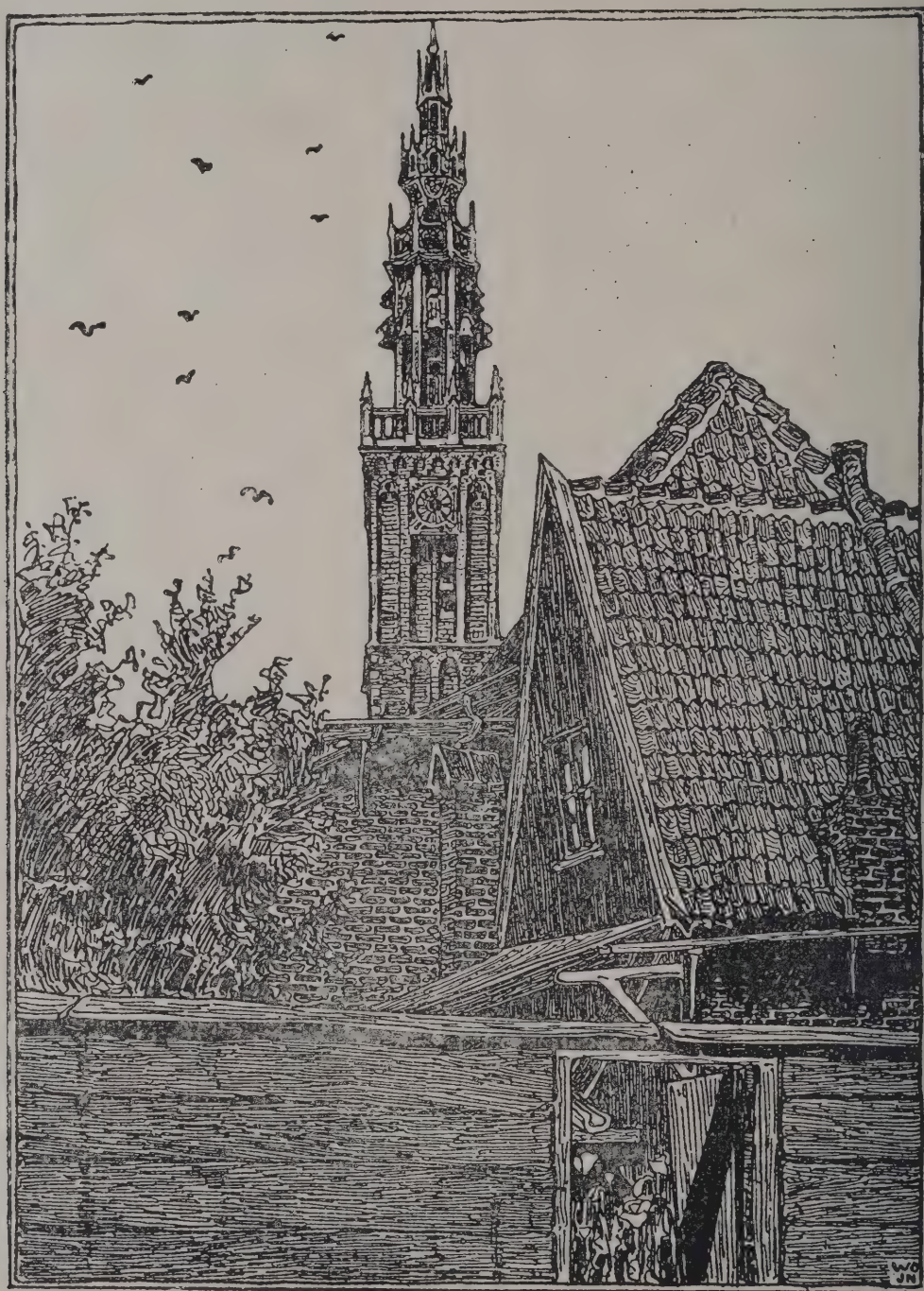
The harbour tower of Hoorn is familiar to many tourists. It was erected between 1532 and 1651 at considerable expense, and the inhabitants have reason to be proud of it. The church of St. Mary is a good specimen of Dutch Gothic, and was built in the middle of the fifteenth century. The interior is pleasing from the combination of timber and stone; the turret is approached by a staircase which, we are told, is ingeniously planned and beautifully finished in late Gothic style. The east gate was built in 1578; at a subsequent time it was surmounted by a structure for observation or for residence. It was claimed for Enkhuizen that in the seventeenth and eighteenth centuries it was the greatest and wealthiest of the cities of the Zuider Zee, but owing to the silting up of the harbour it has fallen from its high estate. One of the subjects represented is the Dromedaris Tower, which is approached by a double drawbridge; it was constructed in the sixteenth century. On one of the stones is the following characteristic motto, "Blessed be the town and much to be praised that provides against war in times of peace," words which were no doubt known to the Boers in South Africa. Enkhuizen has its church of St. Pancras, which was built in 1422. The church stands on a reed-bed; the walls have consequently settled. The interior used to be painted with scenes from the Old and New Testaments, and the master-painter was allowed a fixed income that he might live honestly and provide for his family. His work was, however, concealed by yellow paint in 1609. The church of St. Gommer was built in rivalry to St. Pancras, and the adjoining building was surmounted by a

* *Old Dutch Towns and Villages of the Zuider Zee.* By W. J. Tuyn. Illustrations by W. O. J. Nieuwenkamp and J. G. Veldheer. (London: T. Fisher Unwin.)

wooden bell-tower, which was used temporarily. The East India tower was at one time known as the English tower, and forms part of a picturesque group. Medemblik possesses an old castle which is supposed to date from the thirteenth century; it is now being restored, and will probably be utilised as a court-house. The church of St. Boniface is of a characteristic type, and the houses nestling around it combine to create a pleasing picture.

Buiksloot is one of those villages which somehow win the hearts of seamen, and where they delight to live in the intervals of their voyages. Some Amsterdam people resort

seen anywhere, and the furniture, although simple in the extreme, is thoroughly good. The little flower-gardens share in the general tidiness. The Broekers carry their love of cleanliness often to the extent of preferring to go without food rather than soil their pots and pans. No smoke or dirt of any kind is ever seen in the kitchens; the kitchen grates, indeed, are seldom, if ever, used for cooking purposes. The back kitchens are always fitted with small fireplaces, where the general cooking is done. All the houses have two doors. The steps to the front door are removed, leaving a space of two or three feet between the level of the door and the street. This door is used thrice at most for each member of the family, namely, for



CHURCH OF OUR LADY, EDMAM.

to it in the summer, and it is less exciting than Scheveningen. It recalls one of the Essex amphibious villages. Nieuwendam is of a similar class; but it must have been of some note at one time, for it possesses a coat-of-arms which consists of "a field azure with swan silver, billed, footed and collared;" the shield is surmounted by a golden crown. The village of Broek is one which Dutch men and women consider to be a model for universal imitation, and VAN DER AAS's account may be quoted:—

The cleanliness for which this village is justly renowned shows itself even more in the interior of the houses than outside. Everything shines; not a speck of dust or dirt can be

baptisms, weddings and funerals, on which occasions a loose step is placed in front of it. The small door at the side is the ordinary house door. Each house has also a best room, which is never used except on the occasion of a wedding or a funeral. The streets of the village were laid in 1661, and are kept so scrupulously clean that one is almost afraid to walk over them in one's boots. They are strewn with white sand in little patterns along the fronts of the houses. Everything that could possibly bring dirt into the streets is carefully kept away. It is not even permitted to walk about with a lighted pipe. This is prohibited not only on account of cleanliness, but also for fear of fire. Once a month there is said to be a general inspection of the streets to insure their being kept in perfect condition.

There are also descriptions and illustrations of Dordrecht, Volendam and Marken, which are likewise quaint and almost as suggestive of shipwright's work as of a builder's, for, according to ANDREW MARVELL, "the Dutch with mad labour fish'd the land to shore." It is remarkable that so much of a family likeness should be exhibited by the towns and villages which border the Zuider Zee. The people all have a common interest in that unique expanse, and it would be difficult to convince even young children that any danger can arise while they are amusing themselves in small boats or rafts which they have put together. In representing such typical buildings black is more expressive than a variety of colours, and although, as we have said, strangers might suppose that Holland is a place of universal gloom, the plates are a triumph of a certain class of draughtsmanship. The bordering by Mr. VELDHEER has an aquatic character, and adds to the interest of the pages. The printing is creditable to the Gresham Press, and the volume will form an attractive table book.

THE BORGHESE "NIOBE" AND "HECTOR."

THE well known but pathetic figure of NIOBE and one of her children, which she is endeavouring to shield from the arrows of APOLLO, was considered by OVERBECK to have formed part of a group. In his "History of Sculpture," he has, therefore, united various figures which will exist, but as there is more or less doubt about the relativity of them, it cannot be said the arrangement is entirely satisfactory. The subject was one which appealed to Greek sculptors, and it is likely there were several representations of the tragedy. NIOBE was the wife of LAMPHON of Thebes. In days when Olympus was believed to be not far from Greece, it did not seem unreasonable to suppose that the goddess LETO and NIOBE would have been playfellows in early days. But as the goddess only possessed two children, APOLLO and ARTEMIS, while NIOBE was the mother of fourteen, the mortal exalted herself above LETO. We must not judge Greek morality by a later standard, according to which a little maternal vanity would not be looked upon as a serious crime. But NIOBE interfered, as is said, with the priestly revenues, for she prevented her subjects from offering gifts to LETO and her

children, on the ground that as queen she had more claim to them. In Thebes, as in London, so large a family was likely to be expensive, and the English matron will sympathise with poor NIOBE'S efforts to make ends meet. All the goddesses were merciless when their dignity was diminished, so LETO resolved to wreak her revenge on the Theban woman who had been her companion. APOLLO and ARTEMIS were not indisposed to be the instruments. The two archers shot their arrows against the family group, and the children fell. Eventually NIOBE was transformed into stone, and it was long believed that her form could be recognised on Mount Sipylus.

In the relief which at one time was found in the Villa Borghese, variety is obtained by the introduction of horses. As they have not been touched it becomes more evident that the aiming of APOLLO and ARTEMIS was directed against the children alone. It was no haphazard shooting, but was in deadly earnest, and inflicted death on victims who apparently had no part in their mother's presumption. The treatment consequently excites pity and terror, thus corresponding with the Greek laws of tragedy. Although the celestial death-dealers are invisible, yet from the up-turned eyes of some of the victims it is evident they are above Thebes, and it must be felt that, like Fate, their power is without limit.

The relief we illustrate has one advantage over the group arranged by archæologists, because we are certain that the



THE DESTRUCTION OF THE CHILDREN OF NIOBE.



THE RECOVERY OF THE BODY OF HECTOR.

work expresses the sculptor's idea of unity. There is no doubt, on the contrary, that from the time when the first fragments were discovered in the sixteenth century many figures were utilised from time to time to complete the supposititious grouping, although there was not a tittle of evidence to show that they formed a part of the original group or of a copy from it. It is possible that some of the figures may have formed part of different representations of the scene by other sculptors, but in many cases we believe it is not certain whether the figures possessed any relation to the legend. An important archæological problem therefore still awaits all those who have the patience to make a new arrangement, but we question whether a solution with which all will agree can ever be ascertained.

Although we may admire the action of the figures in the bas-relief of the NIOBE, yet it is difficult to admire the subject. In the other relief, however, relating to the

subject. In the other relief, however, relating to the

recovery of the corpse of HECTOR, there is more of an appeal to ordinary human feelings. The work was probably executed by a Græco-Roman sculptor, or, at all events, he has modelled it with a view of gratifying Roman imagination. HECTOR was of more interest to the Latin race than ACHILLES. In their opinion right was on the Trojan side. During the Renaissance period a similar view was taken, and the play of "Troilus and Cressida" is proof of its influence in SHAKESPEARE'S time. In fact, it is only from a comparatively recent date that people have endeavoured to regard the death of HECTOR from a Greek standpoint.

The relief has not the singleness of action which we see in its companion. It represents two incidents. First, PRIAM is seen kneeling before ACHILLES—only a part of the hero is shown—and appealing to him for the body of his son. The attendants bear the vessels which were to be offered as a ransom. The second incident shows HECTOR'S body arriving before the gates of Troy, where it was met by some of the members of his family. As ASTYNAX, HECTOR'S son, was only a baby in arms at the time, the youthful Trojan introduced may be TROILUS, the younger son of PRIAM and HECUBA.

The Borghese Collection was at one time the most valuable of all in Rome outside the Vatican. PAULINE BONAPARTE having married Prince CAMILLO BORGHESI, NAPOLEON was able to purchase the collection from his brother-in-law and place it in a special gallery in the Louvre. Some of the antique works were afterwards returned, and we believe all the contents of the Borghese Collection which have survived may now be looked upon as the property of the Italian nation.

ABBAY OF ROSS.*

THIS "abbey" is situate on the Galway side of the Black river, which separates that county from Mayo. It is distant two miles from the town of Headford, in a very secluded spot, and is perhaps the least known of the larger monasteries of Ireland, notwithstanding that it has formed the subject of a very interesting little book of eighty pages, by the late Oliver J. Burke, a second edition of which was published in 1869. There is also a brief notice of it in Sir William Wilde's "Lough Corrib," and in Duffy's *Hibernian Magazine* for 1862-61 the late Rev. C. P. Meehan contributes some valuable matter from the Louvain MS. (See also Father Meehan's work on the "Rise and Fall of the Franciscan Monasteries.")

The date of its foundation is placed at A.D. 1351. The "Four Masters," the Louvain MS. and the Rev. Luke Wadding all agree on this point. In A.D. 1470 the monks adopted the rule of the strict observance. About the year 1498 additions were made, and the abbey was considerably enlarged.

From the time of its suppression in 1538 until 1753, the monks were seven times expelled, but after a period they each time returned again until 1753, when they returned no more. After its suppression the monastery had been granted to the Clanricardes, and that family assisted the friars from time to time. In 1580 a regnant was made of it to the monks, but in the same year they were again dispossessed, and the abbey was plundered. During the wars of Elizabeth, in 1596, it was occupied by a portion of the English army then in Connaught.

In 1611 it was again in the hands of the Earl of Clanricarde, who restored the monks, only to be expelled again in the following year; they returned in 1626. In 1641 Father Bryan Kilkenny was guardian, and in 1647 an important chapter of the order was held in the abbey.

The Cromwellian soldiery took possession of and rifled the abbey in 1656; the monks, hearing of their approach, had vacated it. In 1664 the monks returned, but in pursuance of the Act 9 William III. chap. i. entitled "An Act for banishing all Papists exercising any ecclesiastical jurisdiction and all regulars of the Popish clergy," the monastery was again suppressed; this was in the year 1697. With wonderful perseverance they again returned; they are found here in 1715, where they remained until 1753, in which year they left the monastery for the last time, and retired to a small island formed by the Black river, within view of the lofty tower of the abbey. The foundations of this temporary abode still remain. Later on they removed to a site at Kilroe, where they built a convent on the property of Mr. Lynch, of Ballycurrin Castle, which, however, they abandoned in 1840, in which year the roof of the abbey church had fallen in.

The ruin is approached by a causeway and gateway; the causeway was made through low-lying grounds then nearly always covered with water, and the gateway was in the enclosing wall and ditch which surrounded the few acres of land attached to the monastery, the extent of which can still be traced by the remains of this ditch.

The buildings as they now stand are the most perfect of any such ruins in Ireland. The style of architecture was plain, and, owing to the hardness of the stone and the absence of carving, the work has suffered but little injury; indeed, if it were not for the practice, which ought to be discouraged, of turning the church and cloister into a common graveyard, the walls of the church and extensive domestic buildings are fit to be re-roofed, and if this were done the order might be able to return to their monastery.

In entering the church it will be observed that the west window is not immediately over the door, but is south of it. This, however, leaves the window in its proper position internally in the centre of the nave, which is 20 feet 7 inches in width and 57 feet 3 inches in length, and the door is in the centre of the space comprising the nave and aisle, together measuring 30 feet 5 inches in width. The nave is separated from the aisle and south transept by an arcade of four arches. This transept is divided into two by two round-headed arches and a short wall; its measurement is 33 feet 8 inches north to south and 49 feet east to west. The transept has two east windows, before each of which stood an altar, and between these windows an arched opening leads into a small lady chapel, 24 feet by 18 feet, with a good east window, and side-lights of later date. The transept contains two large windows in the south wall with mullions and tracery.

The tower, as is usual in Franciscan houses, has been inserted after the church was built, and is likely to be one of the additions made in 1498. This tower is remarkable for the lowness of the arch giving access to the chancel, and as having another arched opening over it looking towards the nave, which seems to have served the purpose of a rood-loft. Before this opening was displayed the holy rood in the usual manner intended to be seen from the nave of the church.

There is a small chantry near the entrance, south of the aisle, of seventeenth-century date, erected by the Jennings family.

The choir is 53 feet 7 inches by 20 feet 7 inches, and is lighted by a fine east window, under which the high altar stood, and by four side-lights in the south wall. The chancel is greatly injured by the erection of modern tombs, one of which has been placed in such a position as to permanently disfigure the structure. There are now no openings in the north wall of choir; that to the sacristy is blocked up; there are traces of an organ-loft in the choir adjoining the tower.

The conventual buildings form a most interesting part of the abbey. The plan of the Franciscan house was not so well designed as in the Cistercian order. In the latter, given almost any portion of the structure, it would not be difficult to follow out a plan of the whole, but there is no such consistency in the houses of the other orders. There is generally a diversity as to the number of the apartments, and frequently as regards their location. Ross is therefore interesting as showing almost all that was required in a perfectly equipped Mediaeval monastery.

The cloister lies to the north, though sometimes, as was the case at Castledermot and elsewhere, it lay to the south. The cloister garth is very limited in area, only about 30 feet each way. The buildings grouped around this space in the usual manner are necessarily limited in extent, and it was therefore found necessary to provide another area or court about 28 feet square, around which the requisite additional buildings are provided. The principal of these are the refectory, a large apartment 37 feet long by 20 feet 6 inches wide, provided at its north-east angle with the usual reader's pulpit and the large kitchen at the north-west angle of the buildings. Immediately adjoining are the remains of the mill. A stream of water, the course of which may still be followed, flowed by the east side of the abbey and under the garderobes at the north-east angle, along the north side direct to the mill and from thence to the river, a few yards distant.

There is a three-storey building adjoining the choir on the north side, which is described by the late Oliver Burke as the sacristy with guest-house over. This structure is known locally as Burke's Castle, and is evidently not part of the original design of 1351. The sacristy is a smaller apartment nearer the cloister, and it would be a very unusual, and indeed a very undesirable place to have the guest-house so near the sanctuary and communicating directly with it. The guests were usually lodged nearer the entrance to the precincts. If this were a Cistercian house we might expect to find that the abbot or prior was lodged in such a position, but here it was probably the guardian or provincial. The head of a Franciscan house was elected for three years and was chosen from amongst the brethren. At the end of his term he resumed his former

* From the Journal of the Royal Society of Antiquaries of Ireland.

position, and he generally occupied the same quarters as the other brethren. It would therefore seem there was no necessity for a distinct lodging for the guardian, in which case the apartments were probably occupied by the distinguished ecclesiastics, such as the provincial when intending to hold a chapter. The position of a chapter-room in a Franciscan house is not satisfactorily settled, and in some places it is not clear that there was such a provision. At Ross, Oliver Burke, the author before quoted, locates the chapter-room on the upper floor over the bakehouse. If this were its position it would be a strange one. The provincial chapters were large gatherings, and could not be accommodated in such a small apartment or in so inconvenient a position.

The abbey of Ross was the parent house of Donegal Monastery. In the year 1474, when the Franciscans were holding a provincial chapter, Nuala, the wife of Hugh Roe O'Donnell, came with a brilliant escort to ask that a branch of the order should be established in her husband's country in Tirconnell. Her request was at first refused, but owing to her persistence it was eventually acceded to, and a colony from Ross set out with her for Donegal, where in a few years the monastery at that place was completed for their reception, where the "Annals of the Four Masters" were compiled by the Brothers O'Clery in A.D. 1636, the successors of the monks who left Ross in 1474.

Repairs were effected here in 1880, but as usual at that period the ivy was not cut. It had overgrown the structure greatly, and arrangements have been made for removing it. The caretaker looks after the burials, but cannot prevent entire strangers burying in the ruins, already overcrowded. It would be very desirable that further interments should cease.

VICTOR HUGO'S HOUSE AT GUERNSEY.

A SHORT walk up a winding street that leads from St. Peter's Port brings the traveller to the house where Victor Hugo spent his years of exile. When first he left France, says a correspondent of the *Manchester Guardian*, he took refuge, I believe, in Jersey; it is the island chiefly frequented by French visitors, who come but little to Guernsey and least of all to Sark. It was therefore suggested to the distinguished exile that it might be better for his own and everybody's quietness and satisfaction if he settled a little further from his native shores. Victor Hugo took the hint and withdrew to Guernsey, and was received with a kindness which he never forgot. For sixteen years he dwelt here, in perfect peace and seclusion, almost within sight of France, although under the British flag, and no one who reads the exquisite dedication of "Les Travailleurs de la Mer" and its introductory chapters can fail to see how completely he made himself at home in Guernsey, mixing with the people, making an annual tour among the islands in August, studying their usages and history, and saturating himself in the atmosphere of this interesting archipelago.

Hauteville, as the house is called, is in no way different, to outward view, from the other substantial, old-fashioned residences which adjoin it. Two large shrubs stand in front of it; that is all. Victor Hugo made it what it is within. It belongs to the poet's grandson. But the family seem anxious to allow the public to make it a place of literary pilgrimage, and anyone who mounts the steps and rings the front-door bell (as I did, with some misgiving) is sure of a kindly welcome. No charge is made, but one gives a gratuity to the housekeeper, who acts as a guide. As far as possible the house is kept as the poet left it. The decorations and arrangements are curious and striking, suggestive of the original and unconventional tastes of the man. You are shown, on the ground-floor, the billiard-room, with its heavy and massive furniture. The dining-room is completely lined with old Dutch tiles, which it must have taken some time to collect. Some pieces of rare and curious china also adorn the walls. The drawing-room has a sad and forsaken look of faded elegance. The library and some other rooms are more inviting, but are overdone with heavy pieces of old oakwork, collected evidently from all quarters, and put together, in some instances, without much sense of beauty or fitness. You find stools and benches made up of Gothic stalls from a church side by side with bits of Renaissance carving. All is imposing and massive, but hardly cheerful. One feels that Hugo loved to surround himself with a certain strange, old-world grandeur, while gratifying after his own fashion the instincts of a collector. One is reminded, in some sort, of Sir Walter Scott and Abbotsford. It is clear that Hugo was thinking rather of the dignified reception of guests than of his own comfort. Though he never smoked, he fitted up a handsome smoking-room, furnished with every comfort. It is when you go upstairs that you begin to arrive at the real man. There is a bedroom, not large indeed, but sumptuously furnished, as if for a monarch, wherein the French champion of national liberty hoped to receive Garibaldi. But the wielder of the pen was disappointed; the wielder of the sword was unable to come. At the

very top of the house you arrive at a large attic, covered in with glass, like a greenhouse, and overlooking the harbour. It commands a noble view right over the sea, and looks towards France. You can see Sark and Herm and Jethou, and the archipelago of isles that stud the Channel. Here, at a little wooden desk, the old man stood as he wrote "The Toilers of the Sea." The desk seemed a low one; but Hugo, though rather stout, was short of stature. The original MS. of the volume contains the following notes of its composition:—"Commencé le 4 juin, 1864; interrompu le 4 août; repris le 4 décembre; terminé le 29 avril, 1865." His habits seem to have been exceedingly simple. He would sometimes take his meal at a restaurant in the town. He knew every part of Guernsey well, walking often at Pleinmont. His literary work he attacked, like Ruskin and like Scott, in the early morning. He frequently began writing at 4 A.M. At the close of Part I. of "Les Travailleurs de la Mer" he makes a note—"3 août, 8 heures $\frac{1}{2}$ du matin." When the day grew hot he retired to sleep awhile on a low couch in a little room adjoining. The older people at Guernsey have many kindly reminiscences of the poet's sojourn among them.

Never was nobler return made for kindness than the return made by Hugo in his great romance for the hospitality of the Guernsey folk. "Les Travailleurs de la Mer" is an epic of the Channel Islands. The younger generation of readers has forgotten, if it ever knew, the sensation made by the book at its first appearance. Wild, extravagant, grotesque it may seem at times. It lacks a due sense of humour. The second volume seems spun out; the story is too often stopped for digressions, descriptive or ethical. It is like reading "Tristram Shandy," but without the abundant humour. Yet it breathes the very air of the Channel Islands; it conveys their colour and charm. You can hardly enter aright into the spirit of the tale until you read it amid the cliffs and caves of Sark. Few, indeed, would warrant the truth of all it tells concerning the archæology and history of these islands. The author is a romancer; he is a great rhetorician also. His derivations may be often at fault. He doubtless idealises the scenery and the people. Yet the general outline is true, the local colour just. The impression conveyed, though it reaches us through a halo of light like a landscape by Turner, is a just impression, after all, of the scenery before us. There is hardly a passage in literature so true and accurate in describing the scenery of granite rocks at low tide—so remote, mysterious and relentless—as the opening chapter of the second volume.

ARCHÆOLOGICAL EXPLORATION IN CHINESE TURKESTAN.

A REPRESENTATIVE of Reuter has had an interview with Dr. M. A. Stein, who is returning to India this week after making a preliminary arrangement of the remarkable finds brought to light during his recent expedition in Chinese Turkestan. The cursory examination that has so far been possible within the short time available reveals in a striking manner and for the first time many points bearing on the culture and daily life of localities which for many centuries—some for nearly 2,000 years—have been buried under a sea of sand, and whose history has hitherto been practically a blank. Dr. Stein said:—"A full investigation of the sculpture, fresco painting, objects of industrial art and seals, &c., which were dug out of the temples and dwelling-houses of sand-buried sites will help us to resuscitate the civilisation of a region which has played an important part in history as the link between ancient China, India and the classical West. As showing the extent to which the desert has advanced, I may say that some of the settlements I excavated are situated fully a hundred miles beyond the edge of the present cultivated area. No doubt can be entertained that the inhabitants of these places were in possession of a culture mainly derived from India, and that they were Buddhists. My excavations go to prove that their culture was highly advanced and that the art influences of Greece and Rome were felt even at that great distance from the centres of classical culture. Khotan is, I should say, about halfway between Pekin and Western Europe. Possibly the most striking excavations I made were at a site in the heart of the desert north of Niya, where one settlement was exposed covering with its scattered dwellings and shrines an area of about six miles by four. Until digging began all that was visible were weird-looking rows of bleached timber pieces projecting in various places like the framework of a wrecked ship from between the sand dunes." Dr. Stein's excavations have yielded a large quantity of Sanscrit, Chinese and Tibetan manuscript, all in good condition, also some colossal specimens of stucco statuary.

A New Wing to the Royal Albert Asylum, Lancaster, was opened last on Thursday in last week. Messrs. Austin & Paley were the architects for the addition, which cost over 20,000/.

NOTES AND COMMENTS.

BREMEN still carries on an extensive trade with this country. It was one of the Hanse Towns, and therefore had a share in the "Steelyard" of London, which in old days was one of the principal commercial centres of Europe. CHARLEMAGNE constituted Bremen as a bishopric. Subsequently an effort was made to incorporate it with Hamburg as an archbishopric, but the contests which arose were so serious that eventually, in order to put an end to them, Bremen became an archbishop's see. The first cathedral was, it is believed, a wooden building. Then it was superseded by one in which stone was used. That building in the year 1043 was destroyed by fire. The present structure is thought to have been erected in 1160; its length is about 300 feet and its breadth 124 feet. Since the seventeenth century the cathedral has suffered much. In 1638 the southern tower fell and destroyed several houses, besides killing eight men. In 1656 the north tower was greatly injured by lightning. In the frequent wars of the time the town had various masters. It was conquered by the Swedes. Subsequently it formed a part of Hanover. Then it was recognised as a free city. In 1810 NAPOLEON made it a part of the French Empire, and three years afterwards it again became independent. The cathedral was neglected amidst so many changes, and it was not until about fourteen years ago a serious effort was made for its restoration. The works were at first carried out under the direction of MAX SALZMANN. On his death in 1897 the task was taken up by Herr EBHARDT, and under his direction they have been brought to a close. A sum of 140,000*l.* has been expended, and in order to raise a part of the money some of the cathedral estates have had to be sold. The revenue of many institutions connected with the cathedral will consequently be diminished, and unless Government will come to the aid of the citizens much inconvenience will follow.

M. HENNER, the French painter, does not produce many works, and he is too modest a man to care about advertising himself, but a story relating to him has gained admission in the French papers, and excites interest because the painter trusts to his works alone for reputation. It appears that M. HENNER, in talking with a provincial prefect, said that about the year 1864 he painted the portrait of a young lady from Poitiers, which he considered to be one of his best works. On that account he wished to know what had become of it. The prefect, on his return to Poitiers, set to work in the official manner. In the first place, he endeavoured to trace the whereabouts of the subject. Then he discovered that the lady had quitted the world and was a nun. As prefects have no official right to enter convents it was necessary to find someone else who could make the necessary inquiries. Fortunately such a person was available. It was then ascertained that M. HENNER's work was in the possession of a brother of the nun, but unluckily it had been operated on by some provincial painter, who, at the desire of the family, had added a nun's veil and lengthened the canvas in order to represent the lady in her conventual habit. M. HENNER is undemonstrative, but his quiet atelier in the Place Pigalle must have witnessed a display of wrath that was excusable when the artist heard of the treatment one of his best works had gone through.

It does not look well when we find the subjects of the Royal Academy lectures on chemistry, anatomy and the demonstrations are announced, while only the dates are given for the courses on painting, sculpture and architecture. Some people will ascribe the cause to the difference between science and art. Science is supposed to be prepared for whatever it undertakes, but art depends on inspiration, or something resembling it, which only comes at intervals. Students cannot be expected to appreciate lectures which are a surprise to them, and for their sakes the policy which is extending of leaving the choice of subjects until the last moment should be avoided. The Academy professors are not like essayists who write for journals or magazines, and who are expected to present subjects which are novel. The chemistry lectures begin on Monday next at four o'clock, and they will be continued by Professor CHURCH on the succeeding Thursdays and

Mondays until the 24th inst. They will treat of "Grounds for Painting," "Classification of Pigments," "New or Little-known Pigments," "Selected and Restricted Palettes," "Vehicles and Varnishes," and "Conservation of Paintings and Drawings." Professor THOMSON's course will begin on the 28th inst., and the first of the anatomical demonstrations will be on November 18. Lectures on the arts will not be given until 1902.

POCKET-BOOKS which can be carried in a pocket without inconvenience appear to be more recognised as a necessity. The latest addition to them is the "Cement Users and Buyers' Guide," published by Messrs. E. & F. N. SPON, the originators of technical pocket-books. Its purpose is "to enable buyers to get out their specifications, to help them in deciding as to where and how to buy their cement to the best advantage, and also to enable them to keep from making complaints excepting when warranted." The information is condensed, but represents the results of many years of experimenting. Suggestions are given for tests which can be performed in an office. There is also advice about the use of cement and its storage. Finally, there is a list of cement makers, which will be useful to architects and engineers as well as to contractors. We are glad to see that the author recognises the excellent work of the late JOHN GRANT, a man who, beyond any of his contemporaries, gave precision to what was known concerning the material.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER. ANCIENT SCULPTURE IN WALL OF SOUTH CHOIR AISLE.—"THE RAISING OF LAZARUS."

WHEN the South Saxons were converted to Christianity and a bishop was appointed, his stool or settle was placed in a church in Selsey which was dedicated to St. Peter. That bishop was WILFRID, archbishop of York, who had been driven into exile and wandered southward until he had found a refuge with King ETHELWOLD. Selsey was, however, from its situation liable to invasion by sea-rovers, and at length it was thought advisable to remove the bishop's chair to Chichester. The change took place in 1075. It is not surprising that the memory of the original building at Selsey was not quickly effaced, and it is possible that many objects were transferred from the old cathedral to the new. The majority of those relics have disappeared, but in Chichester the belief prevails that a few examples of sculpture in relief which are met with in the cathedral formed part of the ancient church which was erected under the supervision of St. WILFRID. But there is no mention of them in any record relating to the cathedral, and it is not certain in what part of the existing building they were formerly exhibited. They must have been considered as precious, for they were concealed behind the stalls, and were not brought to light until 1829. It is suggested that they were placed where they could not be seen when it was found that Chichester was unable to hold out against the Parliamentary forces. The cathedral suffered much, and indeed their fury caused them to break the Table of Commandments, which is not idolatrous stonework, into shivers, and the Bible was marked in divers places with a black coal. We are told how the soldiers defaced the monuments, hacked and hewed the seats and stalls, and picked out the eyes of a statue of EDWARD VI. under the gaze of their commanders. There must have been special reasons which made the Bishop and Chapter so anxious to preserve examples of archaic sculpture, which as works of art could have had little relative value. We should also remember that the oldest part of the cathedral has not been adorned by the sculptor's art, and the reliefs would be superfluous in the building; nor can we consider them as English in style, and it is not unlikely they are foreign works which came by sea to Selsey, and for reasons now unknown were esteemed.

BUSINESS PREMISES, TOTTENHAM COURT ROAD.

COTTAGES, WARNHAM.

HOUSE AT CLEY, NORFOLK.

DONNINGTON HURST, NEAR NEWBURY.

BOSLOE, NEAR PALMOUTH.

DREADNOUGHT HOTEL, BATHGATE.

ANCIENT DOMESTIC ARCHITECTURE.

By the late G. E. STREET, R.A.

IT is impossible to look attentively at the modern attempts at a revival of ancient domestic architecture in this and other countries without feeling that there is much want of success and much unreality in most of our efforts. The question whether this all arises from some incompatibility of the old style with modern requirements, or whether it is not rather the mistaken way in which the revival has been attempted, is one which I think it will not be waste of time or of trouble for us to consider and answer if we can.

Unquestionably our revival of ecclesiastical architecture has been by far more uniformly successful than that of domestic, but this seems to require little explanation. It is the result simply of the fact that men are more generally interested in the one than in the other. And I believe that by the time we have interested the world in the revival of domestic architecture we shall find that we know how to build houses very much better than we do now.

In our modern efforts there seem to be two or three very obvious faults. One, the too close copying in all our works of the latest kind of Third-Pointed work without much attempt at adaptation. Another, that in these attempts the external effect only has been thought of, whilst in the interior we have imitated all the faults of regular nineteenth-century house builders, and consequently feel a painful sense of unreality in all our works. The result is that as the eye only has been appealed to, our works have been utterly unsuccessful because our reason has been unsatisfied. Now, to produce any effect of lasting and real pleasure there must be very much beyond a mere attempt to please the eye. I suppose we all know this and yet I confess it seems to me that if we do but few of us act upon our knowledge; for of all the buildings erected in any so-called Gothic style of late years, there are scarce any exceptions to be found to this gravest of faults.

Our Classic artists seem to glory in the same error; not a building do they erect in which one can trace any attempt to show a reality and truthfulness in all the component parts, and so scarce any which can satisfy the mind as well as the eye. Their long rows of uniform windows, lighting rooms of all kinds, from pantries up to drawing-rooms, their sham windows where no light is required, and all their other shifts to preserve uniformity, are all proofs of their utter want of perception of the first of all rules of ordinary building and design—the law of truthfulness; and in the greatest of modern attempts at revived Christian art the same error prevails to a perfectly fearful extent. The half mile of window and buttress, window and buttress, with all their dismal and dreary similarity, cloak an irregular and unequal internal arrangement. On one side windows are built but to be blocked up, either altogether or by floors abutting against them in mid-height, and in this the seat and palace of our Parliament, it would puzzle any one to discover after a perambulation of the exterior and a diligent search in all its monotonous courts, where or of what nature its halls of assembly are. And can this be real art? Is it not rather a mere mockery of those old men whom we pretend to imitate? For do we not know how thoroughly each foot of their walling told its real purpose? There was no mistake in their work; they never thought of such a thing as the planning and erection of a building, and the addition of a front to it which should bear no reference to all that plan and arrangement. Nor would any great artist in any time have pretended to do so. I confess too it has always seemed to me that Greeks and Romans had in their works much more truthfulness than their nineteenth-century successors and imitators ever allow themselves to show.

Reality therefore is the great law to be attended to above all others in architecture. In it are included all other laws which give life and vigour to our work, and without it no attempt can be, even in a slight degree, successful.

In proportion, then, as our work is entirely and undeniably real, so exactly is it good in the first place, and this necessity is far above the necessity for correct detail, for accuracy of mouldings and the like. Add these last to the first and you make a perfect whole. But use them by themselves, as is now most frequently the case, and you have a meagre and unsatisfactory result; one indeed much more so than is the adoption of the first principle of reality without the practical knowledge of the science or history of mouldings or styles. In fine, what has been said of church building may almost be said of all other work, "That feeling without knowledge is better than knowledge without feeling." And I think we have a very striking example of the effect of truthfulness upon design if we examine the difference of idea exhibited in the general proportions and arrangement of modern houses as compared with those of old ones. But as this is of no little importance it is desirable, even at the risk of being tedious, to say a few words upon it. Now we all know the modern idea of a Gothic house, the great feature of which it seems ought always to be that it should have as many gables as possible in the smallest given

space, and that he therefore is the acutest architect who so arranges his plan as to be able to satisfy this necessity. But this is certainly contrary to old canons. Mediæval builders always, I think, strove as much as they could to simplify their plans, and no doubt in so doing they were right. The consequence is that in old designs one sees long lines of roofing and no attempt at a display of gables, except where they are positively necessary. I might give you instances of this without number. The famous hospital at St. Cross is one. In its large and irregular quadrangle there is, I think, scarce one gable to be seen, and yet the effect is much more really Gothic than any modern building I know.

St. Augustine's College at Canterbury, again, owes much of its effect to the great and unbroken length of its cloister, with a dormitory above, which forms the northern side of its quadrangle; but examples in illustration of this will occur to almost every one, so that I need scarcely repeat them here, and you will all see how valuable an example of the benefit of reality this difference gives us.

There are, however, certain difficulties in the way of the correct and complete restoration of the ancient domestic architecture of this country which are not attendant upon the revival of its ecclesiastical architecture. And it is my intention this evening to point out as well as I can, in a rough and hasty survey, wherein these difficulties in the main consist, and how far they are such as by a proper recurrence to the first principles of truth and reality may be overcome.

The inquiry is of importance to us because, as I am sure must have occurred to the minds of almost every one who hears me, there is in the world generally an impression that the revival of ecclesiastical and domestic architecture are two entirely distinct things, in no way dependent upon each other and not proceeding upon the same principles.

Now this is an error which first of all I desire to meet, because it is just the error which most militates against any improvement upon our present position. It is by this error indeed that we must explain the very curious way in which the domestic development lags behind the ecclesiastical, though at the same time the fact that the cause of religious truth is more identified with the latter has been also a great reason for its greater progress.

I think that it will be generally allowed that, viewed simply and irrespective of the question of internal comfort or convenience, there is no reason whatever why our houses should not be built upon precisely the same architectural principles which we recommend for use in our churches.

I say this upon the assumption that however much the symbolic principle may have had to do with particular arrangements and forms, still the main features of the Pointed styles of architecture were clearly constructional, and all arising mediately or immediately from the invention of the Pointed arch.

Ancient buildings certainly prove this. In the thirteenth and fourteenth centuries it was never held that a Pointed doorway or window was fitted for use only in an ecclesiastical building; on the contrary, the arch was as constantly used in the one class of buildings as in the other, and always in both cases, I believe, because it was the very best principle of construction with which the old architects were acquainted. With us the case remains still the same; we know no better means for carrying the weight of a great wall than the Pointed arch, and therefore we ought to use it everywhere; and I can neither appreciate nor understand the particular principles or frame of mind which can characterise any architect who boldly uses and displays the pointed arch in all his ecclesiastical work, and as carefully eschews all appearance of acquaintance with it in all his domestic work.

I must assume, therefore, until I see the contrary demonstrated, that there is no reason why the same principles of construction should not be applied in the erection of all buildings wherein similar materials are used.

The main reason upon which I can understand that Pointed architecture may be rejected from domestic use is its presumed unfitness for use in these more civilised days, and its lack of such expansive power as would enable it successfully to adapt itself to modern wants.

It is this expansive power which, practically, I see denied in ninety-nine buildings out of every hundred erected in what is called "the old English style," and which, nevertheless, I am anxious to claim for the art.

In many respects there is no reason whatever why Pointed architecture should not be far preferable to any other, and this is specially true in the case of ground plans, in the scope it gives for providing for every want in the most natural and in the most simple manner; not tied down by any presumed necessity for regularity of parts or equality of division, but rather rejoicing, when necessary, in the picturesqueness often attendant upon necessary irregularities.

Need I contrast our position herein with that of Classic architects? Indeed it would be a mere waste of words. In other points the same advantage exists. We are able con-

sistently to use every material which presents itself fit for use. We feel no advantage in compo over rough wall, and are able avowedly to use every material which is (as e.g. are rough stone walls) itself thoroughly good and real. We are able to use steep roofs and so to meet the necessities of our climate; whilst at the same time we keep to the old traditions of our land.

But there are instances in which in our revival of Pointed architecture we have failed, either by neglecting to secure those conveniences and adaptations to altered manners of life and society which all sensible men require, or by, as we so often see, satisfying ourselves with a very small portion only of the true principles of the old style, and so producing a mongrel architecture, which has the merit only of being a makeshift until better times may be had, and which seems to have afforded a convenient gap for an escape to many men in late years, who in their hearts convinced of the folly of an attempt to perpetuate all the abuses consequent upon imitations of Classic architecture, have yet not had the boldness to preserve the true style as far as legitimately they might. And, first, we have failed in convincing the world in general that in a thorough Pointed building we may have at the least as much comfort as in any other; we have attempted too much to imitate old arrangements of windows, and the like, upon the mistaken assumption that in yielding these we should be yielding the whole principles of our favourite style. But is it so? And is it not possible to devise some means in the case of windows, for instance, by which we may combine modern comfort with true principles of construction and good effect in design?

I think we may and without very great difficulty.

I dismiss the ordinary plan, which we all know from its common introduction in the mullioned windows of many of the colleges here, as being really a sham and as having almost all the defects of which people generally complain. But there is a large class of old windows used in domestic buildings of which very little, if any, notice has been taken, and which, nevertheless, seem to point at one very ready way of escaping from the difficulty.

I refer to windows in which the tracery and arch are supported by circular shafts behind, and independent of which the window-frames must have existed. I have never been able to discover any trace of any old window-frame fitted to such a window, though I believe that examples do exist, and that in a recent German work one has been figured, but in all probability they were casements in wooden frames. The advantage of such a class of windows is easily seen and will be at once appreciated. In the external elevation they have the same appearance of strength that our ordinary mullioned windows have, and avoid the weakness of effect which large unbroken window openings always have. Great play of light and shade also is afforded, and finally the window-frame may, in such a window, be as it ought, perfectly independent of the fabric. It may be either a sash or a casement (for I may remark that our national prejudice in favour of sash windows does not prove that they are better than good casements), but whichever are required, such a window allows their introduction without any difficulty.

Internally there would be no difficulty. The window might either be finished with a single rear arch of masonry upon the same plan as in those beautiful and well-known windows in the Bishop's Palace at Wells, or if necessary—and I confess that unless the stone is to be properly painted in rich diaper of colour I prefer this for comfort—with wood ornamented with painting and panelling. In this way sashes are not only admissible, but the natural way of filling up windows.

Another plan which I have tried is the use of a bold Pointed arch over the window opening. The opening itself square-headed and the space between the head of the window and the arch filled in with ornamental and coloured tiles. This plan has the disadvantage of presenting openings for windows so large as to have an effect of weakness, and this must be remedied by the boldness and decision of the arch of construction over the window. There is again a class of window very frequently met with both in England and abroad, viz. those having square-headed lights with arches of construction above them, very decidedly domestic in their character and very practically useful, whilst at the same time they are strong in construction and exhibit that construction fully. Examples are numerous; I may mention the Archbishop's Palace at Rouen, and the Mote House, Ightham, Kent, among others.

In the arrangement of windows then I think that no reason exists against some modification or adaptation to meet our wants.

In that of doors no such adaptation seems to be required. The difficulty does not exist, and the woodwork of a door framed precisely on old principles may be moulded, carved and finished with at least as much elegance and finish as in any other way.

Nor do I know any other difficulty of construction which

need be a difficulty or stumbling-block in our way. But when we have cleared away the first difficulties there remains for consideration the necessity for recurring to proper principles in ornamentation to a much greater extent than we are accustomed to see practised. You go into a well-furnished room in a nineteenth-century house and you find half of its effect to be dependent upon heavy, indefensible plaster cornices and moulded ceilings. Now for these there is no defence. The proper office of plaster is the covering of plain surfaces of walls and perhaps of ceilings: never, I think, the manufacture of mouldings as in cornices and the like. There is a degree less of unreality in its use in a room than there is in a church, because in the one it is less absolutely, perhaps, an imitation of stonework than in the other; in either case, however, it is so in a degree, and has the further disadvantage of being very temporary and perishable in its nature. A cornice in a room ought to be, as in a church, the moulded front of the wooden plate upon which the timbers rest. It may, of course, be carved and moulded to any extent. And then the proper substitute for carved ceilings are those in which either the rafters moulded and carved show themselves, or are boarded on the under side.

As to the decoration of a room constructed thus I may observe that there need be no limit as to its beauty and elegance. I believe that I speak within the truth when I say that in the Middle Ages the furniture of the domestic apartments of the household was, as a rule, as warm and elegant as our own ever is. No one, I think, can have examined ancient illuminated manuscripts to any extent without being struck with this. Walls hung with rich and curiously coloured hangings, in tissues, stuffs, or leather—or partially panelled in dark wood, partially painted in gay devices—windows carefully finished and warmly defended by hanging curtains, carpets of rich and sometimes Eastern-looking patterns, chairs, bookcases, tables, vessels for drinking, vases and the like, all designed with some reference to one general principle. I have not time now to instance examples, but I have seen them in great variety and know no course of study which seems to offer more practical information as to the domestic manners and furniture of our ancestors than they do.

I have many curious notes derived from these sources. Examples of such furniture as chairs, cushions, steel mirrors, tables, beds and bedroom furniture are very common.

In the Roman de la Rose, one of the most beautiful manuscripts in the British Museum, I have noted a metal fountain of exquisite design in one folio—iron railings on each side of steps leading up to the door of a house in another—just the subjects which one never finds still existing.

Again, constant examples of chairs with book-rests, rising in the most approved manner from the arms; in one place a wooden work frame, at which some predecessor of those good ladies, who in these days work at similar frames, plies her task; in the same manuscript a remarkable drawing of a clock, standing upon a post at a church door, striking upon a bell and worked by two weights; in other places, circular dumb waiters, as we should call them, are drawn, and presses for books, contrived with most crafty closets and desks, whereat patient students con over their books; in another I have a representation of what seems to have been the prototype of that most modern piece of drawing-room furniture, a Davenport.

I have been tedious on this point, but I have been so that it may show you how very many accurate representations of the furniture and fittings of old houses we still have, which prove beyond any manner of doubt that there was a great amount of comfort in Medieval houses combined with a degree of beauty and elegance of which their present state can of course give but a very small idea.

And all this is not in vain, for I believe it to be just as necessary that an architect should know what the furniture of a house is to be, as that his eye should superintend every decoration in colour on wall, or window, or floor of a church, and does any one know anything about the ordinary furniture of modern houses, and not recognise the wretched principles upon which it is generally designed?

In Mr. Pugin we lost an artist who in this, as in many other branches of his art, was very pre-eminent, as all who have seen the furniture, tables, chairs, curtains, wall-papers and the like, manufactured from his designs, will be ready to admit. Before his decease he had, indeed, proved that furniture, to be in keeping with Pointed architecture, need not be clumsy or awkward, but would naturally be, if good, as convenient and far more artistically beautiful than our ordinary modern household furniture, and you will remember that all his designs in this branch of his profession were very decidedly marked by their extreme reality and truthfulness. They were not Gothic certainly, in the ordinary cabinetmakers' sense; that is to say his chairs were constructed without the assistance of pointed arches, and his tables did not depend upon crockets, finial and flying buttresses for all their character, but they were real, simple and properly constructional provisions for certain

wants, with no more material consumed in their construction than was necessary for their solidity, and no sham or incongruous ornaments. In fact, like a great artist, he had realised the necessities of his art, and his genius gave a dignity to works which to some might have appeared beneath the notice of a professor of so glorious an art as his.

But to return for an instant to the question of illuminated MSS. A distinguished archæologist recommended me strongly some years back to take any opportunity that occurred for the examination of illuminated manuscripts. And persuaded as I now am of their value in aiding all ecclesiological researches, I cannot do better than give the same advice to any among the members of our Society who are able to devote time to the examination of those to which access may so easily be obtained here.

And now, having considered the general question of a revival of Pointed domestic architecture, let me say somewhat as to the degree to which designs are affected under varying circumstances.

Now, perhaps, to most of us no greater difficulty can present itself than would be the necessity to accommodate our architecture to every want of this nineteenth and most exigent of centuries, as, for instance, in the attempt to provide a substitute for our present street architecture. But unless we are able to meet such a difficulty I fear we must be content to allow that our style is one which must for ever be as it now is, very limited in its application, and this I for one, and I hope, all the members of this Society, are not likely to feel content to allow.

There is a school erected in Endell Street, Long Acre, which seems to me almost more than any other modern building I know to satisfy the wants of street architecture, and which therefore is well worth some description.

Its lower storey consists of an arcade of Pointed arches of bold construction, within which in a recessed wall the windows are placed. The upper storey is a very long arcade of Pointed arches, not all of which I think are pierced.* The elements of the design are very simple. You get at once a decided impression of the value of the Pointed arch as a feature in construction, and its use evidently prevents no necessary adaptation to modern wants. In a long row of shops, for instance, each shop front would be comprised under one of these arches, and the melancholy air which all modern shops have of being supported entirely upon plate-glass would be avoided without any loss of window space. In the upper storeys the continuous lines of arcades would be very grand indeed if prolonged to any length. Their regularity would be their greatest charm, for, as I need scarcely observe, our forefathers never courted irregularity for its own sake, but only for the sake of convenience, and where they could repeat a similar member for a similar purpose they always gladly seized the opportunity.

The irregularity of the streets in ancient cities is the result simply of the fact that as a rule one house was built after another. Each by its owner, and not as they are now, 50 or 100 by one man.

But I think I can give you one example of considerable beauty, in confirmation of this opinion, in the case of some old houses at Troyes, of which I have a sketch, the great beauty of which arose very much from the way in which the same simple features were repeated one after another in a long and unbroken succession. These houses stand on the north side of the cathedral, and were evidently built at the same time and by the same man. They are now, however, being rapidly pulled down.

The row of houses in the High Street at Winchester, with a covered way under them, are another example of the same kind.

Of course I need scarcely say that the circumstances which affect domestic buildings differ so widely that it is impossible to do more than lay down some general rules. Each building is so far good which avails itself of, and provides simply and naturally for, all the necessities of the case, as, for instance, varying levels of ground and the like. Then, again, though one would be disposed as a general rule to insist upon considerable height of wall in a town, one would advise just the contrary in the country, and for a plain practical reason that in the one case the land is so much more valuable than in the other that it is necessary to make use of it. The foreign town architecture will come to the recollection of all who know it; or ugly as the houses are in such places as Wurzburg, Bamberg and the like they leave a certain impression of grandeur on one's mind by their great height, and not less by the wonderful steepness and pitch of their roofs.

* The idea of this school seems to me to have been taken from a very fine Pointed bridge at Pavia. Such a mode of adaptation is, of course, generally to be condemned; but in this case our criticisms are disarmed, because the design and arrangements of the building seem to satisfy the wants of its situation and purpose.

A better example of the same kind of merit in a building of the very best period is the sketch of a house at Nuremberg.

And in the country a picturesque and irregular grouping—which is generally rather out of place in a town—becomes admirable as being suited to the irregularity of all nature's works, but there specially as a rule it is an advantage to have buildings as much grouped together as they conveniently can be. And so I have often contended that on this, independently of other and higher grounds, it would be a great advantage to see our various parochial buildings, as, *e.g.* schools and parsonages, brought together that so they might form a more imposing mass.

In conclusion, I cannot forbear this opportunity of making a very few short remarks upon the choice of a style in our domestic architecture. I do so because, well acquainted as we all are with the ancient examples which so plentifully remain to us in this city, we are thereby perhaps even more likely to be in error. For in Oxford we have scarcely any remains of domestic work of earlier date than the fifteenth century. We are, therefore, so far without models in that style which has now I believe by universal consent come to be considered the most perfect of all Christian styles.

We must, therefore, in our search for ancient teaching leave our universities and see how far the domestic buildings of our abbeys and old houses and the continental domestic work give us help in what we want.

Most undoubtedly such a collection of buildings as those of Fountains Abbey would make all the fifteenth-century colleges look very poor by comparison. The exceeding beauty of the detail, the convenience of the whole arrangement, and the magnificence of some parts which in later buildings are forgotten are surprising in the very highest degree.

I take Fountains as an example because it is, considering all things, wonderfully perfect, and all its parts are of exceeding beauty. Can anyone who has ever been in that ambulatory—still, though damp and neglected, and trodden only by the feet of the occasional sightseer, as nearly as possible perfect in all its parts—can anyone, I say, ever forget the impression which it makes? Picture to yourselves an immensely long spacious parallelogram, about 300 feet in length by 40 feet in width, divided down its centre by a row of columns and arches, from which springs the simplest and sweetest of groining, giving by its infinitely drawn-out length a marvellous air of space and grandeur, and you may form some idea of its magnificence. Indeed, that ambulatory is as well worth a pilgrimage from any far-off place as any one thing I ever saw.

Lanercost Priory has another of these ambulatories, much smaller, but very beautiful, though, sad to say, very rapidly falling to ruin, the old dormitory above it being now turned into a flower garden and receiving all the rains of heaven without any protection save from the rank trees, which are sprouting up and thrusting to pieces the poor old venerable walls. In fact, the early work in domestic buildings, just as much as in churches, is as far superior to the later work as anything can be.

There is a consummate skill, too, evidenced by the earlier artists in the natural treatment of irregular parts of buildings, to which the later artists can lay no claim. I cannot here forbear to make some mention of the domestic buildings at Easby Abbey. The exceeding simplicity and sweetness of this is quite touching—I hardly know what other word so well expresses its character—and evidently most truthful. So, too, their gateways were far before the later type in real artistic treatment. That at Easby Abbey must again be mentioned as showing wherein lies the difference. Keeper's Hospital, Durham, has another most excellent example, and the gateway of the abbey of Ardenne, near Caen, is a third.

But these are all very early types. If you would know, then, what the fourteenth century could do, you may see it in that glorious gateway at Kirkham, beautiful in its "calm decay," or in that most perfect of all such buildings, the great gateway of St. Augustine's.

Then, again, if rooms are wanted over cloisters, let me refer to the old cloister quadrangle at Constance, which, when complete, must have been well-nigh perfect in effect, and, at the same time, in all its arrangements most simple.

And, in further illustration of my position, I may give the Middle-Pointed portion of the old Rathhaus, at Nuremberg, or the still finer Middle-Pointed work in that at Ratisbon and the lovely bay window and fountain at Nuremberg as convincing proofs of its truth. Proofs, however, it may be said, are not wanted; the thing is notorious. So indeed it is to some of us who have studied the matter, but yet it is so notorious that the world in general imagines the Third-Pointed to be the only style allowable for domestic work that it is very necessary to take every opportunity of diligently combating the idea. In Oxford itself what has been yet done to show the contrary? Absolutely nothing. Even Mr. Pugin, in his designs for rebuilding Balliol, was guilty of giving way to this popular idea, though I do not for one instant doubt that had

he reconsidered the subject in later years he would have shown how much better a design in the real style would be, and this he proved by its adoption for the new buildings at Maynooth.

Nor were the fourteenth-century men less able to design features of utility so that they might also be features of beauty than their successors, and in the treatment of simply decorative features they were always pre-eminent.

I suppose that the popular misconception on the subject is principally owing to the fact that in all the books of "authorities" men have confined themselves almost entirely to the illustration of the Third-Pointed domestic work of the country to the entire neglect of the earlier work, for really, with the exception of some of the buildings in that most delightful of all English cities—Wells—I hardly know where one is to look for any published examples of the style. And yet there are many most magnificent remains. The Mote House, Ightham; the old house at Northborough; the Hall at Mayfield; the old buildings at Ely; the gateways at Kirkham, at Norwich; the White Friars Monastery at Coventry; the Episcopal gateway, &c., at Peterborough; the house at Longthorpe; Easby, Fountains, Rievaulx, Netley and Beaulieu abbeys; the castles at Winchester and Aydon, and such bits as the gable of a house at Beauvais figured in the appendix to Mr. Hudson Turner's most valuable work on domestic architecture—are all proofs that for the greatest excellence we must refer to the earlier styles.

And if there are portions of their work in which the fifteenth-century men particularly excel, what then? Are we not able to adopt and use them with our fourteenth-century style? Certainly we are, for there is absolutely nothing which is really convenient and useful which ought not to be made—as it is capable of being made—also ornamental. For it is in this precisely that is to be seen the distinction between the true artist and the mere copyist. The latter would refuse to do anything useful because he would find no precedent for it; the former would make his work by its adaptation of the style to the difficulties of the case, a precedent, if one be needed, for his timid successors.

In conclusion I must repeat an apology—perhaps too often made here—for the imperfect and hasty way in which so large a subject has been treated. My apology must be the shortness of my time and the press of other avocations. But I cannot but hope that I may have been able to show, first, that in proposing a thorough return to old principles of design in domestic buildings we do not propose or hope to do so without reference to modern ideas of comfort and convenience; these I have shown that our ancestors possessed to a greater extent than some people think. Then, after some remarks upon some varieties of domestic buildings, I attempted to show, and I hope with success, that we must look to the adoption of a style of architecture earlier than that commonly adopted if we wish to produce really noble buildings.

And this last is the main point, and it is a point to which I hope to see the attention of our Society directed, for it is one depending upon and involved in precisely the same principles which, I believe, we now invariably recommend for adoption in the case of all ecclesiastical edifices.

SCHOOL OF ART AND SCIENCE, WESTON-SUPER-MARE.

THE building of which we gave illustrations last week, from a photograph taken by Mr. E. Y. Poole, of Weston-super-Mare, is Renaissance in style. The front has moulded cornices, sills, strings, copings, pediments, &c., pilasters enriched with faience panels, moulded bases and elaborately-carved caps. The frieze of the entablature is enriched with faience panels. The central gable has a festoon of flowers and fruit; there are also festoons to the heads of the middle ground floor windows of the bays. The panels of the pilaster pedestals are also faience, the intermediate panels being richly carved. The arches, bed moulds over caps and sill moulds are carved with echinus, or egg-and-tongue ornament. The spandrels of the arch to porch are richly carved with Renaissance carving. Two large bay windows give relief to the front, and the porch on the ground floor only gives a break to the vertical lines, the top forming a balcony. The gables of the building are ornamented with moulded and worked finials with balls and curved copings. The parapets have moulded balusters. The ground floor is built with local limestone, with freestone dressings, to give massiveness to the supporting storey. All above this is built of freestone with niches for sculpture, backed with good solid brickwork. The roof is covered with slates fastened with Harvey's system of screws and washers. The gutters and flats are of stout lead. Inside.—The ground floor is laid with wood-block flooring on cement concrete. The first floor has massive steel girders with smaller steel joists between, having a fireproof floor of cement concrete, on which is laid wood-block flooring. The second or top floor is formed with strong wood joists and flooring board. Arrangement.—On the ground floor is a large hall 57 feet 6 inches by 17 feet and

15 feet high, having two bay windows, each 12 feet by 5 feet, and this hall is entered by a porch 12 feet by 5 feet. On the south or left-hand side of the hall is the staircase (lighted by windows) to the art schools, 5 feet wide, arcaded towards the hall. Opposite the entrance doors to the hall are two arches (old). These archways lead to the science lecture-room, trades technical classrooms, committee-room, lavatories and offices. The large hall, it may be stated, can be used as a permanent art gallery or for exhibitions from time to time. On the first floor is a carving-room 28 feet 6 inches by 17 feet and 12 feet high, having one bay window, 12 feet by 5 feet, and two flat windows. Next to this is the life-room, for studies from the life, 15 feet 6 inches by 17 feet, having one bay window 12 feet by 5 feet. The master's-room is on the north side, 17 feet by 12 feet, and is lighted by a flat window 8 feet by 8 feet. Each of these rooms is also 12 feet high. A corridor communicates with these rooms, and also with the present two large art rooms (elementary and advanced); also with the lavatories and offices. There is also a back staircase to this floor and to the top floor. On the second or top floor is a cookery classroom 30 feet by 17 feet, lighted by two flat windows, having a coved ceiling 15 feet high in the middle. The latest cooking ranges will be fitted up in this room for lectures. Next to this is a scullery 13 feet 6 inches by 9 feet 6 inches, also lavatory and offices. At the north and south ends of this floor are the caretaker's apartments. All these rooms are entered from the upper corridor.

The first portion of the building was commenced in the year 1892, consisting of elementary-room and advanced room, each 60 feet by 20 feet; science lecture-room, 35½ feet by 20 feet; chemical laboratory, 23½ feet by 20 feet, and three trade technical rooms, each 20 feet by 15 feet; committee-room, 13½ feet by 12 feet, with cloakrooms, lavatories, &c. This contract was carried out by Messrs. Theo. Palmer & Son, under Messrs. Price & Wooler, the architects, at a cost of about 1,600/.

The second portion, completing the building, was carried out by Mr. Henry W. Pollard, builder and contractor, of Bridgwater, under Mr. Hans F. Price, architect, of Waterloo Street, at a cost of about 2,000/. The carving was executed by Mr. J. P. Steele, of Kingsdown, Bristol.

CHESTER NEW BATHS.

THE frontage of the new baths at Chester, which were formally opened on the 25th ult., is particularly ornamental and attractive. The windows are faced with stone, and the gables are in the old black-and-white style characteristic of Chester, with the woodwork becomingly ornamented with carving. The principal features of the baths after the architectural characteristics of the exterior, and the vast improvement effected in the neighbourhood by the approaches, are the two splendid plunge-baths, which will be a standing reproach to citizens of Chester who neglect to acquire the art of swimming. The larger of the two baths is the popular bath, or the second-class bath, and this, which is only available for members of the male sex, is 75 feet long and 35 feet wide, with a depth of water varying from 3 feet 6 inches at one end to 7 feet at the other, and surrounded by dressing compartments, and up above a gallery, in which at water-polo and swimming matches there will be accommodation for spectators. When it is not in use as a bath the fittings can be removed, and this bath can be adapted to a gymnasium or for any other purpose. The first-class plunge-bath is rather smaller, being 60 feet by 30 feet, and so many times a week this will be reserved for ladies in the same way that the floating baths have been reserved. The arrangements here, as in the other bath, are excellent, there being guard-rails and sprays for cleaning purposes, and a splendid supply of light from the top lanterns surmounting the roof. Both baths are lined with white glazed bricks. The other departments of the new buildings may not be so generally interesting as the swimming-baths, but there are many who will be glad to hear of the facilities for taking an ordinary slipper or vapour bath, which are excellent. There are seven second-class slippers and one vapour, three men's first-class slippers and one vapour, and four women's slipper-baths, with waiting-rooms and separate entrances for the sexes. Besides the actual bathing area there are a great many incidental departments, including laundry, ironing-room, fitting-shop with up-to-date machinery, and a large boiler-house with passage around the whole of the baths below ground. Then there are the offices and the house of the superintendent—a convenient little dwelling, containing kitchen, scullery, sitting-room and three bedrooms, and lighted, like the building all through, with electricity. The water used in the baths is taken from the city mains, and heated to what temperature may be required. The baths themselves are heated throughout with steam. The cost of the baths, which are built in stone and Ruabon brick, was estimated at 11,000/., but this sum has been exceeded by about 300/., spent on extras. The architects for the baths have been Messrs. Douglas & Minshull, and the contractor Mr. W. W. Freeman.

AUSTRALIAN COMMEMORATIVE MEMORIALS.

A CORRESPONDENT of the *Bendigo Advertiser* has had an interview with Mr. H. Desbrow Annear, architect, of Melbourne. He was engaged in decorating Melbourne during the visit of their Royal Highnesses the Duke and Duchess of York, in connection with the Commonwealth celebrations, and designed and supervised the erection of the chief feature in the metropolitan decorations—the Classic arch upon Princes Bridge.

"One of the few things the ducal visit has been responsible for," remarked Mr. Annear, "has been to thoroughly and seriously awaken the authorities of the capital of our State to the absolute necessity of its æsthetic treatment. Prior to the ducal visit, sanitation, lighting and the more material matters principally occupied attention. It was only the necessity for improvements that made the Government alive to the fact of the great opportunities presented. When I was first commissioned to design a triumphal arch, my instructions were that it would probably be placed near the Homœopathic Hospital, on the St. Kilda Road, which point is the boundary of the city, and it was only when I began to go into the subject that I suggested Princes Bridge as the proper site, and showed how, by the reflection in the water and other effects, the dignity of the structure could be enhanced. The city arch was the only attempt made to portray something of the effect that can be produced by architectural and permanent structure. The upholstery and general flimsiness of the other decorations honestly admitted that they were only intended to be temporary in nature. There is a feeling that the arch should be made permanent, but of course that really is dependent upon ways and means, and whether the Government authorities are justified in spending so large a sum of money as it is estimated to cost. I am perfectly convinced that the most economical way, as well as the most effective, to have the structure made permanent, would be to place it where it now stands. The abutments on the northern end of the bridge could be capable of carrying a permanent arch in stone, and therefore very little money would have to be spent in foundations. Four heavy semicircular arches built between these abutments would carry the weight easily."

Have you thought of any scheme, speaking generally, to give expression to the idea?

"I think anything that is done should be of a federal character—to make the arch a monument perpetuating the establishment of the Commonwealth. It would be a grand thing if in its construction, always providing that the idea will materialise, all the beautiful stones of the various colonies—marble from South Australia, freestone from New South Wales, granites and basalts from Victoria, and the fine porphyries from Queensland—were utilised. The public has no knowledge of the riches in beautiful building stones we possess in Australia. Melbourne prior to the use of granite had a poverty of picturesque building stones in its works of architecture."

"As far as the design of the arch is concerned, it has been repeatedly remarked that it is a copy of this and the other. As a matter of fact, it is not based or copied from any. There are certain first principles upon which you must proceed in designing classic monuments of this character, which give to the initiated and unobservant an apparent likeness. A good parallel is the horse. Nature made the horse and has never found any reason to alter it, and to the unobservant all horses are the same, but a breeder will tell you different. And the triumphal arch is purely a Roman feature, standing absolutely alone. In the history of the world no other nation used it. Imperial Rome in its period of greatest beauty contained thirty-six triumphal arches. Of these we only have the remains of three, and no evidence at all as to what the others were like. As with our law, our architecture is absolutely based upon Roman prototypes. A triumphal arch would be perhaps the best way to perpetuate many things. In Rome, as you know, they were covered with tablets, and historical events subsequent to their erection were inscribed thereon."

"Another obvious and important fact—anyone approaching the city from the south must have noticed it—is that the costly and beautiful bridge spanning the Yarra is, as you cross it, so close a broad street that you are not made aware of its importance and value. Such a structure as the arch immediately makes all that prominent. If it is decided to make the arch permanent in the manner suggested, it could be done for £50,000."

"If you study the trend of architectural development in the great centres of the world you will find that the decorative value of all structures is becoming a serious matter. The early Victorian period rather devoted itself to utilitarian, engineering and scientific tour de force. Now the æsthetic value of permanent structures and the art decoration of the work is receiving its proper attention. The States are just beginning to be realized of the value of better artistic development, and, like the Romans, I am inclined to think there's a good time coming."

"It is felt that Melbourne being the city where the Commonwealth Parliament was opened, it would be fitting that its inhabitants should bestir themselves in the matter of beautification. Victoria was also the first State visited by the royal party. It is a unique fact in history that no heir apparent to an empire ever travelled so far before over the world in regal state. The event stands alone. The great marches of Alexander and Napoleon were only suburban jaunts in comparison. If we could only look at it in retrospect from the imaginary history of the future we would be struck with its immense significance. How artistic expression will be given to it is a matter of State, municipal and personal concern."

"Were it decided to have a triumphal arch a large portion of it would be left for inscriptions in bas-reliefs. Australia is now on the eve of taking her place in the Empire. The recent war has brought that home to us more closely than ever. It was thought that some monument would be erected to the late Queen's memory, and, of course, a triumphal arch would be inappropriate for that. It would be distinctly questionable taste. It might be built, however, to commemorate the progress in arts and sciences during her reign. It could also be raised as a memorial to our South African soldiers, and the names of Australians who fell could be perpetuated on the piers. The death of these heroes was a triumph, 'for the sorrow at the death of a soldier is drowned in the pride of his fall.'"

"I cannot help being moved to admiration," said Mr. Annear, as he paused in his walk opposite the conservatory, "by what has been done in Bendigo in the way of reserves. Rosalind Park is one of the most beautiful spots in Victorian cities. The people locally, I note by the press, have also caught the spirit of the times, and are recognising the necessity of having sculptured works about Bendigo. I think they would have been wise in obtaining designs for a comprehensive scheme that would serve as the basis for all future enrichment and beautification of the city. This could be slowly evolved, and it would not be expected to be strictly adhered to. It would be valuable as something to keep before the public-minded citizens, and would always be an incentive to further improvement. Individual efforts scattered about over a long period of years are liable to compete with each other, and destroy the end sought. Ballarat, for instance, has gone a certain distance without any scheme at all, and individual statues are fighting with each other. That side seems to have been absolutely lost sight of in considering the Queen's memorial here. You have the lesson of Ballarat, and want to avoid its mistakes. Let me give you an illustration of what I mean. The Queen's memorial, which is to be a portrait statue of Her late Majesty, could be placed upon a sub-base so designed that it could be enriched with bas-relief, and built so that a beautifying canopy could be subsequently added. The whole could be so placed that in after time it could be surrounded by statues illustrating industry, art, charity, power, dignity, and even statues of worthy public benefactors. One subject that would lend itself to fine treatment, on a panel, or better, by a separate group, would be one giving expression to the discovery of gold and the early characteristics of the Bendigo field. As a smaller portion of the scheme the Queen's statue, for which I see an admirable design has been accepted, would first be undertaken. The rest would be done with the progress of time, extending far into the future. This is the way all the great cities of the world have been trending. Paris has been so treated, and many others on the Continent, while London is only just awakening to the artistic advantages of such a method. Just a few days ago we had the news that Brock, as sculptor, and Aston Webb, as architect, were designing the Queen's Memorial in London, so that it should leave scope for its being more than a mere monument. We British as a nation are only on the threshold of anything of this kind. If there is any profit from the exhibition I understand it is to be devoted to the beautifying of the 'golden mile' around Bendigo, and the possibilities of effective outlay of money in this direction are great indeed. You have wealth in Bendigo amongst your citizens, and something comprehensive—some high aim—would encourage them to give in this as well as in succeeding generations."

Glancing at Howard Place, Mr. Annear exclaimed, "Ah, there is your site for a scheme such as I have roughly outlined. It is in the heart of the city, and closely associated with the best architecture, and provided with a background of nature's own beauties. I am inclined to think that the greatest Bendigonian is the man who planted the first tree in your streets. I am sorry to see that those trees do not receive the attention they deserve. I feel for old Bendigo, and the subject of enhancing its beauty interests me deeply, for I am a native."

A Crannog, or pile dwelling, supposed to be of the Roman period, has been found on the south side of the river Clyde, near Dumbarton.

FORTINGALL CHURCH.

THE old church at Fortingall, N.B., which is at present being demolished to make room for a new church, dates, says the *Dundee Advertiser*, from pre-Reformation times, but how far back it actually goes has not yet been definitely ascertained. The original structure is supposed to have been dedicated to St. Cedd, a Saxon saint, who was buried to the east of the present churchyard, a flat stone in the roadway still marking the spot. There is an old archway (said to be part of the original edifice, dating back to the seventh century) at the east end of the present building, and close to the doorway at the west end is a large flat stone which covers an irregularly-shaped basin or font, supposed to date from pre-Reformation times. As the work of demolition proceeds a careful watch will be kept to ascertain whether any historical or antiquarian relics can be discovered. The building has now been unroofed, and the timber forming the joists is in a thorough state of preservation. The church was renovated in the early part of last century, when it was probably reroofed. Previous to that the gallery was reached by an outside stair at either end of the building. In 1851 some alterations were made; the Session House was then enlarged to its present dimensions, and part of the wall on the north side was renewed. Hence the state of preservation of that part compared with the remainder at once strikes the observer.

One interesting relic, believed to date back to the foundation of Cedd's church, is the old hand bell, which remains in the custody of the minister. According to the analysis of Mr. W. Irison Macadam, F.C.S., it is composed thus:—Iron, 49·11; copper, 47·35; and tin, 3·51. It is oblong in shape and about 8 inches in height. In appearance it is composed of an inner layer of iron coated on both surfaces with bronze. The handle on the top is of iron. The tongue is now gone, but that loss must be of comparative recent date, for a few old residents can remember that when at school it was counted an amusing as well as daring feat to creep in by a hole in the wall near the archway, already noticed, and ring the bell, which was then kept in the precentor's desk. There are other two bells of somewhat similar pattern in the district—the Kerriemore and Balnahanait bells in Glenlyon.

The present belfry has now been taken down, and the inscription on the bell is "Johannes Specht, Rotterdam. A.O. 1765." On the stones composing the belfry the date marked is 1768. The disparity in dates is said to have been caused by some dispute with the parish of Dull regarding the ownership of the bell. The bell is in a splendid state of preservation, and whatever the nature of its composition it has successfully resisted the action of the weather for nearly 150 years.

The old yew tree beside the church, said to be the oldest tree in Europe, still stands wonderfully fresh and green, although its companion in many a beauteous summer day and many a tempestuous winter eve will soon disappear for ever. Some time ago, after due consideration, the heritors resolved to erect a new church. Plans have been submitted and approved, contracts accepted and the work will proceed forthwith. Sir Donald Currie, on whom will devolve the chief outlay, is taking a very great interest in the matter, and that is a sufficient guarantee that the new structure will be at once convenient, comfortable and ornamental.

ST. GILES'S, CRIPPLEGATE.

UPON the union of the benefice of St. Bartholomew, Moor Lane, with that of St. Giles, Cripplegate, says the *City Press*, it was decided to remove to the latter edifice a number of historic appointments which formed an interesting feature of the first-named church. Though itself a comparatively modern edifice, St. Bartholomew's, Moor Lane, contained not a few valuable relics which were recovered from the church of St. Bartholomew-by-the-Exchange at the time of the Great Fire. The original church was rebuilt near the Bank in 1438, destroyed by the historic conflagration and replaced by Wren. Then, the historian informs us, "the materials of the old church were sold by auction in 1841 for 483*l.* 15*s.*, the south wall and a chapel being reserved to be built into the Sun Fire Office, as was also some of the carved masonry, the old pulpit, the organ and other woodwork, which were preserved in a copy of the old tower and church erected in 1849-50 by Professor C. R. Cockerell, R.A., in Moor Lane." When it was decided that the Moor Lane edifice should at last disappear for ever, the authorities of Cripplegate, as readers are aware, obtained a faculty authorising the removal of the several interesting relics to St. Giles's. For some months past the work of re-erection has been in progress by Messrs. W. H. Lascelles & Co., 121 Bunhill Row, under the direction of Mr. F. W. Jackson, the clerk of works, and now it is all but complete. The result of the improvement has been to provide an ante-chapel at St. Giles's to the north of the chancel. Here the reredos from Moor Lane has been placed. It is composed

of exquisitely carved wood, attributed to Gibbons, and contains two coloured panels representing Moses and Aaron. The communion-table is of elegantly figured marble. On the wall to the north of the reredos has been fixed another beautiful specimen of carving, in which are apertures for two panels. The reading-desk has also been removed. The tiled floor of this former chancel has been relaid, and the partition rails have been made from the choir-stalls in use at St. Bartholomew's. The difficult task of removal has been carefully carried out, and the result is to add in no small degree to the beauty of Cripplegate's parish church. When "the four shoppes" disappeared the Great Fire commemoration window is also to be fitted up at St. Giles's. Apropos of the improvements, it is interesting to note that the same firm have had in hand the re-erection of a licensed house adjoining the church. In order to establish a sound foundation it was necessary to burrow some 27 feet below the chancel of St. Giles's. This necessitated the temporary removal of a large number of coffins, and, judging from the spot at which the remains of Milton are believed to rest, it is not improbable that the body of the poet was among those thus disturbed. It is significant that the whole of the coffins bore inscriptions with one exception, and that in this instance the body was enclosed in two shells. The remains have since been restored to their original positions. In the course of the excavations the workmen came across a running stream of water.

TESSERÆ.

Ancient Wooden Churches in Norway.

THE style of northern wood architecture seems a combination of several originals. The element of Latin Christian architecture is not easily to be mistaken in various members, as the squared abacuses of the capitals. In other ornamental details the designs seem to point to some yet older northern patterns. In the plans, however, and general dispositions of these churches Byzantine ideas may be traced, which is to be accounted for sufficiently by the passages of the Wäringers through Russia to and from Constantinople. These various styles are to be made out as much by the materials of parts of the buildings, viz. brick and rubble, as by the different details which distinguish them. This style is one quite unique and peculiar to the remote north, for though we have certain knowledge that many of the early churches of Germany were built of wood, we cannot trace nor ascertain their resemblance to these. The greater number, indeed, of these churches have suffered more or less alteration from their original forms by the ravages of time, by repairs or by enlargements. But still in the more remote districts the little care which was taken for these so-called improvements has contributed somewhat to the preservation of their ancient character. Although the church at Urnes is not so singular in appearance as those of Borgund and Hitterdal, and although it has moreover lost its original form in some measure by additions, it is nevertheless worthy of attention from the number of fragments of the original building which yet remain, both in the interior and exterior. From these, indeed, it is clearly to be seen that the whole church was once decorated similarly with the one shaft and timbers which remain. From this we are led to conclude that these churches were generally not only ornamented in this manner at the doors and door-posts, but also over the whole exterior, and that these are all that is left by repeated renewal and patchings with ordinary timber. Interiorly also it has suffered much from repairs and alterations, which date from the sixteenth and seventeenth centuries. Still the pillars and their capitals have been preserved, and with the general plan of the building certainly point to a Byzantine original. It appears to have been a generally acknowledged principle in the early part of the Middle Ages to admit the most complete variety and irregularity of detail, this being observable both in the round and pointed styles. In accordance with this we find even in these churches, that the mouldings and slender door shafts do not exactly correspond in size. We can hardly think that this was the result either of carelessness or of the want of better materials. The former hypothesis would be quite a variance with the remarkable solidity and conscientious exactitude of completion displayed in the buildings of these times, as well wooden as those of stone. These irregularities may be ascribed to the mode they seem to have had of preserving and adapting carvings and other relics of yet more ancient buildings, a custom even now prevailing. All these churches are somewhat dark, the light being admitted by windows placed very near, and even in the slope of the roof. The windows were filled with stained glass in the beginning of the seventeenth, or perhaps the end of the sixteenth century, and it is painted in shades of grey, which is peculiar to that period. The darkness is further increased by the number of exterior added blind-storeys and chambers built for those who came from a distance to attend Divine service, which do not by any means add to the beauty of the churches. From this circum-

tance of the glass, and from others, this church has evidently been a great deal repaired at that time. The people of that district, however, assert that it is of very high antiquity, and mention the year 1073 as that in which it was commenced. The name of St. Lawrence and date 1663 is on the single bell of the church. The general plan of these buildings seems decidedly Christian; in all chancel and nave, in Hitterdal and Borgund a decided apse, and in all nave-aisles are to be seen. In the churches of Borgund and Urnes there is barrel-vaulting in the nave; in that of Hitterdal, however, a flat-panelled ceiling such as that of Peterborough Cathedral.

Triplet Lancet Windows.

No one will care to deny that triplet lancets may occasionally be found in other positions than at the east end. They occur not unfrequently at the ends and even at the sides of transepts, as at St. Andrew's, Histon—though this latter is a rare case, and entirely owing to a peculiarity of internal construction. At the west end, though very seldom, as at St. John Evangelist, Acconbury, Hereford (a very rich example), St. Faith's, Overbury, Worcester, and elsewhere. But in ordinary churches to triple every lancet as in the Temple Church, Bristol Cathedral, and elsewhere in very large edifices, is a mistake subversive of correct effect both within and without. But lancets comprised under a single dripstone become, properly speaking, windows of so many lights, and were often used in any position. Even with separate dripstones they sometimes partake of that character, as the singularly beautiful though late group at St. Peter's, Yaxley, Hunts. We believe the ancient architects to have had no decided reluctance to the use of a small triplet by way of variety in any position, but they scarcely ever placed two triplets together. It is by no means uncommon to find a triplet at the south-east end of the chancel or the south aisle. Of this examples occur at Great Casterton, and at All Saints, Tinwell, Rutlandshire; here another small triplet is placed in the west wall of the north aisle, and both of these are beautifully adorned with the both-moulding in the arches. We will further observe that triplets were by no means invariably used for the east end. Sometimes five lancets occur under a single label, of which very fine examples occur at St. Mary's, Etton, Northamptonshire, St. Peter's, Kempsey, Worcester, St. Andrew's, Auckland, Durham. A few examples of eastern couplets occur, as at St. Peter's and Paul's, Great Casterton, Rutland, St. Andrew's, Bedford, and All Saints, Coddington, Herefordshire; in St. Michael's, Michaelchurch, in the same county, are two single lancets in the eastern wall.

The Rewards of Artists.

Much is said about the humanising and elevating effect of art. But what empty talk is this, if the artist—if he who alone can give form, vitality and motion to this mighty instrument of civilisation, is to be regarded as the inferior of the very men whom he is to lift out of the bonds of matter and of custom, as often as they happen to possess some extrinsic advantages which he wants. We ought to try to come to a clear understanding with ourselves on this matter, and to establish a consistent theory and practice. Either, as it is now the fashion to repeat, art has an elevating and purifying effect on the morals of a country or it has not. If it has, by what process of reasoning are the depositories of so high a ministry talked of and treated, as if they moved in the society of the undistinguished and undistinguishable many on sufferance? If it has not, why all this labour to get up a taste for it among the people? We hear constant allusions to Germany and France—and with reason; but both are consistent with themselves. Art is there honoured in its ministers. The people are not told, here is a man who can create that, the mere contemplation of which will lift you above the sordid part of your nature—who carries within him the type of that beauty which has power to raise and refresh your souls; and the next moment practically taught to regard him as belonging to a class whose position and claims to respect are doubtful. It cannot be that he is degraded by receiving remuneration for his labours, for do the ministers of justice in their various degrees give their services to society gratuitously? Do the ministers of religion found their claim to the respect of mankind and to their station in society on the gratuitous character of their ministry? Why then should the ministers of art be subjected to so absurd a demand? Why should art be consigned to the half-knowledge, the half-zeal, the half-practice of a feeble dilettanteism?

Architectural Foliage.

It must be confessed that foliage excels in beauty every other ornament which the taste and ingenuity of its practitioners have applied to architecture. The freedom with which the carver could exercise his fancy without even the obligation of confining himself to the endless productions of nature tended not a little to the beauty of the patterns he executed. A cluster of leaves would admit of endless varieties, and yet all be equally admirable, though no name should be found for

them in the catalogues of the botanist. Still, however, imitations were often successfully attempted by our early artists, and it may probably be ascribed more to their disdain than their incapacity for the office of exact copyists that the resemblance comes so often no nearer the archetype than does the lean and lank lion of heraldry to the noble animal of the desert. As the proper or casual habitation of birds, animals and insects, the ancient sculptors in their imitation of trees and plants did not neglect the opportunity thus afforded of augmenting the variety and interest of their favourite species of ornament. Accordingly, we meet with birds, snakes, snails, butterflies, monkeys, squirrels, human beings and hideous monsters entangled in sport among the branches, or employed according to their respective natures in feeding on the leaves or the fruit. It may appear surprising that so much attention should have been paid to the minutiae of ornaments when little more than their general forms could be observed even by an attentive eye; but it is an indisputable fact that the greatest labour was often bestowed in forming and finishing the smallest particular of such subjects. Wherever ornaments were admitted, the fancy and labour of the carver were apparently exercised without control. While figures of the most ludicrous, and sometimes of the most disgusting, character were placed in prominent situations, the seat of a stall or the cornice of a parapet were often wrought with heads, foliage and devices of elegant form and beautiful execution, so little were order and arrangement consulted in their disposal.

Uncertificated Ability in Architecture and Engineering.

If freedom in professional matters at times be a source of evil from the facility it offers to incompetent men to rush into pursuits they are totally unacquainted with, it is also a source of good from the ease with which a man with natural genius can force his way into notice. Had it been necessary to have gone through a particular class of studies, or to have obtained a diploma from learned examiners who would most likely be wedded to the theories of the school in which they themselves were educated, such men as Wren or Mansard might have found themselves excluded from the ranks of a profession they so wonderfully adorned. Watt, Telford, Stephenson, Rennie, Jessopp, Cooke, Wheatstone were none of them regularly brought up to the profession of engineering; yet they did more to change its character, to advance its usefulness, than any men produced by polytechnic schools, schools of mines, or other organised methods of instruction. No man of genius was ever produced by the examination and diploma system. Many a man of genius is driven away from a pursuit in which he might otherwise have shone by the restraints and difficulties such a system would throw in the way of his first steps. The Institution of the Ponts et Chaussées in France drove Brunel to England. Liebig found it more easy to rise into European notice here than in his own country, notwithstanding his official position. Numerous instances may be cited of self-taught men who have started into notice—and done great good, too, in their generation—in countries where art and science are free to all the world; but the exceptions of this kind in countries where diplomas exist are so few that we may almost assert that they do not exist. The evils of restriction are, undoubtedly, worse and greater than those of competition, for an ignorant pretender soon falls to his proper level. But who can appreciate the injury to society which may arise from the exclusion of any form of genius, educated or uneducated? To secure the introduction of the marvellous inventions we owe to our system of unrestricted freedom in engineering, such as the docks, railways, locomotives, steam-engines, steam-boats, gas-lighting, electric telegraphs, &c., we would willingly run the risk of having homœopathic drains laid down and taken up again. Our loss has been merely a money loss—one we can appreciate and repair. The loss which is occasioned by cramping the energies and destroying the originality of a national mind no human being can possibly divine.

Stone Working in Egypt.

The builders of the twelfth dynasty, more ambitious than their predecessors, and authors of almost all the structures of the middle empire which we know, brought the red granite of Syene at the first cataract for their columns. Those of Bubastis and Hawara are examples. They wrought them and their sculptures in the same obdurate material with the decision and cleanness of handling which we all know, although with the sacrifice of some of the delicate detail of the earlier work. Up to this time nothing less than a monolith seems to have been thought worthy to stand as a column, but if the Usirtasens and Amenemhats of the twelfth dynasty could do their modest building in this way, the Ramessides, who bordered the river from the first cataract to the Delta with their huge constructions, could not follow it. Shafts of columns from 16 to 20 feet high for a few buildings of moderate size could be brought down to the Fayum or the Delta; but when it came to columns 40 or 50 feet high, or even 60 or 70, and in groves,

as we see them at Luxor or Karnak, this method was impracticable. The Pharaohs of the eighteenth, nineteenth and twentieth dynasties used the sandstone of the quarries above Edfu. Its facility in cutting and handling suited the scale of their buildings and the speed with which they could carry them on. They laid their shafts in drums or slices, or, as the columns grew larger, they built them up in coursed masonry. This they covered with stucco to dissemble the joints and give them a fair surface for sculpture and painting. So were built the great pillars of the temples that stand on the plain of Thebes, at Karnak, Medinet Ebu, at Karnak, at Luxor, and even the earlier work of Seti I. at Abydos. The huge central columns of the hypostyle hall at Karnak, 70 feet high and 12 thick—on the tops of whose bell capitals a hundred men might sit, we are told—are towers, and had to be built as towers are built.

The Roman Amphitheatre.

It is not quite clear whether the arena was no more than the solid ground, or whether it had an actual flooring of any kind. The latter opinion is adopted by some writers, who suppose that there must have been a souterrain or vaults, at intervals at least, if not throughout, beneath the arena, as sometimes the animals suddenly issued apparently from beneath the ground, and machinery of different kinds was raised up from below and afterwards disappeared in the same manner. That there must have been some substruction beneath the arena, in some amphitheatres at least, is evident, because the whole arena was upon particular occasions filled with water and converted into a naumachia, where vessels engaged in mimic sea-fights, or else crocodiles and other amphibious animals were made to attack each other. Nero is said to have frequently entertained the Romans with spectacles and diversions of this kind, which took place immediately after the customary games and were again succeeded by them; consequently there must have been not only an abundant supply of water, but mechanical apparatus capable of pouring it in and draining it off again very expeditiously. The arena was surrounded by a wall, distinguished by the name of podium, although such appellation perhaps rather belongs to merely the upper part of it forming the parapet or balcony before the first or lowermost seats nearest to the arena. The latter, therefore, was no more than an open oval court, surrounded by a wall about 18 feet high, measuring from the ground to the top of the parapet, a height considered necessary in order to render the spectators perfectly secure from the attacks of the wild beasts. There were four principal entrances leading into the arena; two at the ends of each axis or diameter of it, to which as many passages led directly from the exterior of the building, besides secondary ones intervening between them and communicating with the corridors beneath the seats on the podium. The wall or enclosure of the arena is supposed to have been faced with marble, more or less sumptuous, besides which there appears to have been, in some instances at least, a sort of network affixed to the top of the podium, consisting of railing, or rather open trelliswork of metal. From the mention made of this network by ancient writers, little more can now be gathered respecting it than that in the time of Nero such netting, or whatever it might have been, was adorned with gilding and amber, a circumstance that favours the idea of its having been gilt metalwork, with bosses and ornaments of the other material. As a further defence, ditches, called euripi, sometimes surrounded the arena. The term podium was also applied to the terrace or gallery itself immediately above the lower enclosure, and which was no wider than to be capable of containing two, or at the most three, ranges of movable seats or chairs. This, as being by far the best situation for distinctly viewing the sports in the arena and also more commodiously accessible than the seats higher up, was the place set apart for senators and other persons of distinction, such as the ambassadors of foreign parts; and it was here also that the emperor himself used to sit, in an elevated place called suggestus or cubiculum, and likewise the person who exhibited the games, on a place elevated like a pulpit or tribunal (editoris tribunal). The vestal virgins also appear to have had a place allotted to them in the podium. Above the podium were the gradus or seats of the other spectators.

The Tattershall Windows.

Gough, the antiquary, tells a story concerning the windows in Tattershall Church, Lincolnshire. The windows of that church are magnificent in their dimensions, and they were once filled with the richest stained glass, which disappeared from it in the following manner. Lord Exeter, not having learned the Commandments, or not understanding or totally disregarding the eighth and the tenth, employed a man of the name of Banks, of Revesby, to get possession of the glass for his lordship's use. Celerity and secrecy are essential to success in most schemes of spoliation; and as the townspeople had some sort of suspicion that their church was marked as a prey to the spoiler, and were quite disposed to obstruct the robber in his

work, Banks used such speed and took down the glass so hastily that no plan for its rearrangement could be observed; part of it, however, was put up in the chapel at Burleigh, part sent to Warwick for Lord Warwick's castle, and part, says Gough, still remains unpacked; and thus was this noble church—one of the noblest in the kingdom, one of the finest specimens of masonry in the kingdom—ruthlessly despoiled, and it was left for many, many years without any glass whatever in its magnificent windows, open to all the winds and snows and storms of very many successive winters. If this story be true, why has not restitution of these windows long since been claimed? Why should this church be thus defrauded? What right has the possessor of these windows in them?

GENERAL.

The Society of Engineers will hold their next meeting on Monday, when papers will be read on "Preliminary Investigations for Water Supply" by Mr. S. A. Holles, and on "Irrigation Works in South Africa" by Mr. J. Freebairn Stow.

Messrs. Farmer & Brindley prepared the model of the new cathedral, Westminster, of which we gave an illustration last week. This model is executed in kaurie pine, and takes to pieces so as to exhibit the whole of the interior, which is finished complete in every way.

Mr. E. L. Masqueray, who for nine years has conducted an atelier in New York on the French system, has been appointed by the Government architect as chief designer for the Louisiana Purchase Exposition at St. Louis.

The Liverpool Architectural Society will hold their first general meeting since the incorporation of the Society on Monday next. The opening address is to be delivered by Professor Simpson.

Miss F. C. Duncombe has bequeathed 500*l.* to the fabric fund of York Minster. Subject to certain life interests, half of her residuary estate has been left in trust for the same fund.

Mr. Carnegie has offered to give half of the 50,000*l.* required to complete the building fund of the Glasgow and West of Scotland Technical College if the other half is promptly subscribed.

The Donations requisite for the purchase of the Brandelhow estate, Derwentwater, have been received or promised, and the council of the National Trust has every reason to believe that by October 15 it will be in a position to carry through the scheme.

Mr. J. W. Swan, the electrician, whose name is universally known for his inventions, has received the honorary degree of D.Sc. from the University of Durham. At the same convocation Mr. Robert O. Heslop, the archaeologist, had the degree of M.A. conferred.

M. Injalbert has received the commission for the erection of a monument to the poet Gabriel Vicaire, the author of "Emaux Bressans," which is to be placed in the garden of the Luxembourg.

Mr. Robert East, who had a local reputation as an archaeologist, died at Southsea on Sunday last. He compiled the "Corporation Records."

The Foundation-stone of a new church being built in a suburb of Chichester was laid last Saturday. The church will provide accommodation for 500 people, the cost under the contract, which is in the hands of Messrs. Dove Bros., with Messrs. J. E. K. & P. Cutts, of London, as architects, being 3,500*l.*

The Art for Schools Association have removed their office from 29 Queen Street, Bloomsbury, to 46 Great Ormond Street, in the same neighbourhood.

The Royal Water-Colour Society will open on Monday at their gallery in Pall Mall East a special exhibition of the works of the late William Stott, of Oldham. The exhibition will close at the end of the first week in November.

A Farm near Gilsland, on the borders of Cumberland and Northumberland, including the well-known Roman camp of Amboglanna, was sold by auction last Saturday to Mr. Joseph Wright, of Crosby, for 8,000*l.* The Roman camp upon it is one of exceptional interest. Part of the walls of the fort and the gateways are visible, and many altars and sculptured stones have been excavated. Recent explorations prove that the vallum of the Roman wall sweeps round the south of the fort.

Mr. B. T. Batsford has sent us a guinea in aid of the fund for Mrs. Giles, the daughter of the late C. F. Richardson. We have also received some smaller sums for the same purpose.

Battle Abbey and domain, comprising one of the stately homes of England, with which is incorporated the remains of the Benedictine monastery founded by William the Conqueror A.D. 1067, on the site of the Battle of Hastings, is to be sold by auction in November.

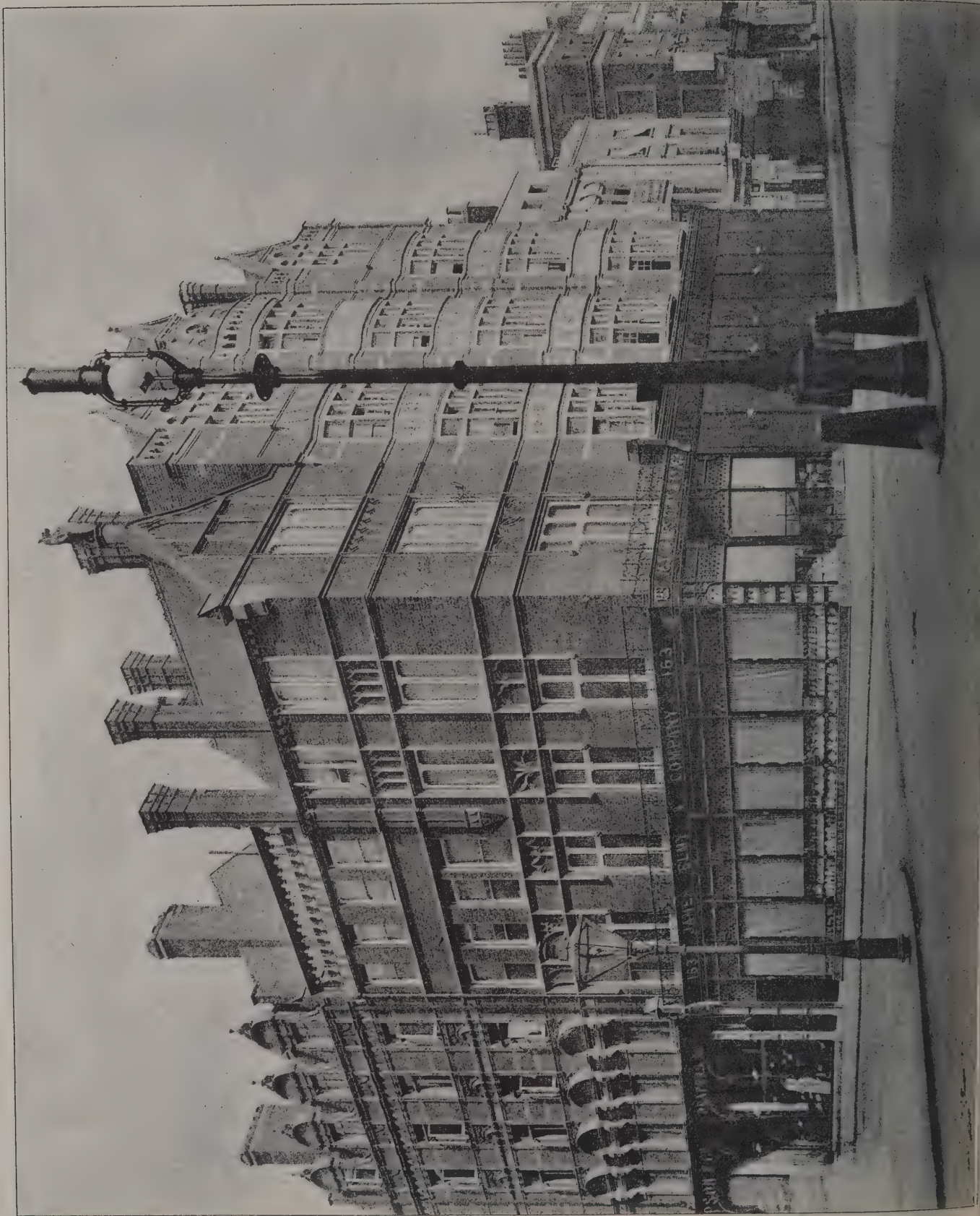


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CATHEDRAL SERIES, No. 356.—CHICHESTER: ANCIENT SCULPTURE IN WALL OF SOUTH CHOIR AISLE

The Architect, October 4, 1901.



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CATHEDRAL SERIES, No. 357.—CHICHESTER: ANCIENT SCULPTURE, "THE RAISING OF LAZARUS."



THREE COTTAGES, WARNHAM.

Messrs. WHEELER & LODGE, Architects.



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TWO COTTAGES, WARNHAM.

Messrs. WHEELER & LODGE, Architects.



Donnington Hurst,
near Newbury.
E. Guy Dayber and Whitwell,
Architects.

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DREADNOUGHT HOTEL, BATHGATE.
J. GRAHAM FAIRLEY, F.R.I.B.A., Architect.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders, and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

CAMBERWELL.—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 25*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BLYTH.—Plans are invited for proposed new schools and caretaker's house at Crofton, Blyth. Schools to accommodate about 450 mixed children and about 300 infants. Mr. Henry T. Rutherford, clerk, Blyth, Northumberland.

CONTRACTS OPEN.

ARCLID.—Oct. 10.—For alterations at the workhouse at Arclid, Cheshire. Mr. Alfred Price, architect, Elworth.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ARMLEY.—Oct. 21.—For erection of board-room and offices at Hill Top, Armley, near Leeds. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

BARKING.—Oct. 9.—For erection of an entrance-lodge, tool-house, building, and cart-shed at the recreation-ground, Longbridge Road, Barking, Essex. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BARNESLEY.—Oct. 9.—For erection of a kiln, chimney, engine and boiler-houses at the Barnsley Summer Lane brick-works. Mr. Geo. H. Gray, 6 Royal Street, Barnsley.

BATLEY.—Oct. 14.—For erection of extensions to Hanover Street schools, Batley. Messrs C. H. Marriott, Son & Shaw, architects, Church Street Chambers, Dewsbury.

BATLEY.—Oct. 18.—For supply and erection at the electricity works, Batley, Yorks, of three Lancashire boilers, one economiser, two jet condensers, one electrically-driven feed-pump, injectors, steam, exhaust, feed and condenser pipes and accessories, and a travelling crane. Messrs. Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.

BECKENHAM.—Oct. 14.—For erection of two firemen's cottages, with room to contain a hose-cart, in Station Road, Shortlands, Beckenham. Mr. John A. Angell, surveyor.

BERKHAMPTSTEAD.—Oct. 12.—For additions and alterations to the infirmary and workhouse of the union. Mr. C. H. Rew, architect, Berkhamstead.

BIRMINGHAM.—Oct. 8.—For erection of receiving wards, porter's lodge and new pavilion, stores and offices, workshed, at the workhouse, Selly Oak. Mr. Edwin Docker, clerk to the Guardians, 10 Newhall Street, Birmingham.

BLACKBURN.—Oct. 26.—For providing and fixing two triple-expansion pumping engines, with a six-ton traveller, iron flooring and appurtenant works on the Throstle Street destructor site. Mr. William Stubbs, borough and water engineer, Municipal Offices, Blackburn.

BOURNEMOUTH.—Oct. 15.—For construction of concrete foundations to car-sheds. Mr. F. W. Lacey, borough engineer, Municipal Offices, Bournemouth.

BRIDLINGTON.—Oct. 8.—For erection of central schools and caretaker's residence at Oxford Street, Bridlington. Mr. J. Earnshaw, architect, Bridlington.

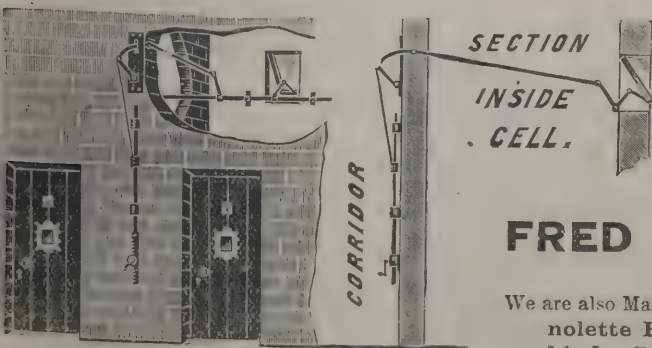
BRIDLINGTON.—Oct. 8.—For heating the Central schools with hot-water (low pressure). Mr. J. Earnshaw, architect, Bridlington.

BRISTOL.—Oct. 15.—For erection of new baths in Maze Street, Barton Hill. Mr. W. S. Skinner, architect, Edinburgh Chambers, 16 Baldwin Street.

BUCKFASTLEIGH.—Oct. 15.—For following works in connection with the water-supply scheme, viz.:—(Contract No. 1) covered service reservoir; (2) excavating and laying about six miles of 4-inch and 3-inch cast-iron pipes and other works in connection therewith; (3) supplying about 150 tons of 4-inch and about 80 tons of 3-inch cast-iron pipes, together with all the necessary special pipes required. Mr. T. W. Stainthorpe, engineer, Gate House, Totnes, Devon.

CAMBERWELL.—Oct. 7.—For erection of stables for twenty-three horses, cartshed, stores, &c., at the Glengall Road Wharf. Town Clerk, Town Hall, Camberwell.

CARLISLE.—Oct. 8.—For erection of seven houses in Melbourne Road. Mr. James Beaty, Old Post Office Court.



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CAMBRIDGE.—Oct. 24.—For erection of an additional wing on the female side to accommodate about eighty-eight patients and their eight attendants, at the Cambridgeshire, &c., Asylum, Fulbourn, near Cambridge. Mr. A. P. MacAlister, architect, 20 St. Andrews Street, Cambridge.

CANNOCK.—Oct. 17.—For laying mains, erection of pumping station, reservoir and other appurtenant works in connection with the Cheslyn Hay water supply. Mr. R. E. W. Berrington, engineer, Bank Buildings, Wolverhampton.

CARLISLE.—Oct. 15.—For erection of thirteen dwelling-houses in Jackson Street, Greystone Road. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CHEADLE.—Oct. 7.—For erection of mortuary buildings and chapels at the new cemetery, Stockport Road, Cheadle, Cheshire. Mr. Geoff. H. Brady, architect, 18 Little Underbank, Stockport.

CHELTENHAM.—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

COLCHESTER.—Oct. 14.—For supplying and fixing hot-water apparatus for heating the whole of the workhouse and supplying the baths, lavatories, &c., with hot water; also for supplying and fixing baths and sinks as required. Mr. Charles E. White, 57 North Hill, Colchester.

CONISTON.—Oct. 7.—For additions and alterations to the Sun hotel, Coniston. Mr. John Y. M'Intosh, architect, 6 Cornwallis Street, Barrow-in-Furness.

CORNWALL.—Oct. 21.—For erection of an infants' school, additions to girls' school, boundary walls, &c., at Newquay. Mr. James Pearce, clerk to School Board, 1 Lehenver Villas, Newquay.

CROYDON.—Oct. 17.—For erection of school buildings to accommodate about 600 children, with the necessary administrative offices, at Shirley Lodge Farm, Shirley Woodside, near Croydon. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

DEVIZES.—Oct. 12.—For erection of new visiting-rooms at the Wilts county pauper lunatic asylum, Wilts. Mr. Charles S. Adye, county surveyor, County Offices, Trowbridge.

EAST DONYLAND.—Oct. 12.—For sinking a borehole in the parish of East Donyland, Essex, to obtain a supply of water. Messrs. Sands & Walker, engineers, Angel Row, Nottingham.

EDINBURGH.—Oct. 7.—For erection of the new Midlothian County Council buildings. Mr. J. Macintyre Henry, architect, 7 South Charlotte Street, Edinburgh.

ERITH.—Oct. 7.—For construction of a galvanised iron building to accommodate twelve patients, as an extension of the infectious diseases hospital. Mr. Charles H. Fry, clerk, District Council Offices, High Street, Erith.

ERITH.—Oct. 8.—For constructing sewers, screen chamber, &c. Engineer's Department, County Hall, Spring Gardens, London, S.W.

FARNINGHAM.—Oct. 12.—For erection of school to accommodate 100 scholars (mixed) and 48 infants at Farningham, Kent. Mr. G. H. Tait, architect, Dartford.

GARFORTH.—Oct. 11.—For provision, laying and jointing of about 1,010 lineal yards of 2-inch cast-iron water-main, including the supply and fixing of valves, &c., at Manor Farm, Garforth, Yorks. Messrs. C. H. Marriott, Son & Shaw, Church Street Chambers, Dewsbury.

HALIFAX.—Oct. 10.—For erection of stabling for twelve horses, cart-shed, &c., at Stone Trough Brewery. Mr. W. H. D. Horsfall, architect, Tower Chambers, Halifax.

HARROGATE.—For erection of stabling at the Ship Inn. Messrs. H. E. & A. Bown, architects, James Street, Harrogate.

ILFORD.—For heating Downhall school, Aldborough Road, Ilford. Mr. C. J. Dawson, architect, 7 Bank Buildings, Ilford.

ILFORD.—Oct. 7.—For erection of a boundary wall and fence, coal store, &c. at the electric-lighting station and depot, Ley Street, Ilford. Mr. H. Shaw, surveyor, 7 Cranbrook Road, Ilford.

IPSWICH.—Oct. 10.—For erection of an arcade, Ipswich, consisting of about forty shops, assembly hall, offices, &c. Messrs. W. Eade & E. T. Johns, architects, Cornhill Chambers, Ipswich.

IRELAND.—Oct. 7.—For erection of two semi-detached villas, Upper Newtownards Road, Belfast. Mr. Thomas Houston, architect, Kingscourt, Wellington Place, Belfast.

IRELAND.—Oct. 7.—For proposed Killea extension of the Londonderry waterworks. Mr. J. J. S. Barnhill, engineer to the Council, 1A Strand, Londonderry.

IRELAND.—Oct. 9.—For erection of a villa in Deramore Drive, Belfast. Messrs. Blackwood & Jury, architects, 41 Donegall Place, Belfast.

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IRELAND.—Oct. 9.—For painting, repairing and ventilating the chapel at the Mullingar District lunatic asylum. Specification can be seen at the Clerk of Works' office and forms of tender supplied.

IRELAND.—Oct. 15.—For erection of a Protestant chapel on the asylum grounds. Sir Thomas N. Deane & Son, architects, 15 Ely Place, Dublin.

IRELAND.—Oct. 19.—For improvement of Annalong harbour, co. Down. Mr. Robert MacIlwaine, secretary to the County Council, Court House, Downpatrick.

IRELAND.—Oct. 21.—For supply and erection of heating and ventilating apparatus at the Youghal lunatic asylum, Cork. Mr. Henry A. Cutler, Municipal Buildings, Cork.

ISLE OF WIGHT.—Oct. 16.—For supply of materials and execution of works in connection with the Newchurch water supply. Plan and specification of the work may be seen at the Rural District Council Offices, Pyle Street, Newport, I.W.

KENDAL.—Oct. 15.—For erection of stone walling set in mortar. Mr. R. Hampton Clucas, borough surveyor.

LANCASTER.—Oct. 16.—For additions and alterations to the Millstone hotel, Main Street and Aldrens Lane. Mr. John Greene, architect, Meeting House Lane, Lancaster.

LEEDS.—For erection of a drying and other sheds, kilns, chimney, &c., for extension at Morley Main fireclay works. Messrs. Wm. Ackroyd & Bros., Ltd., Morley, near Leeds.

LEEDS.—For erection of eight scullery-houses. Mr. Harrison, 102 Bankside Street, Roundhay Road, Leeds.

LEEDS.—Oct. 7.—For extension of the Burmantofts carshed. Particulars may be obtained at the City Engineer's Office, Leeds.

LONDON.—Oct. 8.—For supplying and fixing lifts, motors, pumps, ventilating fans, lamps, cables, wires, conductors, switchboards and columns, &c., required for the electrical equipment of the Greenwich footway tunnel and its approaches. Particulars may be had at the Engineer's department, County Hall, Spring Gardens, S.W.

LONDON, S.E.—Oct. 15.—For erection of a receiving ward for children at the workhouse, Renfrew Road, Lower Kennington Lane, S.E. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

LUTON.—Oct. 7.—For repairing, painting and other works to the interior and exterior of town hall, offices, warehouses and premises in Upper George Street and Manchester Street. Mr. G. Sell, town clerk, Town Hall, Luton.

MALTON.—Oct. 11.—For water-supply works for the village of Welburn, Yorks, and the erection of wheel and pump-house and reservoir, together with the necessary pumping machinery, collecting and distributing works, mains, fountains, &c. Mr. Robt. Richardson, engineer, Town Hall, Malton.

MANCHESTER.—Oct. 9.—For supply, delivery and laying of the following cables, for the electricity committee:—(a) Three-core three-phase high-tension feeders, approximate length, 74 miles; (b) traction feeders, approximate length, 7 miles; (c) lighting feeders, approximate length, 3½ miles; (d) distributors, approximate length, 33 miles; (e) potential wires, approximate length, 11½ miles; (f) arc-lighting cables, approximate length, 15½ miles; (g) telephone cables, approximate length, 3½ miles. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Oct. 16.—For erection of a police and fire station at Mill Street. Particulars can be obtained at the City Surveyor's Office, Town Hall, Manchester.

NEWARK.—Oct. 8.—For reroofing and tiling church nave at Norton Disney. The Rev. — Aitchison, The Vicarage.

NEWHAVEN.—Oct. 9.—For removal of the old and the supply and fixing complete of a new penstock at the outfall of the sewer, Fort Road, Newhaven, Sussex. Mr. F. J. Rayner, Town Surveyor's Office, Newhaven, Sussex.

OLDHAM.—Oct. 8.—For erection of a generating station at Greenhill, Oldham. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

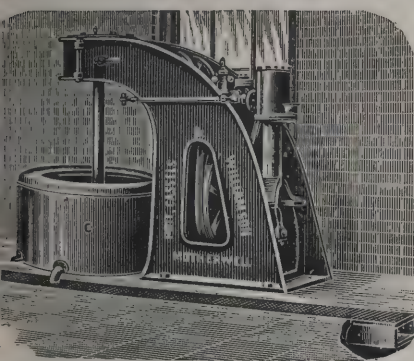
PEMBROKESHIRE.—Oct. 15.—For extension of Rosslare Pier. Mr. Otway, engineer, Inchicore, Dublin.

PUDSEY.—For boring 200 feet deep 6½-inch hole in well 120 feet deep. Messrs. R. Spencer & Son, Brickmill, Pudsey, near Leeds.

RADCLIFFE.—Oct. 21.—For construction of a stone retaining wall to the river on the Market Place, alteration and renovation of the exterior of the market hall and erection of lock-up shops on the northerly side of the Market Place. Mr. W. L. Rothwell, surveyor, Council Offices, Radcliffe.

RAWMARSH.—Oct. 7.—For repairs to the gas and water mains and sewage pipes, also repairs to the roadway and footpaths in Dale Road. Mr. J. W. Bellamy, clerk, Council Offices, Rawmarsh, Yorks.

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SCOTLAND.—Oct. 7.—For laying 1,617 yards of 6-inch S. and F. fireclay pipes, &c., in connection with providing a new water-supply for the villages of High and Low Banton, in the parish of Kilsyth, Stirlingshire. Specifications and schedules can be had on application at the County Sanitary Inspector's office, 48 Barnton Street, Stirling.

SCOTLAND.—Oct. 10.—For concretework of engine seat at electric-lighting station, Dudhope Crescent Road, Dundee. Mr. Wm. Alexander, city architect, Dundee.

SCOTLAND.—Oct. 14.—For supply, delivery and erection of a main switchboard at Kirkcaldy. Mr. Wm. L. Macindoe, town clerk, Kirkcaldy.

SHEFFIELD.—Oct. 8.—For works in connection with the public baths and library, Duke Street Park. Mr. C. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SIDCUP.—Oct. 10.—For installation of boilers, laundry fittings, &c., at the new children's homes at Halfway Street, near Sidcup, Kent. Mr. Thomas Dinwiddy, architect, 12 Crooms Hill, Greenwich, S.E.

SLOUGH.—Oct. 15.—For erection of new gasworks at Upton Lea, Slough. Mr. R. Martin, chairman, Gas and Coke Co., Castle View, Chalvey, Slough.

ST. ANNES-ON-SEA.—Oct. 8.—For erection of a goods warehouse, offices, stables, &c., at St. Annes-on-Sea, Lancs, for the Lancashire and Yorkshire and London and North-Western Joint Railways. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

STONE.—Oct. 8.—For additions to the workhouse infirmary and enlargement of the board-room. Mr. J. J. Chapman, architect, Stone, Staffs.

SWAFFHAM.—Oct. 7.—For casual repairs at the workhouse during ensuing half-year. Mr. Sidney Matthews, clerk to the Guardians, Swaffham, Norfolk.

TAUNTON.—Oct. 14.—For erection of seventeen bedrooms, &c., adjoining the nursing institute, and alteration and extension of the children's ward. Mr. J. Houghton Spencer, architect, 5 Hammet Street, Taunton.

TOOTING, S.W.—Oct. 8.—For erection of 276 cottage dwellings for the working classes on part of the Totterdown Fields Estate. The Architect's Department, L.C.C., 18 Pall Mall East, S.W.

UPHOLLAND.—Oct. 11.—For pulling-down and setting-back a retaining wall in Dingle Road, Upholland. Mr. Chas. E. Senior, clerk and surveyor, Council Offices, Upholland, Lancs.

WALES.—Oct. 8.—For erection of a police station and petty sessional court at Abertillery. Mr. William Tanner, county surveyor, County Offices, Abertillery.

WALES.—Oct. 10.—For erection of five cottages at Margam. Mr. Godfrey Lipscomb, agent, Estate Office, Margam Park, Port Talbot.

WALES.—Oct. 10.—For erection of the proposed hospital for Pontypool and district on a site abutting Leigh Road. Mr. Robert Williams, architect, 10 Clifford Inn, Fleet Street, E.C.

WALES.—Oct. 15.—For erection of twelve houses at Turberville Road, Llwynypia, Rhondda Valley. Mr. W. C. Pritchard, Glamorgan Coal Company's offices, Llwynypia.

WALES.—Oct. 15.—For extension of Rosslare Pier, Fishguard, Pembrokeshire. Mr. Otway, engineer, Inchicore, Dublin.

WALES.—Oct. 19.—For erection of a school for 756 children at Pontlloftyn, including board-room, headmaster's house, cookery kitchen and caretaker's house. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Oct. 22.—For deepening a shaft at Garth, Cardiff. Apply to Elders Navigation Collieries, Ltd., Merchants' Exchange, Bute Docks, Cardiff.

WINLATON.—Oct. 10.—For erection of a boys' school, master's and caretaker's houses, conveniences and boundary walling at Rowlands Gill. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-on-Tyne.

WITHAM.—Oct. 16.—For erection of an infants' school to accommodate 100 at Chipping Hill, Witham, Essex. Mr. W. P. Perkins, surveyor to the Urban District Council, Witham.

THE new High Grade School erected by the Burntisland School Board, and which is intended to facilitate the teaching of science and technical branches, was formally opened on the 26th ult.

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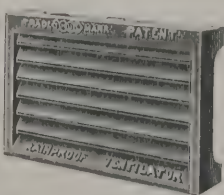
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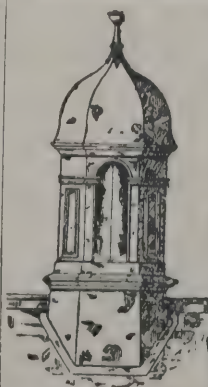
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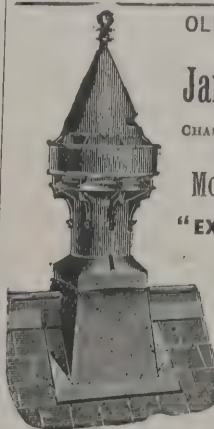
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BOLTON-UPON-DEARNE.

For asphalting a portion of the playgrounds at Bolton mixed schools, about 530 square yards, Bolton-upon-Dearne, Yorks.

D. Grundy	£92	11	0
M. Grantham	85	12	0
Burgess & Co.	82	13	0
J. Brook	79	7	0
G. HAUGHTON, Retford (accepted)	58	13	0

BOSTON.

For repairing Clay Dyke Bridge in Holland Fen, Lincs.
Mr. L. STARKIE, district surveyor, Boston.

S. SHERWIN & SON, Boston (accepted)	£32	0	0
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BRADFORD.

For erection of a shop, with work-rooms and stabling. Mr. EDGAR H. PARKINSON, architect, Bradford.

Mason and joiner combined.

Wilkinson & Son	£1,320	0	0
Hallam & Holgate	132	10	0
J. Black & Son.	86	0	0
T. Nelson & Son	40	7	0

CASTLEFORD.

For erection of two semi-detached villas, Barnes Road. Messrs. GARSIDE & PENNINGTON, architects, Wesley Street, Castleford.

Accepted tenders.

R. Walker & Son, brick and stonework.
T. G. Wright & Sons, joiner and carpenter.
J. Lockwood, plasterer.
W. Allison, slater.
W. Wilson & Son, plumber.
T. Watson, painter.

DAGENHAM.

For paintingwork at the smallpox hospital, Dagenham, Essex.

J. Rivett	£309	0	0
G. Wise, works manager	277	0	0
R. W. Broadbank	260	0	0
A. H. Sams	252	0	0
J. T. Carr	218	0	0
J. J. Richards	205	0	0
J. W. Jerram	186	0	0
Chapman & Sturton	175	0	0
J. J. Lawrence	169	0	0
E. Burns	159	0	0
Vigor & Co.	143	0	0
L. Bellamy	131	17	0
Parker Bros.	125	0	0
A. W. Robins	123	0	0
H. C. Horswill	119	0	0
J. F. Holliday	115	0	0
E. Proctor	104	0	0
J. Woollaston	98	10	0
P. MCCARTHY, 45 Darlan Road, Fulham (accepted)	79	0	0

DARLINGTON.

For erection of a residence, conservatory, &c., in Grange Avenue. Mr. FRANK MARTIN, architect, South End Chambers, Darlington.

Veitch & Johnson	£1,020	18	0
H. Dougill	1,000	0	0
Boyd & Sons	853	12	10
Blackett & Son	800	0	0
J. JENKINS, Commercial Street, exclusive of electric lighting (accepted)	771	0	0

EAST HAM.

For extension of tramways.

W. Griffiths & Co.	£6,254	9	6
G. Wimpey & Co.	5,955	0	0
Dick, Kerr & Co.	5,793	7	6
Engineer's estimate	6,700	0	0

Note.—Tenders referred to works committee.

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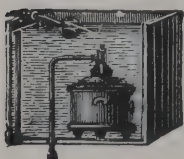
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HARWICH.

For restoring 55 and 56 Church Street. Mr. H. H. PARKER, architect.
 W. G. Lewis £483 0 0
 E. West 400 0 0
 Miles & Son 390 0 0
 Smith & Beaumont 358 0 0
 E. SAUNDERS, Dovercourt (accepted) 356 0 0

HORSHAM.

For erection of a chimney at the workhouse (about 35 feet high), and other builder's work required in connection with the fixing of steam cooking apparatus. Mr. C. H. BURSTOW, architect, West Street, Horsham, Sussex.
 J. HILLMAN & MURRELL, Clarence Road (accepted) £74 5 0

ILKLEY.

For erection of a billiard-room, &c. Messrs. T. C. HOPE & SON, architects, 23 Bank Street, Bradford. Quantities by the architects.

Accepted tenders.

Dean Bros., mason.

T. Smith, joiner.

J. Suttle & Son, Otley, plumber.

O. Lister, plasterer.

R. Nelson, slater.

Total, £560.

IRELAND.

For constructing waterworks at Tarbert and Tarbert Island, Listowel.

P. DILLON & SON, 5 Castle Street, Limerick

(accepted) £745 0 0

For executing the following works at Ballymoney:—

Sewerage works.

R. Young £312 11 6

J. Lowden & Co. 270 0 0

D. Christie 265 1 10

R. JAMIESON & SON, Ballymoney (accepted) 256 4 8

Erection of a drying chamber.

Ravenhill Ironworks, Ltd. 95 0 0

J. HENRY, Ballymoney (accepted) 82 10 0

IRELAND—continued.*Fitting and supplying bath.*

J. Lowden & Co. £18 15 0

R. Jamieson & Co. 10 7 0

D. CHRISTIE (accepted) 9 17 0

For supply and erection of one multitubular boiler at Duncrue Street pumping station, Belfast.

V. COATES & CO., LTD., Belfast (accepted) £480 0 0

For plumbingwork in new lodging-house, Lower Regent Street, Belfast.

R. PATTERSON & Co., High Street (accepted) £443 0 0

LEEDS.

For new furniture for the West Riding Court, Leeds.

HORSMAN & Co., Mark Lane (accepted) £370 7 10

For erection of an art school.

Accepted tenders.

C. Myers & Sons, brickwork and mason.

S. Macfarlane, concreter.

J. Taylor, joiner.

Henry Lindley, plumber.

Oswald Lister, plasterer.

J. Atkinson & Sons, slater.

A. W. Richardson & Co., painter.

The total cost of combined tenders is £9,812.

LOWESTOFT.

For the provision of a sewerage system for the parish of Pakefield.

J. Jackson £4,170 17 9

B. Cooke & Co. 4,016 0 0

F. J. T. Binns 3,965 7 10

A. & A. Streeter 3,398 0 0

G. Double 3,392 4 10

Cutler, Haywood & Co. 2,903 0 0

BURGOYNE & SON, Ipswich (accepted) 2,650 12 4

NEWCASTLE-UNDER-LYME.

For alteration at the union workhouse and construction of iron staircases Messrs. CHAPMAN & SNAPE, architects, Newcastle-under-Lyme.

J. Cooke £485 14 0

T. Maddock 445 0 0

G. Bloor 441 12 0

S. WILTON, jun, West Brampton (accepted) 409 10 0

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RIPON.

For construction of about 490 yards of 10-inch and 530 yards of 9-inch sewers, with manholes, lampholes, &c. Mr. W. EDSON, city surveyor.

Grange & Jennings	£1,225	0	0
T. R. Bruce	658	17	10
R. Fisher	634	17	8
F. F. SIMPSON, Leeds (accepted)	577	1	4
T. Burn	551	2	5

SHEFFIELD.

For construction of a surface-water sewer, with 15-inch and 12-inch stoneware pipes, between the river Don and an intended new street near Little Bridge, Wardsend. Mr. G. E. BEAUMONT, engineer, Grenoside.

J. E. Nadin	£270	12	0
G. HALL, Machon Bank, Sheffield (accepted)	266	0	0

SLIGO.

For repairing three houses in O'Connell Street, Sligo.

J. Mullen	£520	10	6
Reynolds Bros.	515	9	6
D. MC LYNN, Stephen's Street (accepted)	505	0	0

ST. ALBANS.

For painting, repairs, &c., to the police station.

H. W. Savage	£51	0	0
J. Blow	43	2	6
L. Sell	41	10	0
Blow & Peters	39	18	9
D. ARNOLD & SONS, St. Albans (accepted)	34	17	6

For street works in Heath Road and Walton Street.

Heath Road.

Mann	£1,050	0	0
Williams	450	0	0
W. DEAMER, Oster Street, St. Albans (accepted)	422	6	5

Walton Street.

Mann	690	0	0
Williams	310	0	0
W. DEAMER (accepted)	290	9	9

STANFORD-LE-HOPE.

For supply of about 60 tons of cast-iron socket pipes, 6 inches, 9 inches and 12 inches in internal diameter. Mr. R. F. GRANTHAM, engineer, Northumberland Avenue, London, W.C.

R. Carr & Co.	£570	0	0
H. R. Merton & Co., Ltd.	542	0	0
Cochrane & Co.	504	0	0
J. & S. Roberts	494	0	0
G. Osenton	491	0	0
Stanton Ironworks Company, Ltd.	487	0	0
Biggs, Wall & Co.	485	0	0
D. Parsons & Sons	468	0	0
CLAY CROSS Co., Eastcheap (accepted)	462	0	0

For pumping machinery for pumping a portion of the sewage of Stanford-le-Hope. Mr. R. F. GRANTHAM, engineer, 23 Northumberland Avenue, London, W.C.

J. Simpson & Co., Ltd.	£1,085	0	0
Priddle & Heppell	750	0	0
G. Fletcher & Co.	720	0	0
Vauxhall Ironworks Co., Ltd.	678	0	0
G. Waller & Co.	652	0	0
R. Warner & Co.	632	0	0
Dixon & Fish	628	0	0
H. Heaton	592	0	0
A. Dodman & Co., Ltd.	591	0	0
S. OWENS & Co., Whitefriars, E.C. (accepted)	580	0	0
Broom & Wade, Ltd.	478	0	0

SUNDERLAND.

For erection of a junior school on the biscuit factory site, Sans Street South.

G. H. HODGSON (accepted)	£6,993	0	0
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UPPINGHAM.

For construction of sewerage and sewage-disposal works in Hallaton village. Messrs. COALES & JOHNSON, engineers, Bank Chambers, Market Harborough.

Young	£1,810	5	11
J. C. Lucas	1,699	18	10
S. Hipwell	1,664	0	0
A. Jewell	1,658	12	6
Bower Bros.	1,399	19	0
H. Butteriss	1,334	0	0
Tate & Eastwood	1,273	10	6
T. Hickman	1,252	5	6
A. WRIGHT, Dunethorpe (accepted)	1,098	6	1

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For erection at the gasworks, Tydesley, of an iron shed, with corrugated iron roof, for the coal store.
TAYLOR & CO., Manchester (accepted) . . . £112 0 0

WALES.

For alterations and additions to Hafodyrnyys inn, near Crumlin, Mon. Mr. R. L. ROBERTS, architect, Abercarn.
Williams & Thomas . . . £999 10 0
J. Jenkins . . . 985 0 0
E. Williams . . . 875 0 0
Davies Bros. . . 870 0 0
W. T. MORGAN, Crumlin (accepted) . . . 760 0 0

For supply of 15-inch cast-iron pipes, bends, valves, &c., and for laying same from Llandudno Junction, in the county of Carnarvon, to Croesau, in the county of Denbigh. Mr. E. P. STEPHENSON, surveyor.

A. Wills & Sons . . . £15,476 0 0
G. Taylor . . . 12,250 0 0
Hughes & Lancaster . . . 11,085 2 9
W. Jowett . . . 10,988 8 8
H. Roberts . . . 10,550 0 0
ROWELL & SON, Chipping Norton (accepted) . . . 10,219 9 6

For erection of business premises and residence at Llanfairfechan, North Wales. Mr. RICHARD DAVIES, architect, Bangor.

W. Jones . . . £1,427 0 0
R. & J. Williams . . . 1,379 0 0
E. Jones . . . 1,203 12 0
E. HUMPHREYS, Llanfairfechan (accepted) . . . 1,200 0 0

WEST HAM.

For street works in Claude Road, Bishop's Avenue, Lawrence Road, Donald Road, Gwendoline Avenue, Churston Avenue, Lucas Avenue, Thorngrove Road. Mr. J. G. MORLEY, borough engineer.

O. R. Anstead . . . £7,547 19 9
W. Griffiths, Ltd. . . 6,956 16 1
T. Adams . . . 6,756 2 3
J. Jackson . . . 6,498 11 0
D. T. JACKSON, 104 Ripple Road, Barking (accepted) . . . 6,240 0 0

WEST HAM—continued.

For construction of an underground sanitary convenience, Sebert Road, Forest Gate, E. Mr. J. G. MORLEY, borough engineer.

G. North . . . £2,010 0 0
J. W. Jerram . . . 1,950 0 0
G. Wise . . . 1,914 0 0
G. Jennings, Ltd. . . 1,909 13 2
GREGAR & SON, Jupp Road, Stratford, E. (accepted) . . . 1,866 0 0

WEST HARTLEPOOL.

For erection of a Board school in Jesmond Road. Beetham . . . £18,770 0 0

WHITLEY.

For work in connection with the new sewerage works in the districts of Whitley and Monkseaton. Mr. J. P. SPENCER, engineer, 30 Howard Street, North Shields.

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J. & W. Simpson . . . £8,150 0 0
G. E. Simpson . . . 6,849 16 8
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G. Bell . . . 5,348 13 7
T. & J. Maclaren . . . 5,256 14 0
R. Hudson & Sons . . . 5,150 0 0
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W. Carr . . . 4,735 16 10
J. Thompson . . . 4,295 10 0
R. & J. Thompson . . . 4,049 13 10
J. & R. JOHNSON, Whitley (accepted) . . . 3,932 3 0

Section 2.

J. & W. Simpson . . . 6,685 0 0
G. E. Simpson . . . 6,420 0 0
W. Craig . . . 6,325 14 9
W. Dykes . . . 5,908 10 0
T. & J. Maclaren . . . 5,591 12 0
G. Bell . . . 4,647 17 2
C. Thornton & Co. . . 4,617 18 10
W. & J. Lant . . . 4,565 13 11
R. Hudson & Sons . . . 4,486 0 0
J. Thompson . . . 4,198 15 9
W. Carr . . . 3,741 9 4
J. & R. Johnson . . . 3,667 18 3
R. & J. THOMPSON (accepted) . . . 3,106 10 3

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WOLVERHAMPTON.

For erection of the industrial hall for exhibition purposes.

T. Skett	£8,795	0	0
J. Bowen & Sons	8,503	0	0
F. L. Jones	7,998	0	0
Lovatt	7,981	0	0
G. Cave	7,732	0	0
E. C. Charles	7,460	0	0
Willcock	7,351	0	0
H. Gough	7,350	0	0
J. HERBERT, Wolverhampton (accepted)	7,297	0	0

WREXHAM.

For erection of a division wall and lights at the end of the new shed in the vegetable market.

DAVIES BROS., Wrexham (accepted)	£27	12	0
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NEW CATALOGUES.

MESSRS. J. H. SANKEY & CO., of Essex Wharf, Canning Town, are issuing a new catalogue which will be found a very useful and compendious price list of sanitary fittings and appliances, a class of goods in the manufacture of which the firm have a well-deserved reputation. The various goods are carefully illustrated and described, and all dimensions and particulars of cost fully given. Messrs. Sankey are also makers of plain, fancy and glazed building bricks, vitrified paving bricks, roofing tiles in red, blue and Broseley colours, fire-resisting bricks, of which they make a specialty; finials, chimney-pots, flower-pots, vases and fire bricks, seating blocks, chemical stoneware apparatus, &c.

THE new catalogue, bearing date September, 1901, which has just been issued by the General Iron Foundry Company, Ltd., of Upper Thames Street, is a portly tome of nearly 650 pages, substantially bound and copiously illustrated. The goods manufactured by this firm are so well known that anything like a detailed description of them would be superfluous. We notice, however, many new and very pleasing designs in fireplace interiors, dog-stoves, registers with and without mantels, &c; and some of them, we fancy, are here submitted for the first time. Very artistic effects are shown, too, in wood mantels, while in kitcheners and cooking stoves, lavatories, baths, lamps, railings, grilles and castings there is a wide and extremely varied assortment.

VARIETIES.

ROTHERHAM Congregational church has been reopened after renovation and decoration.

THE Local Government Board have sanctioned the borrowing of 53,000*l.* for the building of new baths in Bradford.

THE Weymouth Corporation are considering the erection of a pier and pavilion, at a cost of about 35,000*l.*

ST. PAUL'S CHURCH, Perth, which has been erected at a cost of 4,000*l.*, and affords accommodation for 800 worshippers was opened on Saturday.

OWING to the increase of business and the want of more accommodation, the Temple Press Cutting Offices are removing from 231-232 Strand, W.C., to 157 Strand, W.C.

THE new drill-hall of the Stranraer Artillery Volunteers, which has been erected in Bellevilla Road, Stranraer, and will accommodate 750 persons, was opened on the 26th ult.

NEW Board schools erected by the Stanley and Outwood U.D. School Board at Lofthouse Gate, Yorks, at a cost of about 7,000*l.*, and capable of accommodating 390 scholars, were formally opened on Saturday afternoon.

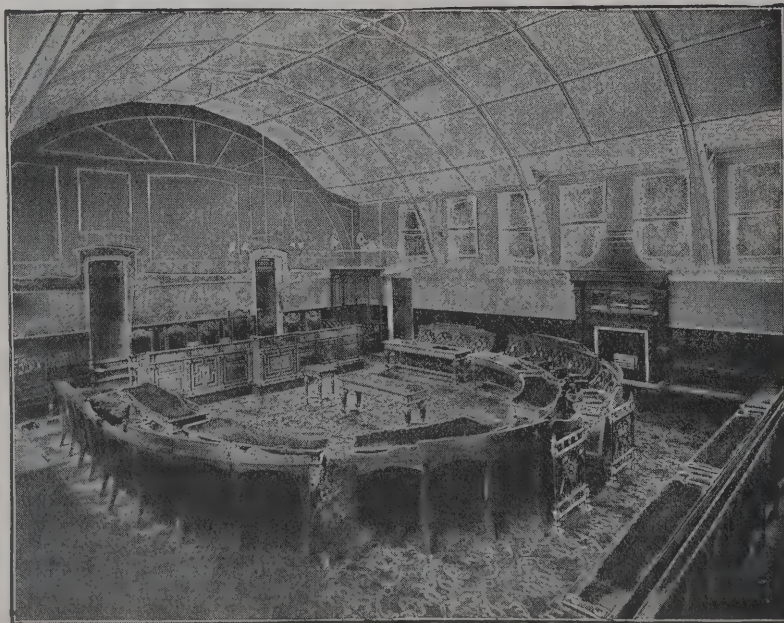
MR. MANSERGH, C.E., has presented to the Folkestone Town Council an important report on the improved drainage of the town, which, if adopted, will involve the expenditure of 50,000*l.*

THE new Catholic church at Castlebar, which is one of the finest specimens of ecclesiastical architecture in the Western province, has now been completed, and its dedication will take place on Sunday next. The building was commenced in March 1897, but in the winter of 1898, when the works were well advanced, a severe storm demolished almost half the structure.

IN memory of the late Mr. Hinchliffe Hinchliffe, Cragg Hall, near Mytholmroyd, a new vicarage has been presented to the parish of St. John's-in-the-Wilderness, Cragg, by his daughter, Mrs. Strickland, of Cragg Hall and Southport. The cost of the building, exclusive of ground, also given by Mrs. Strickland, is 2,500*l.* On Saturday the unveiling of a memorial tablet and the dedication of the building took place.

A NEW asylum at Rauceby, near Sleaford, Lincolnshire, which has been under construction for the last two years, is now nearly completed. It has been erected at a cost of 166,000*l.*, and will afford accommodation for 500 patients. The

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asylum has been rendered necessary owing to the increase of lunacy in Lincolnshire, and the decision of the Kesteven County Council, for whom it has been built, to have an asylum of their own.

THE business premises occupied by Messrs. Greenhouse & Scrivener, outfitters, at the corner of High Street and Griffin Street, Newport, Mon, suddenly collapsed on Monday through the giving way of a pillar, faced with white bricks, which was the main support of the building. Huge plate-glass windows were smashed to atoms, stock was strewn in all directions, and the principal street was blocked to vehicular traffic. Fortunately no one was on the premises at the time of the accident.

THE new borough boundaries extension scheme at Dover is to be of a very comprehensive character. In addition to the inclusion of St Margaret's Bay, in compliance with the petition of five-sixths of the ratepayers there, Kearsney and River, to which the town has grown out, are to be brought in. It is proposed to extend the municipal electric tramway system to these latter villages. It has been reported to the Corporation that the new cliff drive connecting Dover with St. Margaret's Bay will shortly be commenced.

THE new parish of St. Stephen, Harpurhey, is now provided with a church by the subscriptions of Sir William H. Houldsworth, M P, and Mr. John Railton, through the Bishop's Commission. This is one of a number of parishes recently formed and endowed with 200*l.* per annum from the Manchester Chapter Estates. The Bishop of Manchester has arranged to consecrate this church on Wednesday next. Its cost will be about 5,500*l.*, and accommodation will be provided for 500 persons, all the sittings being free.

THE town clerk of Warrington has received a communication from the Board of Education stating that the Board have under consideration the question of the provision of adequate public elementary school accommodation. They propose to issue a notice calling for the provision of additional accommodation for 250 boys, 250 girls and 300 infants in the Marsh House Lane district, and for 150 infants in Bewsey Road district and for 100 and 150 infants near St. Barnabas's school and St. James's (Latchford) Church respectively.

THE new church halls and rectory which have been provided for St. Mary Magdalene's Episcopal Church, Dundee, were opened on Monday last. The new buildings have been erected on a site in Well Road, a private street in the west end of the city, and have involved an expenditure of 9,000*l.* The principal hall, 72 feet by 50 feet, is capable of seating 1,300 persons, and it is beautifully decorated. Below the large hall is a smaller one to seat 300 persons, and attached to it is a fully-equipped gymnasium. The rectory is in front of the halls, and is four storeys in height. The buildings are lit by electricity.

A CHICAGO inventor, George Magrady, is said to have discovered a process of manufacturing a 36 candle-power light that will never go out. While experimenting with photographic chemicals four years ago Magrady's attention was attracted by a glow in a small globe. Discovery showed the glow was caused by a chemical which the inventor keeps secret. By constant experiments Magrady finally enlarged the glow and perfected the light by placing it in an air-tight glass. He says there is no reason why the light will not remain brilliant until eternity if it is not broken. A company has been formed to manufacture the lights in numerous sizes. A patent hood fits over the globes, and by a simple mechanism covers it completely when the light is not needed.

OFFICIAL intimation has just reached Mr. Edwin O. Sachs, chairman of the British Fire Prevention Committee, that a large silver portrait medal accorded by Her Majesty, the German Empress, in connection with the Fire Congress of June last, has been presented to the executive of the committee as a mark of appreciation for the services rendered by that body in the demonstration of scientific and economic aspects of fire protection. It will be remembered that a deputation of the committee, comprising Mr. Edwin O. Sachs (chairman), Mr. Ellis Marsland, Mr. F. R. Farrow and Mr. C. E. Goad, accompanied by the secretary and engineer, visited Berlin in the summer,

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THE GREAT WESTERN HOTEL,

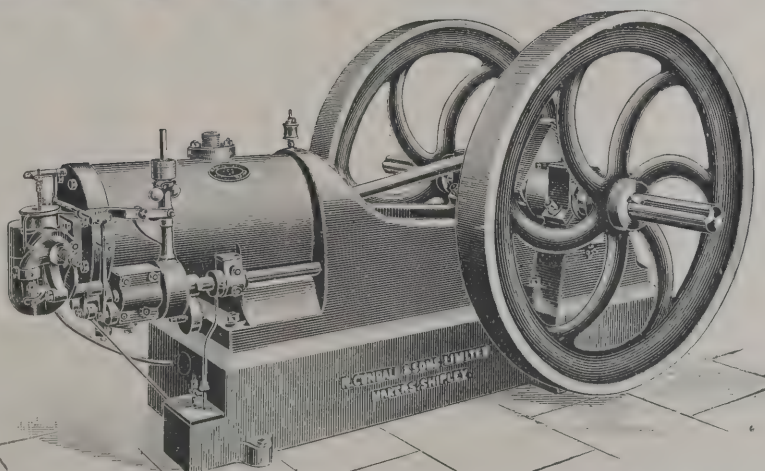
OBAN: October 29, 1900.

DEAR SIR,—I have very great pleasure in testifying to the efficiency of the 20 B.H.P. Oil Engine which you supplied for driving the Dynamo, which gives current of equal H.P. for lighting and Motors in the Hotel. The Engine has now been in use almost daily for over three months, without the slightest hitch. It gives the utmost satisfaction and the best favourable results.

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What I think is one of the features of your Engine is that my man can start it without any assistance. Most Oil Engines I have seen are difficult to start, taking three, four, and sometimes six men to start them.—I am, yours faithfully,

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and that an important exhibit of technical models and photographs was loaned to the German authorities for the exhibition held in connection with the Congress.

THE new parish church at Hove, Brighton, which has cost 40,000*l.*, was opened on Saturday. The church was built from designs by the late Mr. Pearson, of Sussex sandstone, and with stone from the quarries of Sir Weetman Pearson, M.P. The seating accommodation is for about 1,300, the building being 160 feet long and nearly 80 feet broad. The nave, including the transept, is 108 feet long and 35 feet wide and is divided into six bays. The two western bays, opening respectively into the baptistery and the base of the tower, are marked by lofty and richly-moulded arches springing from clustered piers attached to the north and south walls. The next four bays open into the north and south aisles and are each 16 feet wide. The arcades consist of clustered piers, 17 feet high, from which spring lofty Pointed arches which support the clerestory.

AN important extension of the Royal Albert Asylum at Lancaster was formally inaugurated at the annual meeting of the subscribers to funds of the institution, which took place on the 26th ult. The Ashton wing, as the added portion is called, is built at the south-east angle of the Brooke wing, is about 150 feet long and two storeys high, and will afford accommodation for the proper treatment and care of fifty cripples and fifty epileptics. Each floor consists of a large dayroom 54 feet by 32 feet; two dormitories, one 60 feet long and the other 41 feet by 47 feet. Besides these there are attendants' rooms and all the necessary offices. Towards the cost of the erection Lord Ashton has contributed 15,000*l.*, which, with donations from other friends, brought the total contributed for this object up to 20,117*l.* 11*s.* 7*d.* The latest extension gives to the institution accommodation for 740 patients. The architects of the building are Messrs. Austin & Paley, of Lancaster.

THE new chapel for Rushden Old Baptist church was opened on the 23rd ult. It is a handsome building, erected upon an excellent corner site in Park Road. The site is large enough for the erection in future years of schools and manse. The style of the building is late Gothic. The organ chamber beyond the choir is very large, 15½ feet by 13½ feet, rendered necessary by the organ. This organ, which was formerly in the old chapel, is the work of a Rushden man, who invented a special pneumatic system in organ building, and patented it in America, where it is now the vogue in new places of worship. The Rushden organ is the only one of its kind in England; it

was erected by Mr. Austin, the inventor, free of cost, the church finding all the materials, which came to about 400*l.* The building has been designed by Mr. H. H. Dyer, of Northampton. Mr. C. E. Bayes, of Rushden, is the builder. The total cost, including site, is about 6,500*l.*, of which about 4,000*l.*, including promises, had been raised prior to the opening.

THE formal opening took place on the 24th ult. of the Friary Congregational church, West Bridgford, Notts. This church occupies an advantageous position at the junction of Musters Road and Millicent Road, and at the corner rises a tower to a height of 56 feet. The body of the building is of an ecclesiastical design, with a nave and side aisles. In addition there is a large church parlour and infants' room at the other end of the building, and there are in all five entrances to the church. The side aisles are used as passages, so that every seat commands a perfectly uninterrupted view of the pulpit. On the north side of the choir is the organ-chamber, and on the south the vestry. A large meeting-room is provided behind the choir, and this will also be used as a choir vestry. The floor is of wood, and the entrances and lobbies are tiled. The roof is on the open hammer-beam principle, and is covered with green slates. The arcade piers are of stone, the lower portions having wood dado dressings. All the woodwork is stained green. At either end of the church is a large handsome window. Seating accommodation is provided for 450 persons. The total cost of the work, which has been carried out by Messrs. Garton & Burton, in accordance with plans prepared by Messrs. R. C. & E. R. Sutton, is about 5,500*l.*

BUILDING AND BUILDERS.

THE memorial-stones of a new Wesleyan Methodist chapel, which it is proposed to erect in Seaforth at a cost of 1,600*l.*, were laid on Saturday.

THE foundation-stone laying of St. Stephen's new church, Smethwick, took place on Saturday. The new church will be in the centre of a large working-class population, and it is intended to create a new parish out of Holy Trinity, Smethwick. The cost, including site, is 5,000*l.*

MESSRS. CUTTS, of Southampton Street, W.C., have prepared plans for a new church to be known as St. Mary's and All Saints, which is about to be erected at Walsall, and a contract has been entered into with Mr. W. Hopkins, of Birmingham.

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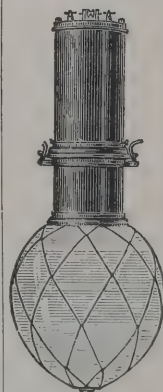
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ham, for the erection of the building for 4,400%. It is estimated that at least 5,000% will be required to complete the scheme.

A LOCAL GOVERNMENT BOARD inquiry has been held at the Town Hall, Bexhill, to consider the borrowing of a sum of money for the erection of a railway bridge to connect the north with the southern portions of the town, which when completed will be a great boon to visitors and residents. There was no opposition, and it is expected that the erection of the bridge will be commenced forthwith.

THE memorial-stones of the new Bethel Methodist New Connexion chapel, Failsworth (Lancs), were laid on Saturday afternoon. The new chapel will be built partly on the site of the old chapel, which was erected in 1797 and extended in 1811, and partly on the old burial-ground between the chapel and Oldham Road. It is designed in the Early Decorated Gothic style. Seating provision is made for 500 persons, as against about 330 in the old chapel.

At a meeting of the Stourbridge Urban Council on Monday—Mr. J. E. Jones in the chair—Mr. Taylor brought up a report from the housing of the working-classes committee. The committee expressed the opinion that there was need for the erection of houses at rentals from 3s. 6d. to 5s., and they asked for the Council's instruction. Considerable discussion ensued as to whether there was a real demand for artisans' dwellings. Mr. Taylor, in replying to a long discussion, said the particulars the committee had received showed there were 230 working men living outside the township who worked for local firms. The motion for the adoption of the report was carried. Mr. Purkis then moved that the housing of the working-classes committee prepare a scheme for workmen's dwellings at an outlay of 5,000%. Mr. Moyle seconded this, and it was carried.

THE memorial-stones of a new Temperance Hall, which is in course of erection at Lincoln, were laid on the 25th ult. The great feature of the building is to be the large hall. The height of this will be about 40 feet, its length 63 feet, and seating accommodation will be provided for 1,000 people. As the rise of the floor is to be 1 in 10, everyone will easily be enabled to obtain an excellent view of the platform or stage, and the architectural features of the room augur well for its acoustic properties. The floor area widens towards the exit doors, and the seating preserves an even width, so that a gradually widening route to the doors will be formed, an arrangement which will doubtless receive considerable appreciation. Above part

of the auditorium is to be a lecture-hall, 40 feet by 25 feet, in direct communication with the refreshment lift (rendering it available for teas, &c.) and reading and recreation rooms, offices in which to carry on the administrative work of the Society, lodge rooms, &c., are all being provided.

RESTORATION work of some importance is now in progress at Oxford, both at Christ Church and at Merton. At the latter the front of the north transept of the chapel is being refaced. At Christ Church two pinnacles are being added to the east end of the cathedral, at present wooden patterns being erected at which, of course, plenty of adverse criticism is directed. The east side of the well-known Tom bell-tower is also being restored. The work at Christ Church is under the advice of Mr. Bodley, and at the cost of two members of the college. It is satisfactory to note this generosity, for of late the pious benefactor has not been much in evidence at the Universities, and his assistance is needed as much now as in former days. Of course there are some who would prefer that ancient buildings should remain untouched, but in regard to many the time must inevitably arrive when work must be done upon them if they are to be preserved for future generations. Nothing is indeed more striking at Oxford to-day than the decayed state of much of the stonework, many of the details of the sculptures and carving being quite obliterated.

SATISFACTORY progress towards completion is now being made in the erection of the new Central Bridewell, Dublin. In the new building several innovations are being introduced which should tend to the greater comfort of the staff and also to the prisoners. A police station is erected capable of accommodating 100 men, each constable in the new barrack being accommodated with a cubicle containing a bed and table. All prisoners will be provided with separate cells, and a distinction much required will be made between new and old offenders, and the accommodation of the cells, which will be well lighted, will be based on the largest average number the police have had in charge in any given twenty-four hours, but should the necessity arise this accommodation can be extended. One of the greatest improvements in the new bridewell is the provision of a pillar in each cell, whereby prisoners brought in saturated with rain may have their garments dried, while warm clothing will be given to them. Electric bells will be supplied to each cell. When the new bridewell is opened, from inside its gates the prisoners will be conveyed by an underground passage to the dock in the court, thus avoiding the unnecessary humiliation to which they are at present subject.

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FURNITURE IN THE COUNCIL CHAMBER.

IN the furniture trade quite a separate department has sprung up in the fitting and furnishing of borough and other public offices, for modern views insist now that places of public meeting or reception shall be well and substantially furnished and in keeping with traditional associations. At one time almost anything would do for office furniture, and hundreds of public authorities have met for years in cheerless rooms, devoid of all taste, furnished with the plainest of deal tables and chairs possessing not even the elementary principle of being safe.

However, times have now changed for the better. Municipalities have made their headquarters representative of the best spirit of public life, and there have sprung up in many parts of the country noble permanent buildings with interiors furnished in thorough keeping with the general style of the new establishments. In the offices of public companies and general business houses the same advance may be marked, and the results produced by the added taste displayed make the different rooms and offices attractive without taking away the solid and useful appearance which should mark every public or private place of business.

Messrs. Hewetsons, of Tottenham Court Road, have found that this branch of the trade requires yearly more care and attention. Indeed, it has now become departmental. The firm has laid itself thoroughly out to meet this latter-day class of business, and the result has thoroughly justified their enterprise. Their latest contracts in this direction have been the Walthamstow and Hemel Hempstead council chambers, the interiors of which have been furnished in the best of taste with furniture which combines simplicity, elegance and strength in a high degree. The workmanship of everything is of the best, and the designs of the two suites and their fittings are at once striking and dignified. Other work in the same direction has recently been executed by the firm, including the furnishing, in part or whole, of the Alexandra Hospital, the Walthamstow Sanatorium, St. George's Infirmary, Henley Town Hall, and the East Sussex County Offices at Lewes. In design and execution the furniture is exactly what such a class of work should be, and a glance at it proves the competency of the West End firm to undertake the most ambitious schemes of local authorities or bodies of a semi-public character. The firm not only submits its own designs, but works to the designs

of architects connected with the building, or other responsible authorities who may need estimates for the carrying out of their ideas, and in this connection the undertakings have been completely successful.

ELECTRIC NOTES.

THE newly inaugurated system of electric lighting at Worthing has been most favourably received. The long stretch of esplanade and the main thoroughfares are brilliantly illuminated, and private consumers of the current are so increasingly numerous that an enlargement of the plant will probably be necessary in the very near future.

ACCORDING to an official announcement the King of Italy will shortly visit Milan in order to inaugurate the huge hydro-electrical establishment which has been built on the Tessin river. The object of the enterprise is to distribute electrical energy for various industries and for the illumination of the town. The new installation is the largest in Europe, and has a generating capacity of over 15,000 horse-power.

THE president of the Leeds Association of Engineers (Mr. G. W. Blackburn, M.I.M.E.), in opening the winter session, remarked that the advantage to be derived from electrical transmission lay in the fact that the power could be applied at any speed, just at the time, and for the time only, during which it was required. It could also be transmitted with the greatest convenience to points distant from its source.

ONE or two new features in electric lighting are being introduced into the nearly completed installation for the illumination of the Victoria Embankment. On the recommendation of the County Council's engineers, the long-burning open type of the Gilbert arc lamp will be used. These lamps take 6 feet of carbon, which greatly lessens the cost of labour for recarboning, and the inconvenience of using ladders in crowded thoroughfares is avoided by an arrangement for lowering the lamps to the ground. The lighting of the parapets was started last February, the existing gas standards being converted for the purpose. As these standards were so close together lamps taking about half the usual amount of electrical energy, and giving a proportionately small light were used. Considerable difficulties attach to the use of these small current lamps, and this is the first time they have been successfully used for extensive public lighting.

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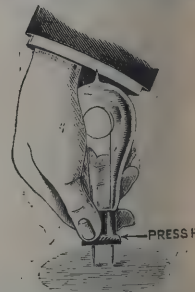
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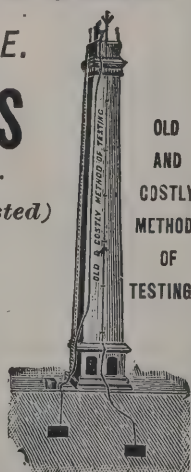
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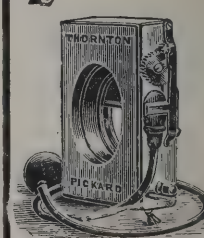
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TRADE NOTES.

THE Alhambra, Morecambe, has been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, employing their Rahnee radiators.

THE directors of Messrs. John Oakey & Sons, Ltd., have declared the seventeenth half-yearly dividend on the Six per Cent. Preference shares, payable on November 1.

THE new tramcar sheds now being built for the Nottingham Corporation Tramways have been supplied with fifteen steel revolving doors by the B. & S. Folding Gate and Lift Company. The firm has also just completed a contract for four of these doors for a new tramcar shed for the Cardiff Corporation Tramways.

in addition to protection for that sum, draws a guaranteed income of 3½ per cent. per annum on the large annual premium payable.

Any notice of the Mutual Life at the present time would be entirely incomplete without special reference to the splendid building in Cornhill which the company has recently provided for the accommodation of the head office staff in London. From an architectural point of view, the British Metropolis owes much to the great insurance offices. Of the numerous handsome buildings erected by these offices there is none more beautiful or impressive than the new headquarters of the Mutual Life at 16, 17 and 18 Cornhill, and anyone passing by will be repaid for the trouble of stepping in to examine this new triumph of the architect's skill. The old premises which occupied this admirable site, of which the company has purchased the freehold, were not entirely demolished under the scheme for the erection of the new building, and have to some extent been dovetailed into it. Considerable difficulties had to be overcome in doing this, but in the result Mr. J. MacVicar Anderson, past president of the Royal Institute of British Architects, has succeeded in producing a singularly handsome structure, the old building—in which, by the way, the company originally opened the branch on the mezzanine floor—having been entombed in a casket of marbles and alabaster.

Our space will not permit of a detailed description of the building, which must be seen to be able to form an adequate conception of the taste and imposing beauty which characterise the tout ensemble. Suffice it to say that the superficial area of the ground floor is no less than 3,500 feet, and in the accommodation for the clerical staff and the large body of agents, for whom provision has been made, nothing has been overlooked conducive to their comfort and efficiency.

When the company first opened the British branch its competitors naturally made as much as possible of the circumstance that all the vast funds of the company were invested in American securities. The answer that money could be invested more profitably in America than in Great Britain was of course complete, to say nothing of the fact that the leading British offices were proving this by investing largely in American securities.

The acquisition of the important freehold in Cornhill not only effectually disposes of the superficial objection referred to, but the splendid building thereon must be a valuable permanent business advertisement as well as a significant token of the magnitude of the British connection.

THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK.

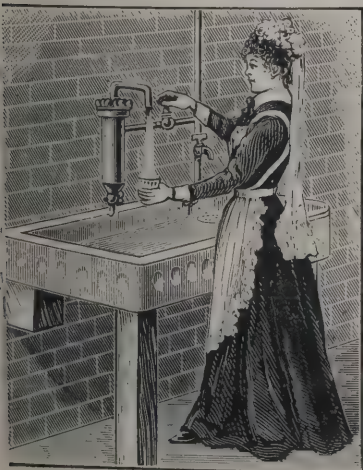
THE annual report of this gigantic concern is always interesting reading, and the statements setting forth the operations of the company for the past year will be read with no diminution of the world-wide wonder inspired by its remarkable career.

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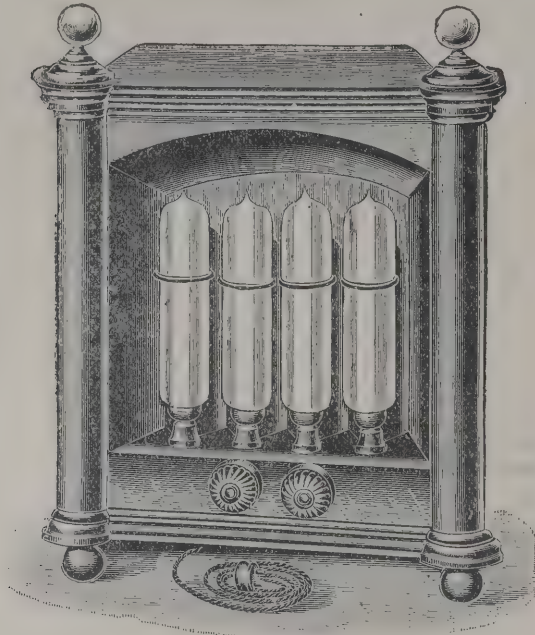
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THE HOUSING PROBLEM.

A CONFERENCE under the auspices of the City Improvements Department of the Corporation of Glasgow as to cheap dwellings was opened on September 24. The Hon. the Lord Provost (Mr. Samuel Chisholm, LL.D.) presided, and there was an attendance, says the *Glasgow Herald*, of about 160 delegates representing other corporations and bodies in the United Kingdom.

The Lord Provost, in opening the proceedings, expressed his extreme gratification that the invitation of the Corporation had been responded to by so many gentlemen from so many parts of the country. The housing they contemplated might be thus defined: it was the minimum of accommodation and convenience which every man and every family had a right to expect; and the poor were those who, by reason of their poverty would, if left to the ordinary law of supply and demand, be forced to accept less than that minimum. He knew that when he had stated the question thus he had seemed at once to raise a prior consideration which they must take to be settled before they began their discussion, namely, the query of the objector to their considering this question at all. Was there not a law of supply and demand quite sufficient to deal with the entire problem? or was there indeed any problem at all? or were they not making the problem by interfering with



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that fundamental and universal law? Now he knew there was such a thing as supply and demand, and he knew that they designated it roughly by the term of law, but he was not aware that it came rightly within the category of law absolute and determined, like a mathematical or arithmetical theorem. Within certain limitations he was personally a great believer in what was thus called a law, but he could never acknowledge it as a universal principle that this so-called law could safely be left to settle all business in all circumstances regarding all classes of requirements and between all classes of people. In order that the principle which the phrase was supposed to embody might work equitably, there would require to be, as he admitted there was in the great majority of cases, something approaching equality between the buyer and seller. As he had said, in most cases this state of things existed. If an article exceeded the price they could afford they could do without it, or they might get something to serve in its stead or wait for a change in the market. But none of these considerations applied in the case of housing. The demand was imperious and brooked no delay. As a matter of fact and experience, the unimpeded action of the law of supply and demand had built up all our back lands, had crowded tenants on one stairhead, and, if a sterner law than itself had not interfered, would have perpetuated those narrow lanes and dark closes and sunless, dark rooms which were a scandal to our social condition. Leave landlords alone and that so-called law of enlightened self-interest would lead them to compete with each other as to who could afford the best possible accommodation at the lowest possible price. Experience of many generations had taught all the great cities that that was not so. The cry of the unhoused—and he called those unhoused who lodged in houses already sufficiently full without them, or who were lodged under conditions and with environments that were a violation of every sense of decency and propriety—the cry of the unhoused and of the insufficiently housed was one which, neither as individual citizens nor as a municipality, which neither as humanitarians nor as Christians, could they afford to neglect. In regard to the parties for whom that provision was required, the question arose, whom did they mean by the poor? The poor might be divided into two somewhat rough classes—those who were poor through small wages, inadequate to meet the necessary demands of their circumstances, and those who were poor because they mispent perfectly adequate remuneration. Now the only difficulty in relation to the last class and in relation to the ruling of them out of consideration

altogether was, to his mind, the presence of the children. But even so, he felt compelled to say that while there might be reason for change in the law of the land that would enable those children to be taken from their unworthy parents and the parents compelled from their adequate earnings to pay for their decent accommodation, that might be open to discussion at another time and under another head; but he could not say the duty rested on anyone to provide for the needs of the self-imposed and perfectly avoidable poverty. These, then, were the views he cherished in regard to the terms of the question they were met to discuss. He could only express the hope that the various papers to be submitted to them and the discussion that would follow thereon would be of such a kind as would contribute not only to deepen their interest in the question, but to point out to them more clearly perhaps the best method in which this problem could be solved.

The Acquisition of Land and Capital.

Preceptor Gray, Glasgow, opened the discussion by reading a paper entitled "Suggestions as to the means of acquiring at lowest possible cost the land necessary for erection of cheap dwellings and obtaining the capital required for the purchase of the land and the erection of the buildings." It was universally admitted that the provision of cheap dwellings was not only the most pressing, but the most difficult, problem that our large towns had to face, affecting, as it did, the vital interests of the largest proportion of our population. In Glasgow they had a population of one or two apartments. Out of 156,000 occupied houses in Glasgow, 36,000 were houses of one apartment, and 70,000 are houses of two apartments. The great difficulty in large towns was to obtain land cheap enough, or, indeed, perhaps at all, for the purpose. It was said, "The earth is the Lord's and the fulness thereof," but we had come to experience in this hard work-a-day world that the earth belonged to someone else. In good Queen Anne's time an Act was passed which declared that to every labouring man's cottage there must be allotted at least four acres of land. What a degenerate age we have fallen upon, when we think of the neglected and huddled-up humanity in our cities. His object was to give suggestions for obtaining the land necessary and the capital necessary for the erection of cheap dwellings. His points were:—(1) Voluntary effort; (2) proper utilisation of present land; (3) duties of Corporation; (4) duties of Parliament. (1) This might well be done by voluntary effort in the method originated by Peabody,

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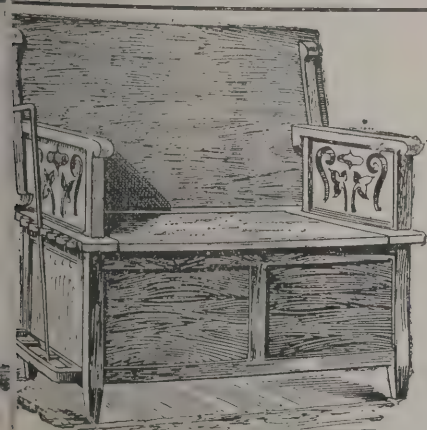
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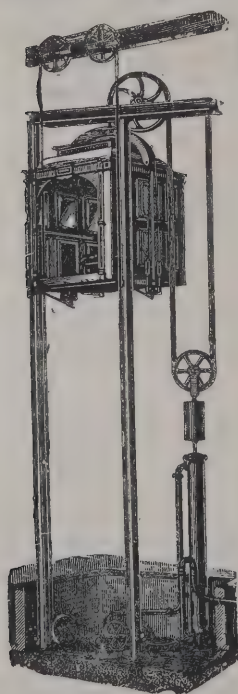
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Guinness, and in later times by Cadbury, of Birmingham, and other captains of industry, in securing, as they did, land and erecting buildings, and limiting their use to the labouring classes in receipt of limited incomes, and doing this not for profit. There was no way in which millionaires could so well perpetuate their names as by securing building areas, laying them out, either building themselves or leaving it to the municipality to build houses for the class that was the subject of their solicitude, and when erected to be managed by the municipality as trustees for the public. His second point was that municipalities should have power to call upon owners of slum property to clear the land of what he would call diseased property, which is a menace to the health of the population; that before being allowed to let it they should have a certificate of its suitability. It was not sufficient to shut the properties up. The ground should be brought into public use, and if the Corporation resolve to acquire it they should not require to take it over according to rental, but at the value of the land, after consideration of its surroundings, and the erections as old material. His third suggestion was that local authorities, when securing land for parks or other public purposes, as Manchester did the other day, should see that it was secured untrammelled with restrictions against building, so that a fair proportion of the land may be dedicated to the purpose of building houses for the workers. His fourth suggestion was that they should have increased powers over owners of land. We had on the borders of our large towns tracts of land held by hereditary and other landowners, who could wait, and were waiting, until the trade of the city increased the value ten or twenty fold, and they meantime paid assessments on only one-fourth of its agricultural value. This land was held speculatively for a rise. It was high time that the powers recommended by the Housing of the Working Classes Act, 1885, and the recommendations at a local inquiry, 1890, and, indeed, included in one or more Bills recently before Parliament, should be pressed forward, so that ground might be more and more forced into the market. These were not unfair powers. He could take them to places in neighbouring counties where, when the breadwinner of the family died, the widow and the family were compelled to leave the homestead, and betook themselves to the crowded town rather than that the family should become a burden to the county laird. He said, therefore, that the landed gentry must face the responsibility of furnishing to our town councils a resting-place and home for God's poor, and that a determined and increasing

effort should be made to get full Parliamentary powers for this purpose. Parliament had been niggardly in passing legislation. They must have Parliamentary powers for acquiring land here and there as opportunity offered, not necessarily for immediate use, and without the 10 per cent. for compulsory purchase. Political leaders in opposite camps, such as Mr. Chamberlain and Lord Tweedmouth, had expressed their support of this. We should also have cheaper legal transfers. He prayed that at this representative meeting joint, sharp, immediate action would be taken; that they should not allow Parliament to trifle longer with the question. Large powers were required. Landowners had had the shield of Parliament too long.

Councillor Burt, Glasgow, also made a contribution on the same subject. He explained that the Corporation of Glasgow had experimented a good deal in their efforts to solve the problems indicated, but they appeared to be no nearer the solution than when they started. The difficulties were increased by the position taken up on the question of the land. Two problems were involved, and until they realised that along with the housing of the poor they had to take the question of the abolition of poverty, they were not likely to reach any real practical solution. The Commission referred to recommended a tax upon land held idle or unoccupied. Such a tax would attack the monopoly power of the landowner to keep the land out of the market, and would lead to increased competition among those using the land for the erection of dwellings. The anxiety to get tenants would bring down rents. He urged that a strong and united appeal should be made to Parliament for this reform, in favour of which Glasgow and other municipalities had petitioned. He did not think the acquirement of capital for that purpose presented any difficulty. The Corporation of Glasgow had borrowed money at as low a rate as $\frac{1}{2}$ per cent. per annum, and he did not think they could wish to acquire capital on better terms. The one question that stood in the way was the acquisition of land. Now, without going into detail, the one solution of the question went in the direction of imposing a tax upon the value of land whether it was held idle or whether it was used. People said this was an infringement on the rights of property; but this he denied. The value of the land was increased by the community, and they had a right to that which they created. The greater the prosperity of a city the more the value of the land around it increased, and until they could solve this question they would seek in vain for any solution of the difficulty. He hoped, therefore,

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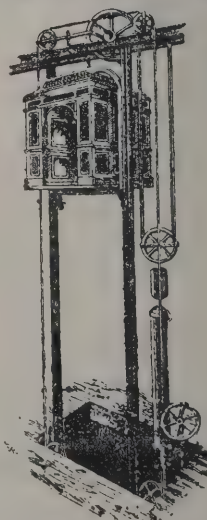
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that the conference would agree to some practical resolution on this question.

Construction of Houses.

Mr. A. B. M'Donald, city engineer, Glasgow Corporation, read a paper on "The materials usable for and the various feasible modes of construction which could be adopted in the erection of suitable dwellings, either by way of small cottages or flatted houses, at the lowest cost, and whether the different kinds of work required in the erection of any such buildings should be let to a single contractor or several contractors." He said the purpose towards which the paper was directed was not the discussion of the materials of construction best adapted for what were usually described as dwellings for the working classes, but one quite different and apart—one which, so far as he was aware, had never been crucially investigated—one which had been assumed to be incapable of economic solution, and which had recently been spoken of as outside the province of municipal effort. He meant the rehousing of that nethermost unit of the population whose lives were passed under conditions that ignored alike decency and comfort, whose dwelling, devoid of all the accessories of a home, was the normal refuge of zymotic disease, and whose existence was a continual menace to the public health. Could that unit be displaced and rehoused under improved conditions without involving a charge on the community? If the question was regarded dispassionately, scrutinising its terms with the same rigour as was employed in dealing with a problem in applied mathematics, it had always seemed to him that the answer was affirmative. But the investigation must be entirely divested of sentiment. The figures which expressed the present conditions of the problem were easily understood when it was borne in mind that the law required 400 cubic feet of space to be provided for each adult inhabitant, and a glance at the reports supplied to the sanitary inspector showed how this requirement was transgressed. The instances were innumerable, but one or two might suffice for the present purpose. A house of one room in Marlborough Street rented at 1s. 10d. per week with space for three adults, was found to contain six, of whom four were lodgers, the cubic space available for the six persons being 102 feet for each. In Garngad Road a house of one room, certified for three grown persons and a child, had six adult occupants and two children, five being lodgers, the cubic space to each being 217 feet. In South Coburg Street a house of two rooms, rented at 2s. 6d. a week, with space for three adults, was found to contain seven and two children, five of the grown-

up persons being lodgers, the average cubic space in this case being 171 cubic feet. In Garngad Hill a house of one room, rented at 2s. 1½d. per week, large enough to accommodate two adults, had five and five children, three inmates being lodgers. The cubic space in this case falls to 100 feet for each person. There were other and worse cases, but these displayed the circumstances in which our nethermost unit found habitation, and comment was surely superfluous. It needed not to be said that such a type as that could not be housed in the same manner as the occupant of the improved dwellings that had been provided by the Corporation. On the contrary, the first thing that was imperative in considering the case was to realise that our present-day arrangements and methods of construction could not be applied to it at all. By overcrowding, under the stress of poverty or otherwise, the occupants of the houses just referred to had practically reduced the rent-charge to a half and a fourth of what the landlord exacted, so that the last-named tenant's figure worked out at 6d. per week. To provide for him a new house at that rate in which he could live under conditions that satisfied the law was clearly impossible, even if the site of the building were to be obtained for nothing. The only way in which the housing of persons of this class could be approached was to recognise that the habitations to be provided for them must be structures of a special type wherein everything was reduced to the simplest form, and everything that was not absolutely indispensable must be discarded. A weatherproof shelter with ample space, with water supply and sanitary accommodation, but little more; the whole details so rigidly plain that some relaxation of the Building Acts might be required should the erection of the houses be resolved on, but a clean, healthy dwelling in every way preferable to the abodes of squalor and misery in which the nethermost units were huddled together at the present time. The plan submitted showed the arrangements of three different classes of houses of this description, houses of one, two and three apartments; and the general plan showed how they might be arranged in a comprehensive housing scheme. The method adopted was balcony access with a central stair. There were ten apartments on each floor, or thirty in each tenement, as it was not suggested to carry the building higher than three storeys. Every single-room house would possess 1,200 cubic feet of space, without measuring the bed recess. The walls were intended to be built of common brick with a hollow space for better protection from external cold. The partition

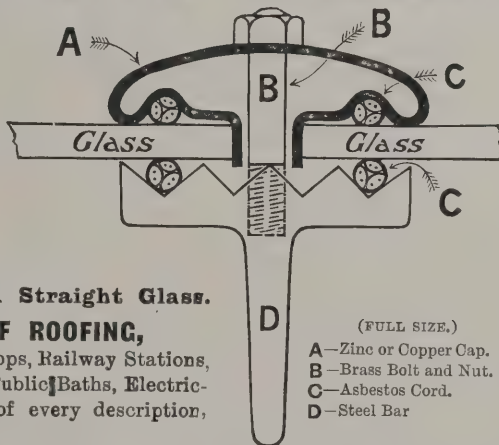
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walls were also of plain brickwork. A tenement of that construction could quite easily be erected for 1,100*l.*, and the houses, let at 1*s.* per room per week, would yield a rental of 78*l.* per annum. The extent of ground required for each tenement would be 680 square yards, including the proportion of street ground in front of each, but not the ornamental space. Writing off the rental 25 per cent., and charging interest on the cost of erection at 3½ per cent., there would remain a surplus sufficient to meet a charge of 10*s.* per yard for the site. Work of that description, if it was not undertaken by the Corporation employes, ought to be let to one contractor, able to deal with the different tradesmen engaged. If the providing of such houses on a comprehensive scale were undertaken, the cost of construction would be reduced sufficiently to meet all charges for laying-out and paving the streets and adjacent spaces. There were localities in Glasgow not far removed from industrial centres where land could be acquired for a lower price than 10*s.* per square yard, and it was submitted that the plan now laid before the Congress exhibited a method of providing, without loss, a cheaper house than had yet been placed within the reach of the poorest class.

Mr. John Harrison, Glasgow, in opening the discussion upon the three papers, said that Mr. McDonald had wiped out all that Baines Gray and Burt had said by informing them that the class whom they were discussing could not be housed in the ordinary way even if they got the land for nothing. The Glasgow Workmen's Dwellings Company had bought land at 2,500*l.*, and erected buildings which cost 17,000*l.* The advance in the cost of building material was the cause of the great cost of building. It was, therefore, quite impossible for ordinary builders to erect houses for the class aimed at as an ordinary commercial speculation. In London the experience had been exactly the same, with this little difference. Miss Octavia Hill did not pull down and build, but took the slum property as she found it and began to improve the desires and the habits of the people, and as they improved she improved the dwellings. He also quoted the experience of the Glasgow Workmen's Dwellings Company. He urged that the evidence both from Glasgow and from London showed that Baines Gray and Burt were entirely astray in imagining that the whole of this question was merely a matter of cheap ground, and that the whole thing was to drive the land into the market so that a panic might ensue, out of which a solution of this huge problem would be found.

Alderman Newton, Newcastle, said that he did not gather from the contributions of Baines Gray and Burt that they looked upon the land question as the sole solution of the problem. Local authorities required to be placed in a position to secure land upon which to erect houses for the very poorest on the easiest terms. The present period of thirty years for repayment of loans was not long enough. When the scheme which they were endeavouring to formulate was submitted to the Council of Newcastle they would have to show that it was upon a business as well as a sanitary basis. In common with all old cities, they had many slums in Newcastle which must be swept away. As a medical man he had had considerable experience of the slums and their occupants, and he recognised that not only moral but physical diseases were the outcome of slum life. Mr. McDonald's paper was a revelation to him, and he hoped the scheme would be realised.

Councillor Walters, Leicester, said that a grievance the Corporation he represented had in working under the Housing Act was that they had to create a sinking fund for the repayment of principal and interest within a certain period of years. He thought instead they should be allowed to treat the land on a rent basis. Then if they were to erect cheap dwellings for people directly which could be let at 1*s.*, 1*s.* 6*d.*, or 2*s.* 6*d.* a week they must abandon the by-laws of the Local Government Board. They could not possibly build houses with walls 14 inches thick when speculators built walls 9 inches thick. Then he would extend the period of repayment of loans. He would suggest therefore, first, that they should be allowed to pay rent for the cost of land; second, that instead of attempting to build according to the regulations of the Local Government Board, they should be allowed to put up inexpensive, plain, unpretentious, substantial structures, and third, that the term of repayment should be extended over fifty or sixty years.

Councillor Martin, Woolwich, said that the course followed in that borough was that before any great clearance scheme was undertaken provision was made outside, where there was room for those who were displaced. They had advocated the building of houses not necessarily for slum-dwellers, but for the class often known as the aristocrats of labour. That class being withdrawn from the congested areas, space was left for those who were displaced by the improvement scheme. Some would object to the municipality having the pick of the tenants. That was the difficulty of those who believed absolutely in the law of supply and demand, but he agreed with the Lord Provost that the law of supply and demand did not operate in such a manner as to satisfy the first requirements of the human family. Then a suggestion made in Woolwich, as in London generally,

was that they should get closing orders against the slum landlords, leaving it to them to rehouse the people under proper conditions. With regard to Councillor Burt's view, they all knew that in all large centres open spaces were held for a rise. Now, he had no objection to the taxation of land values as a means of increasing the revenue of municipalities and of forcing land into the market. But by doing so they would shut up a number of open spaces before the municipality had provided other breathing spaces in crowded areas. He wished further to mention that the London County Council had extended the term of repayment to a period of sixty years.

Mr. Richards, M.P., said that in his constituency were to be found the Peabody Buildings, and in another part, through the generosity of Lord Iveagh, houses for working people had been provided. As a member of Parliament, he could say the two gentlemen who opened the discussion were beating the air, and if they were to wait till they got better houses and better laws before they dealt with this question, he must tell them that so far as the present Parliament was concerned there was no opportunity whatever of that being accepted. But if there could be any further dealing with the owners of slum property he was perfectly certain that Parliament was prepared to meet the municipalities in a practical way. As for taxing ground values, that was beating the air, and it would not solve the question. Parliament had passed last session without the slightest opposition an Act to allow county councils and municipalities to acquire land outside their areas for the purpose of erecting work dwellings. A month ago he came to Glasgow and went through those buildings the members of the conference were invited to visit, and he could unhesitatingly say that in those on Haghill they would see a solution of the question of dealing with the humble poor. He agreed with the Lord Provost that there was a class of people who lived in insanitary areas whom he did not think it was their duty to provide for. The persons who lived in slum dwellings and who spent one-third or one-half of their wages in drink were not the persons the municipality was to provide for in giving them better houses. The class they had to deal with was that of the humble poor—women who were earning only 2*s.* 6*d.* a day, and men, the casual labourer, whose wages did not exceed 18*s.* to 23*s.* a week. These were the people that it was the duty of the municipality to provide for. The duty of the municipalities was to close these slum dwellings and to provide for the displaced population in some way. He said he agreed that the Local Government Board should be approached on this matter with the view of reducing their requirements for the cheapest class of houses, and he was perfectly certain that Mr. Long would meet the municipalities in a fair way; but if they were to keep back this reform till Parliament passed certain Acts, then they were delaying reform. A year ago a candidate for Parliamentary honour pledged himself to deal with that matter, but up to the present time he had not yet seen any Bill.

Preceptor Gray: Is that Mr. Macrae?

Mr. Richards said he was not going to mention names.

Preceptor Gray: He has prepared his Bill, but there is no chance in the present Parliament.

Mr. Richards said he had not yet seen the Bill.

Mr. Murray, Tynemouth, said any Corporation which made a move to do anything in the shape of improving the condition of the poor was met with several difficulties. His idea was that when the Corporation had shown how houses could be provided, that should be put before builders as an example. At present the poor people were not given facilities to keep themselves clean, and the consequence was that a poor man with a wife and four or five children had to pay a rent of from 5*s.* to 7*s.* 6*d.* a week, and how was a man with 30*s.* a week to pay that? As the Glasgow Corporation had put up better dwellings he thought they could ask the landlords and builders to put up a better class of houses.

Councillor Turnbull, Sunderland, said he agreed with Mr. Gray, but he did not agree with Mr. Burt as to the value of the land in towns. In his own town they had been trying several years to get a Bill to take in a place within a mile of the centre of the town, and they had been refused. As the land inside Sunderland, it would cost 1,000*l.* to 1,500*l.* an acre, while a couple of miles outside it could be had for 500*l.*

Mr. Clark, Shoreditch, said he would like the conference to place on record their emphatic protest against the hindrances placed in their way by central authorities. He was convinced if the Local Government Board were as sincere and earnest as members of Parliament tried to make out, they would be able to get on very much quicker. Another difficulty had recently arisen in connection with another scheme the Council of Shoreditch were endeavouring to do. In order to enable them to make the best possible use of the land and give the working people the benefit of cheaper dwellings, they proposed to let shops in the property. The Local Government Board refused to sanction that, so instead of the working classes having to pay 15*s.* per week they would require to pay 24*s.* He mentioned that fact to show how impossible it was for municipalities to

the best intentions to carry out work of that kind. He disagreed with the idea that it was possible to improve the slums in London, as he believed the only cure for these was to sweep them away. There were two separate lines on which to act. The first was to act under the Public Health Act with a clearance scheme, and the other was to go on with a housing scheme for the poorer classes.

Mr. D. S. Waterlow, chairman of the housing and working-classes committee of London County Council, remarked that they could very well do in the Metropolis with a few thousand Miss Octavia Hills. The gentleman who mentioned her work, quoting from a report on Miss Hill's work, said that if they could buy land at 45s. per square yard they could house people in London in a tolerably satisfactory manner. These figures were more or less accurate. But what Mr. Harrison did not mention was that it was impossible in the more crowded and central areas of London to acquire land at anything like that price. As a rule the London County Council had to pay for clearing an insanitary area between 15s. and 17s. per square foot, and when it was cleared it was worth for ordinary commercial purposes in the more crowded and central parts of London, roughly, 10s. per square foot, and for housing purposes 15s. per square foot. As to the sinking fund, he urged that they should have an extension even beyond sixty years, the period in London. On block dwellings the period should be eighty or one hundred years, and they should have exemption from sinking fund on the land until after the buildings were paid off. As to insanitary property, he quoted an instance in Hackney in which a widow's rent had been raised from 6s. to 8s. and then to 10s. a week for two abominable rooms, and the tenant stated she was unable to remove as there was no other accommodation available. If they acquired that area as insanitary under the Housing of the Working Classes Act they would probably have to pay on the basis of the final rent charged apart from compensation for removal. It was not fair that a man should have such power, and if some method could be devised to meet that difficulty it would be extremely valuable.

Councillor Steele, who presided in the temporary absence of the Lord Provost, mentioned that in Glasgow sixty years was the term for repayment both of land and property.

Mr. Fildes, of the sanitary committee of Manchester, said that they must admit that voluntary effort so far had done what municipalities had not been able to do. Private effort could do about quietly seeking plots of land, and get them at a reasonable price, but owners when they heard a Corporation had

fixed upon a particular plot put up the price to an almost unbuyable figure. Companies in London, Glasgow and Manchester were all dividend-paying concerns, and they wanted to show that corporate bodies could follow on similar lines, which meant that nothing would have to be paid out of the rates. He was against the Corporation management of properties acquired by voluntary effort.

Councillor Page, Plymouth, said that in that borough they had spent 100,000*l.*, but they had failed in dealing with the housing question so far as the wage-earners of 1*l.* a week were concerned. They had purchased land at 6*d.* a foot, but on account of the stringent by-laws of the Local Government Board they had failed to provide accommodation for the class to whom he had referred. The houses they had erected could be occupied only by men who were earning from 30s. to 40s. a week. Private owners did not look for a sinking fund—they were content with the value of the property. He thought municipal corporations should take a leaf out of their books.

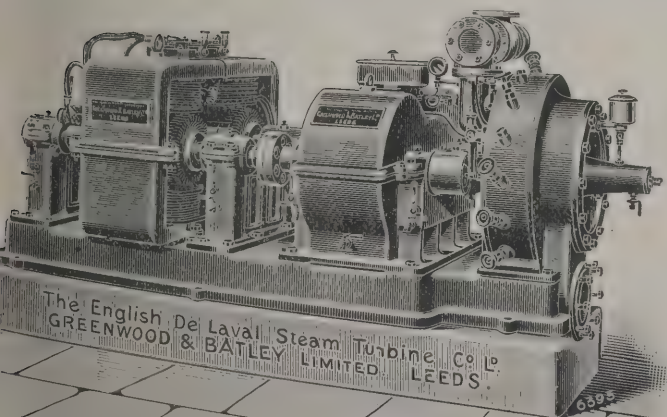
Bailie W. F. Anderson said if they were to provide cheap houses for the people, the first thing they must do was to get cheap land. He did not understand why Government should give County Councils power to acquire land compulsorily at valuation to bury the dead, and yet fail to give them a similar power to house the living. Then, again, if Government gave powers to acquire land with insanitary property upon it, why would they not give them power to acquire unoccupied land? The Glasgow Corporation had power to extend repayment of loans over a period of sixty years, and why should the English municipalities be hampered by the Local Government Board? Then he saw no necessity for a sinking fund for the purchase of the land. The days were past when people could steal the land. In populous centres experience was that land became more valuable. Then with regard to the remarks of Mr. Waterlow as to the character of the insanitary property in Hackney, he asked why such property should not be shut up? By the system which existed a premium was put on slum property. Insanitary property should be demolished, and local authorities should have power to take the land at a fair valuation. He quoted the power contained in the Glasgow Local Act, and suggested that their English friends should follow the example of Glasgow, and get private Acts for themselves.

Mr. Taylor, L.C.C., said he thought the freeholder should be made responsible for the condition of slum property. He held further that local authorities should have power to buy

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lands in advance, as, for instance, with a view to tramway extension. The London County Council had paid no less than 100,000*l.* per acre for land, and had erected houses for the working classes costing at the rate of 100*l.* per head.

Dr. Scourfield, Sunderland, asked whether the Glasgow authorities had been able by the buildings which they had erected to solve the question of dealing with the class referred to by Mr. Page—the class who earned 20*s.* a week.

Councillor Mitchell, Greenock, asked if any practical result was to come of the discussion.

The Chairman (ex-Bailie Steele) said that to-morrow at the close of the conference a series of resolutions would be submitted for consideration of the delegates.

Mr. Gray and Mr. Burt then replied on the discussion. In the course of his remarks Mr. Burt said that Mr. M'Donald had described a building which might be fit for a doghouse, and he would not trouble himself with the matter if the outcome of all their discussion was to be the erection of such miserable dwellings for the people.

The Chairman said that although in Glasgow they had been striving to do a great deal, they were satisfied they had not solved the question of dealing with the class to whom Dr. Scourfield referred. They had erected cheap houses, but the fact that they had called the conference was an evidence that they were not satisfied.

The Congress adjourned for luncheon, and on resuming a representative committee was appointed to draft a resolution embodying the views expressed, to be submitted to the conference.

Papers were also read on "Caretaking of Property," "How to Clear Congested Areas," "Farmed-out Houses," "Slum Properties," "Hygienic Requirements of Building," "Cheap Means of Communication."

The following resolutions were adopted:—

1. That this Congress is of opinion that the better housing and the providing of cheaply-constructed, but improved dwellings for the population, and also of those to be displaced by the closing up and demolition of slum properties in unhealthy and congested areas are questions which call for urgent action on the part of municipal corporations and other local authorities within the United Kingdom, and that the time has now come when more extensive and unfettered powers than those which the Legislature has hitherto granted should be conferred upon municipal corporations and other local authorities in relation to such questions.

2. That for the purpose of enabling municipal corporations and other local authorities throughout the United Kingdom to deal expeditiously and effectively with the better housing, the closing up and demolition of slum properties in unhealthy and congested areas, and the providing of cheap but improved dwellings for the accommodation of the population, and also of those to be thereby displaced, and to purchase the land and borrow the capital moneys required for the objects indicated, this Congress is also unanimously of opinion that further and immediate general or private bill legislation is necessary and expedient in the directions following, viz.:—(1) That simpler and less costly machinery should be devised and sanctioned by Parliament for enabling local authorities to put in force and carry out the provisions of the Housing of the Working Classes Acts; (2) That authority should be given to municipal corporations and other local authorities to acquire, at its market value, by as simple and inexpensive a method as possible, and without any allowance for compulsory purchase, land for the present or prospective erection and maintenance of dwellings for the population to be displaced by the abolition of slum properties; (3) That any sinking fund required to be set apart for repayment of moneys borrowed for such purposes should apply to the cost of buildings only and not to land, and should be extended over a period of not less than sixty years; and (4) That municipal corporations and other local authorities be empowered to build such buildings in accordance with their own by-laws, and not be required to satisfy the requirements of the Local Government Board.

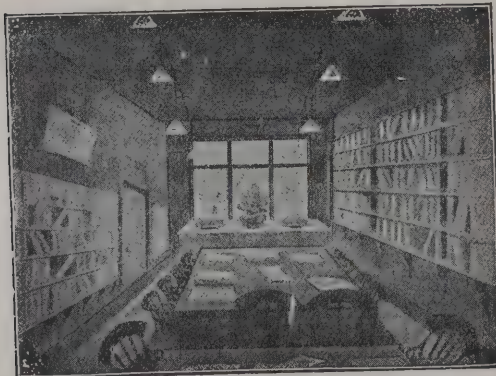
3. That a joint representative committee be appointed by this Congress for the purpose of adopting such measures as may be deemed requisite or expedient for bringing the several matters referred to in the first and second resolutions under the consideration of Parliament, and for obtaining remedial and supplementary legislation thereon.

The committee was then appointed as follows:—Glasgow, the Lord Provost of Glasgow, Mr. Samuel Chisholm, LL.D., Councillors Steele and Gray; Edinburgh, Bailie W. S. Brown, Dean of Guild Ormiston; Dundee, Bailie Elliot; Aberdeen, Councillor Cooper; Plymouth, Councillor Page; London, Mr. D. S. Waterlow and Mr. R. Y. Taylor; Manchester, Alderman M'Dougall and Councillor Fildes; Liverpool, Councillors M'Guffie and Colton; Newcastle, Alderman Newton; Sheffield, Alderman Carter; Dublin, Alderman Wm. Doyle; Sunderland, Alderman Harrison; Leeds, Alderman Lupton; Leicester, Councillor Walters—the Lord Provost of Glasgow convener.

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THE WEEK.

NEARLY five years have elapsed since we commenced the continuous publication of illustrations of the English cathedrals. At the time Gothic was believed to be almost completely obsolete as a style, especially for modern buildings. There was, however, little difficulty in reviving the admiration for a variety of architecture which had more claims to be considered national than any of those which had been superseding it. The success we obtained encouraged us to proceed, and for the first time the English cathedrals were represented with an amplitude that had not been hitherto attempted. There was no effort to exalt the details beyond their genuine character, for the photographic process could only render masons' and stonecutters' work with fidelity. From the communications we received from time to time we have been gratified to find that the influence exerted by our series has been extensive. Gothic, as displayed in nearly twenty cathedrals and in Westminster Abbey, has been repopularised not only in this country, but in the colonies and in the United States. As a sign of the new revival of admiration for English work it is satisfactory to learn that the committee for the contemplated Liverpool cathedral have further shown their wisdom by deciding that the building is to be in the Gothic style. It seems to us almost incomprehensible that anyone should have anticipated the adoption of a different style. With the exception of St. Paul's all the cathedrals of England are Gothic buildings, and it would be unworthy of so conservative a city as Liverpool to show less respect for the national architecture of the country than the people of Truro some years back. St. Paul's is not Gothic for two reasons. First, WREN was not an admirer of the style, and, secondly, it was anticipated that the building would be used for a ritual different from that followed in the other cathedrals. But in our time there are no difficulties of that kind. Nor can it be said that the Gothic style is unfitted for the services which will be held in the new cathedral. The style is one which is most adaptable, and the business men who form the committee are not likely to approve of plans which are unfitted to meet the requirements of congregations. The question is not whether Gothic or Renaissance is better adapted for ordinary use. It is simply whether a custom that has prevailed for over 700 years should be set aside through a desire for novelty and a weakness for experimenting.

ONE effect of the taxation of gardens and open spaces in Paris will be the transformation of "La Murette" at Passy—ground which at one time was a royal property. It adjoins the Bois de Boulogne and has had an interesting history. It now belongs to M. de FRANQUEVILLE, the president of the Institut. Having found that he would have to pay 100,000 francs a year for a property that he only occasionally occupied, he has decided that he will abandon "La Murette," and the beautiful grounds will be sold in lots for building unless the State can acquire the possession. The district of Passy is crowded with villas, and "La Murette" was the last open space belonging to a private owner that was found in that part of Paris. As royal property "La Murette" was sold in 1803 to SEBASTIAN ERARD, the maker of pianos. When LOUIS XVIII. came to the throne M. ERARD offered to restore the property to him, but the king would not accept it. At the present owner's invitation it was often visited during late years by the savants, scholars and artists of Paris.

As the time is drawing nigh for the opening of the Salle in the Louvre, which is to contain the invaluable examples of goldsmiths' work presented to France by the late Baron ADOLPHE DE ROTHSCHILD, the eagerness of the public is becoming more urgent. It is, however, doubtful whether the collections can be seen in the present year.

The Salle has to be put in a condition befitting the precious contents. The ceiling will be covered with one of carved wood, which was purchased in Venice. The floor will be in elaborate parquetry, and the walls hung with Flemish tapestry and other costly stuffs. It is doubtful whether any gallery in the world will be able to display so many examples of genuine art in the precious metals. One of the latest additions comes from the Baroness ADOLPHE, who has presented a Venetian reliquary in gold of the fifteenth century, and which, on account of the beauty of the details, is of untold value.

IT seems incredible that so important a public memorial as that erected in honour of the late Prince CONSORT in Hyde Park should be neglected. The London atmosphere is no respecter of persons or works of art, and the Albert Memorial appears to be destined to the common deterioration. Only thirty years have elapsed since it was completed, and yet Mr. R. M. BEACHCROFT has reported that during a visit on Sunday last a shower of mosaic from one of the gables fell at his feet. He was also informed that such a fall is of frequent occurrence. Some of the statuettes have been already disfigured owing to the softness of the marble, and the railing and gates are in a neglected condition. So elaborate a structure was unfitted to be placed in the open air of London. The delicate detail and the variety of materials employed appear to offer facilities for the inevitable process of disintegration, and only good work could have stood so long. On the other hand, it should be remembered that restoration is particularly difficult. Scaffolding would be regarded as an eyesore, and it would not be easy to employ a movable platform, from which reparation would be practicable as soon as needed, and which could be taken away when the work was executed. The Memorial, however, deserves careful attention. When decay once begins, it is apt to advance with unsatisfactory speed, and, in order to preserve a work in which so many artists co-operated, it may be necessary to enclose the Memorial in a shrine of glass, which would not be inappropriate in Hyde Park.

FROM the official report of the Ontario Bureau of Mines it appears there was an increase of 67,069 dols. in the value of the building materials produced during 1900 over those of 1899, the amounts for the respective years being 2,688,351 dols. and 2,621,282 dols. Part of the increase may be attributed to a rise in prices. There was much more Portland cement manufactured in 1900, the amount being increased by 70,117 barrels of the value of 136,749 dols. During 1900 cement to the value of 249,280 dols. was imported from Great Britain, Belgium coming next, the amount being 156,213 dols. The cement from the United States is not prized in Canada, for the value of the imports was 55,569 dols., being less than Germany. In 1899 the value of the British cement was 125,778 dols., the import was therefore nearly doubled during last year. It is pointed out, however, that as about 270,000 tons of cement, principally from Belgium, is used in Great Britain, the gain in Canada is balanced by the diminution of the home trade.

A SOCIETY has been founded at Glasgow under the title of "The Glasgow and West of Scotland Technical College Architectural Craftsmen's Society," which is to consist of students who have attended any of the courses of building construction or of the architectural classes of the college. The annual subscription is fixed at the small sum of 2s. 6d. a year. The meetings will begin to-day, when Mr. M'KISSACK, the president, will deliver an address. Papers on the following subjects will be discussed during the session:—"The Housing Problem," "Timber," "Foreign Competition in the Building Trades," "Hotel Planning and Construction," "Tiles," "The Highlands of Central Europe," "Hospital Planning and Construction—Stone and Brick," "The Renaissance of Scotland," "Glasgow International Exhibition, 1901," "Prevention of Damp in Walls," "The Sewage Disposal of a Country House."

THE LATE JAMES BROOKS.

WHEN it was supposed that the competition for the contemplated cathedral at Liverpool was to be limited to six architects who were practised in the Gothic style, it was generally agreed by those who discussed the subject that JAMES BROOKS would be one of the first to be selected. He had taken part in the former competition and had produced an impressive design. He was, however, destined not to share in any more architectural contests, for on Monday last he died at his house in Stoke Newington. As he was born in 1825 he was in his seventy-sixth year.

JAMES BROOKS could be described as belonging to the old-fashioned race of architects. He was essentially a

cachet in the disposition which prevented them from being confounded with the numerous Gothic examples that were to be found in the district. The other buildings were more in keeping with precedents. It was not difficult to say whence a certain doorway, or window, or steeple was derived. Men who were faithful to models or parts of models sometimes would say that JAMES BROOKS's works were less "pure" than their own; and he would himself agree with them. The truth was he did not believe in extracts, however elegant. His mind was infused with the Gothic spirit, and he no more cared to be considered a faithful imitator of ancient examples of architecture than of the phrases of CHAUCER or GOWER in his everyday speech.

What seemed to him to be the first requirement in



Photo by Elliott & Fry.

THE LATE JAMES BROOKS.

modest man, and shrank from opportunities for taking a prominent place in the eyes of the public. He never appeared to be desirous of impressing a stranger with the belief that he was called upon to do a great work, and was endowed with the abilities which were necessary for its completion. And yet it could not be denied that his buildings, and especially his churches, have a place apart in the architecture of our time. Country architects who went in search of his work in the east and north-east of London used to say they did not require to ask whereabouts in the out-of-the-way region were the churches they sought. They were recognisable at a distant or partial view. The buildings often appeared to be unfinished and over plain, but there was an unmistakable

dealing with commissions was to realise the intentions of those who were, to use a common phrase, "getting up" a church. We may be in error, but we have often fancied that JAMES BROOKS was not unwilling to make a sacrifice of his art if he imagined a more spiritual effect could be produced on beholders by means of another and inferior art. There are churches where the outlay on the chancel and its altar was out of proportion if judged by the ordinary scale. But if the worshippers, and especially the poorer among them, were more moved by the costly adornment of one particular spot, and were helped through their emotions in concentrating their attention upon it, the late architect would go as far as possible in carrying out that arrangement.

He realised that an effort was being made in districts

which were almost benighted, and in which the Established Church was a legal but unattractive power, to convince the people that a new manifestation of spirit was abroad, and which could exercise a benignant influence in edifying them; that is, in building them up for a new life, and in that work JAMES BROOKS was one of the most potent instruments. In his churches there appears to be an immanent relation between all the parts and the uses which they had to subserve. When we remember that the means at the architect's disposal were usually limited in amount and that the buildings had to be capacious, the results he attained are most remarkable.

There is always more or less risk when an architect succeeds in some great undertaking, and thus one often hears men who are envied complaining that the prosperity they had contemplated at one time had not arrived for them. JAMES BROOKS was able to accomplish more than his clients expected, and if art can be of any real use his buildings must have exercised some civilising power over masses of people who amidst their ordinary surroundings seemed doomed to be brutalised. The conclusion was, however, drawn by people who could afford to spend liberally on architecture that he was best adapted to design large, uncommon and cheap churches for semi-barbarous districts. Commissions for buildings in which it was not necessary, as it were, to count every penny, did not reach his hands so frequently as they came to men who cared little about the ecclesiastical provision for the poor and avoided meddling with the subject. It might even be imagined there was apprehension that JAMES BROOKS would have brought some of the characteristics of East-end congregations to churches which were to be costly if he were entrusted with the designing of them.

Hereafter, no doubt, it will be admitted that he loyally served a great cause, and devoted the whole strength of his powers to what he believed were the interests of the poorest classes of humanity. In spite of all the impediments which arose from the poverty of the districts, he contrived to raise buildings which the most fastidious critic must respect, and in which the scoffer feels impressed by the simple yet lofty character which they declare. Certainly no modern churches in London have received more careful study from his younger contemporaries than those with which JAMES BROOKS enriched Shoreditch and Hoxton. In other districts there is less of a contrast, and the endeavour of the architect is therefore less plain. It would have been an advantage if more of his buildings were to be seen throughout England, but enough of them exist to testify to his genius as an architect, and his zeal for the promotion of Christianity.

EARLY RENAISSANCE.*

WE may compare Mr. GOTCH's latest volume to a memoir on one of the geological formations. A work of that kind would follow out the beds throughout the country and would be exemplified by drawings of various physical features, fossils, and whatever else would enable the student to understand the present appearance and the history of the strata. Geologists in such cases try to make their survey exhaustive. It is a pity Mr. GOTCH did not introduce in his volume a map of England showing the position of the numerous buildings which he has described. It would then be manifest how large a part of England it was necessary to explore in order that the reader should be able to realise with certainty the character of the treatment which can be classified as Early Renaissance. With the exception of Bedfordshire, Cornwall, Cumberland, Monmouth and Durham, we have one or more examples from all the English counties. Northampton receives more notice than any of the others, but it is a county which contains admirable specimens of the style. Aid has been obtained from various sources for the illustrations, but the majority of them have been supplied by Mr. GOTCH who, when photographing, it is needless to say, always selected the points which display the most pleasing aspects of the buildings.

* *Early Renaissance Architecture in England*. A historical and descriptive account of the Tudor, Elizabethan and Jacobean periods, 1500-1625. For the use of students and others. By J. Alfred Gotch, F.S.A. (London: B. T. Batsford.)

Generally speaking the changes in the character of art in any country have been gradual, and, in consequence, it is not always easy to lay down lines of demarcation which will denote the various stages. But in England there seems to be definite means for determining the transformation from Gothic to Renaissance. WALPOLE, who paid more attention to the subject than the majority of inquirers, suggests that one factor was the rivalry between HENRY VIII. and FRANCIS I. The French king brought from Italy ANDREA DEL SARTO, PRIMATICCIO, CELLINI, LEONARDO DA VINCI and artists of less renown to adorn his palaces. HENRY tried to tempt RAPHAEL and TITIAN to visit England. He is said to have secured JEROME DI TREVISI, ANTONIO TOTO and BARTOLOMMEO PENNI, who was a brother of RAPHAEL's assistant. TORRIGIANO was by the king's wish commissioned to create the tomb of HENRY VII., and, according to CELLINI, he went to Florence in order to engage young artists. The sculptor offered to make CELLINI's fortune if he would accompany him to London. WOLSEY, it is said, employed BENEDETTO DA ROVEZZANO, a Florentine sculptor, to prepare a tomb for him, which was believed to be more beautiful than TORRIGIANO's, and apparently BACCIO BANDINELLI also prepared models for the same work.

With Italian artists engaged on important works there was a chance of Italian architecture gaining a footing in England. Grave and potent elders might imagine there was danger in the influence of foreigners, but, on reflection, English good sense must have convinced them there was not much to be feared from a few Italian artists. A corrective was also found in the employment of other foreigners. No Italian gained so much influence as HANS HOLBEIN, not only with the king but amongst the nobles. There were likewise Germans and Hollanders entrusted with artistic works about the Court. Mr. GOTCH is therefore justified in saying that "the character of Renaissance work in England during HENRY VIII.'s time inclined to Italian and the French version of Italian. After his death it inclined towards the Dutch version."

It could not be supposed that English gentlemen would at once set about the erection of new mansions in order to employ a few versatile Italians. In the sixteenth century buildings were the subject of much deliberation, for it was expected that a man's residence should serve for his posterity during many generations. Italian and foreign artists were therefore obliged to be contented with monumental work, and the Early Renaissance is described by Mr. GOTCH as starting with TORRIGIANO's altar tomb in Westminster Abbey. It was followed by various other tombs, and judging from the illustrations given in the chapter upon them, they showed signs of the style employed in subsequent operations on a larger scale. Evidently the foreign artists made concessions in order that their work might not seem too inapposite in Gothic buildings. That would be less difficult with Germans or Dutchmen who were familiar with modified Gothic. There was, however, generally a profusion of ornament. But in some cases the human figure was less gracefully modelled than it would be by TORRIGIANO, and grotesque figures are to be found which, if the work of Italians, reveal there was deterioration under English influences. On this subject we are told:—

With the close of the first half of the century we come to the end of pronounced Italian detail. The nature of the detail of the second half of the century is different; it no longer comprises the dainty cherubs, the elegant balusters, vases and candelabra, the buoyant dolphins and delicately-modelled foliage which are associated with Italian and French Renaissance work, but it indulges freely in strapwork, curled and interlaced, in fruit and foliage, in cartouches and in caryatides; half human beings have pedestals, such as were the delight of the Dutch of the time. But the extreme heaviness of the Dutch work was lightened in its passage across the waters, and the English workmen seem to have improved upon their later models as much as they fell short of their earlier. . . . In addition to the change in the character of the detail, we find a Classic rendering of strings and cornices more prevalent; doorways became frequently round-headed instead of flat-pointed, windows became square-headed, and all accessories parted with what remains of Gothic character they may have possessed in favour of a Classic treatment. But the general body of a building was less susceptible of change than were its particular features.

Mr. GOTCH next describes the development of the house-plan from about 1460 to 1635, or a period of nearly two centuries. As the numerous plans are drawn on the same scale, the comparison of them becomes easy. Between Great Chalfield, Wiltshire, which was built at the end of the reign of HENRY VI., and Aston Hall, erected between 1618 and 1635, there is a remarkable difference. In the first we have the hall approached through a passage called the screens, and also from the kitchen and servants' department. The hall was the most important part of the house, and the development consisted in a great measure in alteration of the relation between it and the other rooms. But when Aston Hall was erected the hall had ceased to be the general living room, and had become the principal entrance to the other apartments. In Burton Agnes, which was built in 1602-10, beside the hall we have spaces which are assigned on plan to drawing-rooms, dining-room, morning-room, schoolroom, servants' room, with rooms for the butler, housekeeper, servants' hall, &c. Each new mansion was, we suppose, considered to have advantages beyond those which had been built in preceding years. Utility or comfort has usually the upper hand in England, and it was through its influence so many new buildings were erected. The old mansion-houses were demolished, regardless of their associations, and it must have been a happy time for all who were connected with the building trade. From some lines by HERRICK and the satires of HALL we learn that the sacrifice of the interests of humbler people did not cause much compunction to the eager building owners. If a widow's house was likely to interfere with the prospect from one of the windows of the new mansion it was cleared away, because it was known that poor people dare not invoke the aid of the law against their superiors. What is remarkable, however, is the indifference of SHAKESPEARE and other writers of his time to the desire for new buildings which was then felt in so many parts of England. The raising of money and the making of arrangements with surveyors and the tradesmen who were to carry out their instructions must have occupied much of the attention of people in ELIZABETH'S time, but of all the anxieties which were caused by so many undertakings, we have no record in the numerous dramas which were then produced. As regards building, the mirror was not held up to nature, and there was no reflection of the form of a power that, although only secular, recalled the enthusiasm of the Mediæval church builders.

The indifference of the dramatists is the more surprising because there was an affinity between English Plays and the new form of building. The Miracle Plays and the Moral Plays were derived from the Church, and English mansions of the pre-Tudor age recalled many of the features of English churches. But in the time of HENRY VIII. there was a change, and UDALL'S "Ralph Roister Doister" was inspired by PLAUTUS and TERENCE just as the Renaissance style could be traced to Roman buildings. The scene of some of the early comedies was laid in Italy. So thorough an Englishman as Sir PHILIP SIDNEY complained of the disregard of the antique unities which was displayed by most of the dramatists, and we suppose there were travelled Englishmen who no less deplored the free interpretation of Classic forms which was to be seen in the works of the builders. The plays, according to SIDNEY, were neither right tragedies nor right comedies. It might be said that the Renaissance buildings were neither English nor Italian. BEN JONSON endeavoured to keep up to the high Roman fashion in his plays, and if the learned bricklayer were asked to design a building it would probably have been much more Classic than any that were in progress at the time. But he was not successful, and we doubt if in ELIZABETH'S reign any building having only Roman characteristics would have won approval.

In the plays, taken as a whole, variety is one of the most marked attributes. The numerous buildings which Mr. GOTCH represents demonstrate that variety should be also considered as belonging to them. In treatises and essays which deal with similar work only a comparatively few illustrations are introduced, and in order to uphold their connection with the Renaissance, examples are selected which are symmetrical. But when, as in Mr. GOTCH'S volume, an immense number of buildings are brought together, then it becomes manifest that they were often

treated without any sacrifice of convenience to regularity or symmetry. We see mansions which might be taken as suggesting that the designer was possessed of modern notions of what constitutes the picturesque, and made that quality supreme in his planning. Compton Winyates dates from 1520, and yet it would be difficult for a modern architect to contrive more numerous departures from monotony. The condemnation of Tudor work which has often appeared in print can be attributed to insufficient knowledge.

When we see so many excellent examples of building the question must arise, By whom were they designed? We must not judge of the arrangements of the sixteenth century by those which are now adopted. Designs were prepared by artists for houses, but much was left to the skill of those who were responsible for the different classes of work. WALPOLE tells us that he possessed a drawing by HOLBEIN for a magnificent chimney-piece, but he could not ascertain whether it was one mentioned by PEECHAM for HENRY'S new palace at Bridewell. HOLBEIN, if we may judge by his drawings, was fond of precision, and we may therefore assume that his design was at the disposal of anyone who would pay for it, since there was no title upon it. On this subject Mr. GOTCH says:—

The architect, as a distinct individual, does not seem to have arisen in those early days: the architect, that is, who not only designed the plan and elevations of the building, but also the details of its various parts and of its ornament. Inigo Jones may be taken as the first Englishman who combined the functions of planner and designer of details. Previous to his time the work entailed in the designing of a house was much subdivided, the plan and elevations being provided by the surveyor, and each trade producing its own special details as the work went on. Shakespeare only uses the word "architect" once, and then not in connection with building operations. He gives us, however, a sketch of how to set about building in the second part of "King Henry IV." "When we mean to build," says Lord Randolph, "we first survey the plot, then draw the model; and when we see the figure of the house, then must we rate the cost of the erection. . . . Much more in this great work . . . should we survey the plot of situation and the model; consent upon a sure foundation; question surveyors." It was the surveyors, such as John Thorpe, who drew the model, which comprised the plans and an elevation, or a perspective view indicating the treatment of more than one front. These drawings were then carried out by the workmen on the spot, who provided their own details. In some of the simpler buildings no surveyor is employed, but rough plans were prepared by the builder himself, not so much to work from, as to indicate for the purpose of a contract the general extent and appearance of the building. In others, again, no plans were used; but the work was set out on the spot, and built to the requisite height under the supervision of the master mason. It is almost certain that in some cases only a plan was provided, without elevation; in the Thorpe collection a large proportion of the plans have no elevation to correspond; and Henry VII. in his will orders his tomb to be placed in the midst of his new chapel at Westminster, according to "the plat [*i.e.* plan] made for the same chapel and signed with our hand." At St. John's College, Cambridge, the contractors who built the second court were bound to erect it according to certain "plats and uprights" [*i.e.* elevations], thus showing that the "plat" did not include elevations as well as plan.

There is a special chapter on sixteenth-century house-planning, as illustrated by JOHN THORPE'S drawings, which as evidence of practice at that time will always be invaluable. The drawings are also, as WALPOLE says, "memorials of many sumptuous buildings of which no other monument exists." There were, no doubt, other men who occupied similar positions, but their plans have not survived. Mr. GOTCH merits to have his name always associated with theirs, for his two works are the first to render justice to a period that should have renown for its architecture as well as for its literature. In the province he assigned to himself he has laboured earnestly and faithfully. The results are placed before students on most moderate terms. The publisher announces that a cheaper edition will not be published, but the wonder is that a book which represents so much toil and contains so many illustrations can be produced at the price for which it is offered.

Mr. E. Doran Webb is preparing the designs for the new church to be erected at Edgbaston, Birmingham, at a cost of 23,000*l.*, as a memorial to the late Cardinal Newman.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual dinner of the Royal Institute of British Architects was held on the 3rd inst. in the Windsor Hotel, Glasgow. Mr. Emerson, president, occupied the chair, and the company numbered about 170. The Chairman intimated that Lord Rosebery had intended to be present, but had been obliged to attend a meeting in London. The Chairman proposed the loyal toasts, which were pledged with enthusiasm. Mr. John Belcher proposed "The Houses of Parliament," observing that the Houses of Parliament might learn a lesson from Glasgow. The buildings at Glasgow International Exhibition had conducted very much to its financial success, and there were also the great Municipal Buildings. The great city, given over to work and commercial interests, had not yet forgotten art. Glasgow was clever enough to know that art paid as well as gave pleasure. Mr. Cross, who responded, said that they did not nowadays destroy their old monuments nor convert their Pantheons into hospitals. Nor did they make their castles quarries from which to build farmsteadings. They had changed all that, and the same spirit would enable them to rise to the occasion in the new buildings they had to erect. He understood that only one of the new public offices at Westminster was to be handed over to the Board of Works. The designs for the other were, he believed, to be entrusted to the son of Mr. Young. He was sure no arrangement could be made which was more likely to succeed. He did not think, at all events, that considerations of economy were likely to interfere with the realisation of the plans for these Westminster buildings. It should be their aim to see that these great buildings, which would be there practically for all time, were none other than the very best. After the toast of "The Corporation of Glasgow" had been proposed by Mr. John Slater, and responded to by Bailie Cleland,

Bailie Shearer gave "The Royal Institute of British Architects and Allied Societies." Having reviewed the history of the Institute from its inception, Bailie Shearer said that the architects of Glasgow had played a prominent part in the well-being of the city. In a city like Glasgow, mainly manufacturing and commercial, artistic sense and taste might not be met in all its fulness, but city of toilers as they were, they could point to beautiful spots in their midst, and to buildings worthy of a visit even from the Royal Institute of British Architects. While they had slums still to be uprooted, they had as much civic pride as to desire that their dwellings should be a lovely thing, and not a frightful thing on the face of the earth. Their architects had taught them that light, airy and sanitary dwellings for the poorest could be, and should always be associated with beauty of line and harmony of colour, with grace and dignity. That teaching they would strive to carry out.

The Chairman, in responding, said Scotland had always had a prominent place in regard to the arts and culture. Edinburgh, indeed, had been called the modern Athens. Scott had been largely responsible for the revival of Gothic architecture in the middle of last century, and in the annals of architecture there were the Scottish names of the Brothers Adam, Hamilton, Bryce, Young, Bryden and many others. If the experience of the Institute told them anything, it seemed to point to the fact that there would be undoubtedly great progress in the art of architecture during the coming century, judging from the works of their students, and in this Scotland was very much in the forefront, for a very large proportion of the medals they gave fell to Scottish students. The allied societies and Glasgow had done much for the art of architecture of late years. The art galleries and the municipal buildings showed a considerable advance and progress in the art. The Exhibition buildings, he certainly thought, were, with the exception of the Chicago buildings, the best of the class he had ever seen, and the Chicago Exhibition had unlimited money and the pick of the architects of Europe at its back. They saw discussions taking place on such subjects as the housing of the poor among county council men, members of Parliament, engineers and others. How often had any of these individuals really proper qualifications to lay down the law on such a subject? It should be the consensus of opinion of an Institute like theirs, with its allied societies, which should carry the greatest weight, and their views which should be heard most clearly upon such a question. They must, therefore, speak out, and with no thought of selfish ends. Their recommendations must be above suspicion.

Mr. J. J. Burnet, A.R.S.A., Glasgow, replied on behalf of the "Allied Societies." As a corporate body the Glasgow Institute, as well as individually, were endeavouring quietly to meet the various responsibilities of our time, and he ventured to believe that the presence with them that night of so many of Glasgow's eminent citizens, and the reception given to the toast on this the first visit of the Institute to Glasgow, might be looked upon as some proof that their city was steadily growing in its appreciation of architecture. They could not hope that in a large commercial and industrial centre like Glasgow the art of architecture would be generally understood and appreciated, but

they knew that amongst those responsible for its various municipal and private schemes there was a growing conviction that such schemes would remain monuments not only of our commercial and industrial enterprise, but would be looked upon as indicating their state of culture at the time, and the need they felt that their material surroundings should be in sympathy with their deeper needs and loftier aspirations, and they looked forward with confidence to the growth of this feeling, eager to render themselves more competent to give it expression.

The remaining toast was "The Guests," which was submitted by Mr. Campbell Douglas and acknowledged by Mr. John Wilson, M.P.

ROMAN REMAINS IN HAYLING ISLAND.

THE main Roman road from Porchester, at the head of Portsmouth harbour, to Chichester runs through Havant, in the east of Hampshire, and a mile or two south of Havant lies Hayling Island. It is now connected with the mainland by a bridge, but in early times it must have been quite cut off, except at very low tide. Formerly it was of much greater extent not only on the west and east, where Langstone and Chichester harbours respectively have been excavated by the action of the sea, but also to the south, where the Church Rocks bear witness to the truth of the tradition that the original South Church stood on a spot now covered by the waves. With Roman settlements in Hampshire, Sussex and the Isle of Wight, it is not strange that tradition should have come down to us of the existence of Roman remains in Hayling Island, and fixed the site at a spot which the excavations of Mr. Talfourd Ely have shown to be correct. In the north part of the island, a little to the west of North Hayling Church, is the Towncil Field, part of a larger area at one time held in allotments, and here from time to time coins have been turned up by the plough. In this field there was a slight elevation, manifestly artificial, and when examined carefully it was easy to trace, by the different colour of the crops, the outline of the foundations below, just as at Silchester, the *insulae*, or blocks, may be detected by the same criterion of a less fertile yield over the stonework. In 1897 Mr. Talfourd Ely commenced operations, which have been carried on year by year since that time. Though he has been rewarded by no very valuable "finds" in the way of curiosities or museum specimens, he has had the good fortune to establish the fact that there stood a very early Roman building of large size, the foundations of the outer walls being, in round figures, 150 feet by 170 feet. And the method in which the excavation has been carried out is probably unique, for all the work has been done by himself. He had not to plan the excavations, but to carry them out. The popular idea, as exemplified in a plan prepared from an inspection of the lighter lines in the crops, was that of a building with a semicircular apse at one end. This, however, the excavations have not quite confirmed.

As the work progressed it became evident that there was more than a villa in the sense of a country residence. The outer walls seem to have enclosed not only the house but out-buildings, such as sheds or barns. The living-rooms were indicated by the presence of painted wall plaster, roof tiles and light and dark tesserae, though nothing was found that could in any way compare with the fine pavements unearthed at Brading, Silchester and many other places. This is probably due to the early date of the work, which is approximately fixed at the end of the first century of our era. A bronze coin of Domitian, with the date A.D. 95, was found during the work. This is absolutely new, as if just minted, and must have been dropped here practically without having passed from hand to hand. Later coins have also been met with, but early coins seem proportionately commoner here than in most villas. Year by year the excavations have gone on and thrown more light on the character of the building, which will, no doubt, be described fully by Mr. Talfourd Ely when the work is finished. Last year a chamber was uncovered, the floor of which was of small flints, covered with trampled clay, set with tesserae so thickly that more than eighty were kicked out from the space of a square yard. The building must have been warmed by hypocausts, for remains of the furnace and flue-tiles were found. A very fine specimen of Romano-British work, in the shape of a circular bronze brooch, was discovered. The groundwork is blue enamel, still brilliant, with a central raised circle, surrounded by smaller ones, each with a depressed setting for a stone. This year a corridor, 30 feet long, another about 40 feet, and a room, 15 feet by 20 feet, were uncovered, so that it is safe to conclude that the house itself was of considerable size. A very interesting discovery consisted of a number of fragments of terra-cotta, with deep flutings. Mr. Ely believes that the pieces are to be accounted for by the building having been burned down. The terra-cotta probably served as a dado or wall lining, as many of the pieces have a projection at

the back, apparently for fastening to the wall. The other remains include nails, a Roman key, a razor blade or knife, black Romano-British pottery and a few pieces of red Samian ware. No human remains were met with; the bones belonged chiefly to domestic animals, and there was more than the usual quantity of boars' tusks, some of large size. Shells of the oyster, cockle and periwinkle were found, and it is noteworthy that the large edible snail introduced by the Romans was seen repeatedly during the progress of the work.

BROXBOURNE AND HODDESDON.*

IN old records the words Broxbourne and Hoddesdon are spelt in various ways. Domesday Book gives them as Brochesbourne and Hodesdon, or Odesdon. It is generally agreed that the first means Brock's bourne, the badger's brook, but the meaning of the latter is not clear. Mr. Whitley, who opened the tumulus we have seen at Broxbournebury, opines that it was the grave of Odo, a Danish chief, perhaps one of those who sailed up the Lea and remained in this neighbourhood for some time, until Alfred, after defeating the main body of the Danes in the West, turned his attention to these, and by cutting several channels in a shallow part of the river near Waltham, so that there was not sufficient depth of water to float the Danish ships, cut off their reinforcements from the sea. The Danes then fell easy victims to the Saxon soldiers. Probably from this Danish chief the place took its name of Odesdon or Odostown.

The parish of Broxbourne, with which is included the important hamlet of Hoddesdon, is about 16 miles from London and 4 miles south-east from Hertford. The Roman Way, known as the Ermine Street, passed in a northerly direction through the parish, and many interesting remains have frequently been found in the neighbourhood. In August 1874, as some labourers were making a new roadway from Burford Street to Ware Valley, just above the Woollen Brook, they came upon a trench about 8 feet long lying east and west, and at a depth of 2 feet from the surface. In this space they found a number of cinerary urns and a bronze spear-head about 2 feet in length, and in the immediate neighbourhood were found a quantity of animal bones and two Roman coins. Probably earlier than the Roman period, and certainly in later times, the way through Broxbourne has been an important thoroughfare, a fact of which footpads and highwaymen were well aware and frequently availed themselves. In 1693 Thos. Richards, Receiver-General, obtained a grant of 60*l.* from the Treasury for the expense to which he had been put in providing an escort of twenty armed men to convey the sum of 32,299*l.* 10*s.* from Hertford to London, which was brought there in safety. Three years later Francis Johnson, collector of excise, was not so fortunate, for in 1696 he was robbed of 776*l.* near Hoddesdon. The hundred of Broadwater in which the robbery was committed, was mulct in a fine of 520*l.*, the residue of the money being made good by the Lords of the Treasury, together with 169*l.* for legal costs and 15*l.* for a horse killed by the highwaymen.

But the road had its attractions as well as its terrors. Cussans, to whose "History of Hertfordshire" I am greatly indebted, tells us that at Hoddesdon, at the commencement of the eighteenth century, under the provisions of the will of Christian Catherow, brewer, a cask of ale stood always by the roadside for the refreshment of weary wayfarers.

It does not appear that this generous brewer was buried at Broxbourne, and it is feared that his beneficent legacy has been diverted from its original purpose.

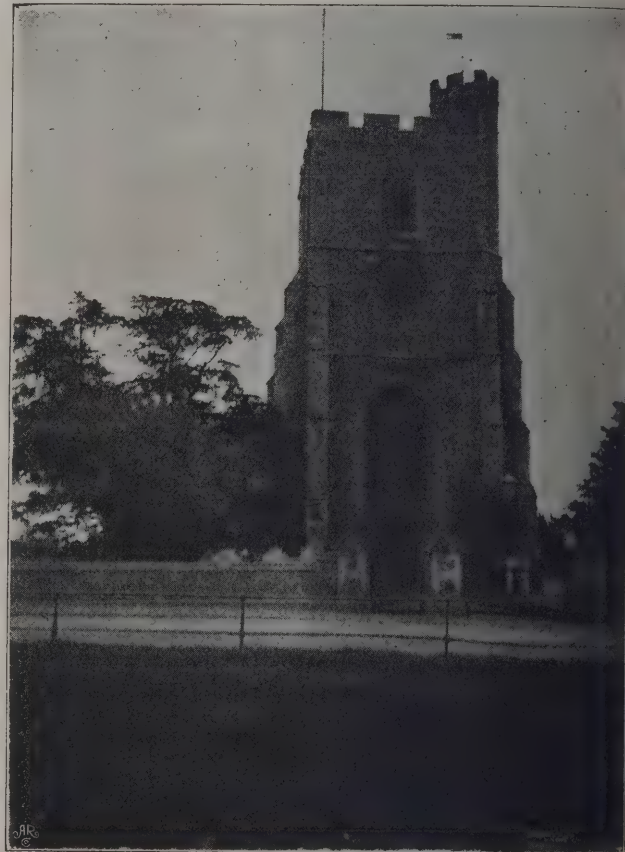
From the description of Broxbourne given in the Domesday Book it must have been a pleasant, well-cultivated tract of country in those early days. There would be seen broad acres of waving corn, pleasant riverside pastures for cattle, and meadows yielding abundant crops of hay, and there were also woodland glades giving pannage for over 600 hogs yearly in this and the adjoining manor of Hoddesdon, or Odesdon. In the latter, too, there were four fisheries yielding nearly 300 eels a year. The two mills also find record.

At this time the manor belonged to Adeliza, wife of Hugh de Grentesmaisnil, a follower of William the Conqueror, who gave him large grants of land in return for his services. Petronilla, great granddaughter of Hugh, married Robert Beaumont, third Earl of Leicester, and in the reign of Richard I. they joined in bestowing the manor and church upon the Knights Hospitallers of St. John of Jerusalem, with whom it remained until the dissolution of religious houses, when it was granted by Henry VIII. to John Cock, of

Tewin, for the sum of 1,339*l.* 12*s.* 6*d.* He was succeeded by his son Henry, who was knighted in 1589. Sir Henry served the office of sheriff for this county in 1575, and was afterwards appointed cofferer to the queen, and on May 2, 1603, had the honour of entertaining King James I. at Broxbournebury in his royal progress to London.

The royal visit is thus described in Stow's Annals:—

"King James, in his journey from Scotland to London, came on Monday, May 2, I. Regni Sui to this Manor House in Brokesborne, where the Lord Keeper of the Great Seal, the Lord Treasurer, the Lord Admiral, with most of the Nobility of the Land and the Council, met him and received a favourable Reception; at which time the Lord Keeper made a short and learned speech to his Majesty, which the King answered with a great Grace and princely Wisdom; but the entertainment which this worthy Knight gave the King was so great and plentiful that every man, of what condition soever, had what appetite desired, and the King was highly pleased therewith, staid one night, and then forwards to Theobalds."



BROXBOURNE CHURCH.

The manor was held in succession by Sir Henry's wife, daughter and granddaughter, who married Sir John Monson, who had been a loyal supporter of Charles I. during the Civil War. He much improved the estate at Broxbournebury, and having received a license from Charles II. in 1671 to enclose about 320 acres in this parish, he laid out the present park. In this family the manor remained until 1789, when Lord Monson, the then proprietor, sold it, with the estate of Broxbournebury, to Jacob Bosanquet, director of the Honourable East India Company and trustee of Morden College, Blackbeath, from whom they have descended to Mr. Horace Smith-Bosanquet, in whom they are now vested.

Mrs. R. G. Hoare says "it seems probable that Broxbournebury is built upon the site of the priory of the Knights Hospitallers. It is about the centre of the property; a perfectly straight road used to lead from the house to the church, a priest's chamber still exists above the kitchen, and in the cellar there are the remains of a window of exactly the same architecture as the church."

The church, which is dedicated to St. Augustine, is a noble building standing on the verge of the western bank of the Lea Valley. It consists of a chancel (34 feet 4 inches), nave (72 feet), tower (20 feet 8 inches), 127 feet from west to east, continuous aisles extending to the east wall of the chancel, south porch and a small chapel on the north side of the chancel, now used as a vestry. The aisles are of the same width as the chancel and nave, viz. 41 feet 10 inches, all interior measurements.

The fabric is a fine building in the Perpendicular style of architecture, constructed of flint with stone dressings, and

* A paper read by Mr. Downes at Broxbourne on September 21 before the members of the Upper Norwood Athenæum.

probably erected by the Prior and Knights of St. John about the year 1420. In Mrs. Hoare's "History of the Church," it is pointed out that the nave, chancel and tower appear to be the work of the fifteenth century, but that the Say Chapel, built of blocks of Caen stone, bears the date 1522 on the parapet. The south porch may be of about the same date with the exception of the external facing, which is Classical and of a later date, and the chapel of the Cock family is evidently later and of inferior workmanship.

The west door, a fine specimen of old oak, is the main entrance to the church, and leads into the vestibule under the tower; the west screen is a modern erection. The tower contains five bells, which bear the inscriptions:—

I. Jesus be our spede—1615.

II. God save the King—1615.

(These bear founder's mark R.O.)

III. Cast by John Warner & Sons—1863.

IV. Praise the Lord—1615.

(Also bears founder's mark.)

V. John Hodson made me—1670.

(Edward Lewin gave toward my new macking 20 Pound.)

Thomas Welch, Robert Tarre,
Churchwardens.

The church contains several handsome monuments, including an altar tomb of marble with recumbent effigies of Sir

Broxbourne or Hodsdon, 1633." There is a list of vicars since 1361 in the tower porch. The present vicar is the Rev. John Salwey, M.A.

The first account of Rye House is to be found in Chauncey's "History of Herefordshire," where we read:—

"King Henry VI. granted license to Andrew Osgard and others that they might imparke the scite of the manor of Rye, otherwise called the Isle of Rye, in Stansted Abbot, erect a castle there, make battlements and loopholes, &c., have free warren there and on the hills of Stansted, Amwell, Hodsdon, Ware and Wiford, in this county."

There are few remains beyond the gatehouse of this castle now to be seen, but we may trace out the moat in places. It is doubtful whether the long dining-room is part of the old building. When our members visited it in 1883 Mr. Pope said, "A long barn has received a counterfeit open timber roof of old woodwork from a house in Hoddesdon, called now the Hall of the Conspirators, and hung with tapestry and many later devices and memorials of trade dinners and children's outings."

The house has no other historic interest than the one which gives its name to the abortive Rye House Plot. In 1683 the house was in the occupation of Richard Rumbold, an old officer of Cromwell, a maltster, a vehement Republican, and, according to the Royalist witness, the chief in the conspiracy. The purpose of the conspirators, according to the not very trust-



TOMB OF SIR HENRY COCK, IN BROXBOURNE CHURCH.



RYE HOUSE.

Henry Cock and Ursula, his wife. This is in the chapel of the Cock family, south of the chancel. In the centre of the chancel floor is the brass effigy of a priest holding a chalice, about 1470, and another brass of a priest in academic dress about 1510. On the south side of the chancel an altar tomb of marble, with brass effigies of a knight in plate armour and a lady, both with heraldic devices to Sir John Say, ob. 1478, and Dame Elizabeth Cheyne, his wife, ob. 1473, is remarkable for the coloured enamelling of the brass figures. Opposite, on the north side of the chancel, is the canopied altar tomb of Sir Wm Say, founder of the chapel, which originally bore the date 1529. There are, besides, three brass scrolls let into the floor of the north aisle and a brass to John Borrell, serjeant-at-arms to Henry VIII., ob. 1521, and Elizabeth, his wife, with thirteen children, and six English verses and a shield of arms (1630) on the floor in the centre of the nave. Various memorials remain to the families of Monson, Bosanquet, Skeffington, Rawdon and Hicks, and an interesting font of late Saxon or early Norman work.

The church was repaired and organ placed in 1837; cost £1,800. Roofs repaired in 1885. Communion plate consists of chalice, 1606; ditto, 1824; two massive flagons, 1669. Paten inscribed, "Gift of W. Raphe Palmer to ye parishe church of

worthy testimony of the approver Keeling, was to have some forty or fifty well-armed men concealed in the house and grounds to attack the guards who were to escort the king from Newmarket, and in the confusion Charles II. and his brother, the Duke of York, were to be assassinated.

The king's return to London at an earlier hour than was expected is said to have disconcerted the conspirators. Whatever was the cause, whether it was true that he had been warned of the attempt, the king escaped; but the discovery of the alleged plot led to the trial and execution of Lord Russell and Algernon Sidney, and years after of Rumbold and the Earl of Argyll, the exile of a great number of Whigs, and the temporary disruption of the party.

The whole truth concerning this plot is probably not known. Not only was the matter obscured by the false statements freely promulgated at a later period by the infamous Titus Oates, but the affection of King Charles for his illegitimate son, the Duke of Monmouth, who was also said to be deeply implicated, would furnish a strong reason for the non-publication of any evidence which might tell against that misguided young man.

The illustrations are from photographs kindly lent by Mr. H. G. Quartermain, M.S.A.

NOTES AND COMMENTS.

IN the churchyard of Johnstown, county Kildare, there is an ancient slab which has long been without any significance to visitors. It presented armorial bearings, but they did not relate to any of the families in the surrounding district. Some years ago the aid of Sir ARTHUR VICARS, the Ulster King of Arms, was invoked, but he was unable to identify them, although it was evident they expressed an alliance. Rubbings were taken for further investigation, and then it was discovered that the arms were those of FLATISBURY impaling WOGAN. There are no families of that name living in or near Johnstown. Further research revealed the fact that the family who resided there in early times was that of FLATISBURY, and a reference to the pedigree of the family ended in the discovery of a FLATISBURY, of Palmerstown and Johnstown, one of whom had married a WOGAN, of Rathcoffey, in the early years of the sixteenth century. That ancient family, of whom no survivor existed, was resident in that county in the thirteenth century, and they continued to flourish until the Civil War of 1641, when the members of the family were outlawed, and extinction followed. It is supposed that in Ireland family history is a familiar subject, but here we have an instance of an ancient family of which there are no representatives, and whose history has been revived by means of an heraldic representation. Heraldry is, therefore, not quite so useless as some people who are unacquainted with its principle would have us believe.

OWNERS of motor-cars should take notice of a decision that was given at the Hove Petty Sessions on Monday last. A gentleman was summoned for contravening the local by-laws by erecting a building which encroached on the air-space allocated to the house. When the attention of the motorist was called to the structure he said he would put it on wheels; the corrugated roof was also taken off and placed at the side. He described the structure as a portable under-carriage for the motor, but the Hove Corporation affirmed that it was a shelter for the motor-car, that it was constructed of combustible material, and that plans for it had not been deposited. Mr. LONG, an architect of Brighton, said it could not be treated as a building, for there was neither floor nor roof and it stood on wheels; in spite of the presence of the carriage, there was still a superfluity of air-space for the premises. The magistrates, however, held that it was a building and that it contravened the by-law. A fine of 20s. and costs was imposed.

THE important subject of water supplies and river pollution will be considered at a conference to be held by the Sanitary Institute at St. Andrew's Hall on next Wednesday and Thursday. The subjects to be treated on the first day will include:—"Watershed Areas, the physical conditions and standard of purity to be desired, and the prevention of contamination"; "The protection of underground sources of Public Water Supply"; "Rainfall and Population in relation to Water Supply"; "The desirability for reports on the Water Supply of each County"; "The Rivers of Glamorganshire, with remarks on the Rivers of adjacent Counties"; "Water Supply to isolated Cottages and small groups of Cottages"; "The present inadequate Water Supply for Villages and Village Schools." Sir A. B. BINNIE will preside. The subjects for discussion on the second day, when Mr. W. WHITAKER will be chairman, are "Water Supply and River Pollution"; "The control of Weirs and Dams on Rivers in relation to River Pollution"; "Prevention of Pollution within the Thames Watershed and Thames Water Supply and Storage"; "The Chemical Standard of Purity of Water Supplies"; "Sterilisation of Water"; "The Commercial and Industrial Value of Soft Water." There will be visits to the New River Company's testing shop, East London Waterworks at Lea Bridge and the Staines reservoirs. An exhibition of appliances, models, drawings, &c., will be opened each day at the hall.

It was known to archaeologists that many examples of pottery were found in the ancient Chersonesus, now called the Crimea, but for some reason it was assumed they were importations rather than products of a country which the Greeks regarded as barbaric. From the explorations under the direction of the Polish archaeologist, KOSEIUSZKO-

WALNFHINITSH, it has become evident that the theory is erroneous. Indeed, it might be said that instead of importing pottery, there were exports of all varieties of ceramics on large scale. The pits from which clay was taken were found near Sebastopol, as well as remains of the ancient ovens, besides moulds for figures and fragments of vessels of various kinds. Whether every piece bore the potter's mark is not stated, but on the handles it was necessary to have the official stamp of the *astunomoi* or public officer, who we suppose was responsible for the exact capacity of all vessels to hold liquids, as well as for the care of the streets and highways. The stamp would therefore correspond with those imprinted by the inspectors of modern county councils. There are twenty-eight examples which reveal that at one time the public officer was HISTROPOS, the son of APOLLONIDES. It is believed the same officer also looked after the local mint. Many fragments are of brown ware, which was supposed to be produced in a different part of Greece. One potter evidently used a rosette to mark his work. Besides fragments of pottery, the explorers have met with inscriptions on stone, terra-cotta statuettes, toys, ornaments and other things, which are evidence that the town had a large population.

ILLUSTRATIONS.

NEW OFFICES OF THE MUTUAL LIFE INSURANCE COMPANY OF
NEW YORK, CORNHILL, E.C.
GROUND FLOOR (FROM GALLERY).
STAIRCASE.
GROUND FLOOR FRONT.
CLERKS' GALLERY.

THERE is no branch of business in which competition is keener than in that of insurance. Although the days of symbolism are said to have passed away, yet it is now recognised that effective building can become more expressive of the condition of one of the companies than myriads of pamphlets. In England the fact was not always accepted, and wealthy insurance companies possessed offices which seemed to be incompatible with a large capital. In the great American cities, on the contrary, architecture is relied on as a means to suggest the standing of insurance companies, and when branches were set up in this country the same policy was adopted. The new offices of the Mutual Life Insurance Company of New York are among the most remarkable examples of enterprise to be found in the Metropolis. Realising that many people might imagine that business in England was to be secured mainly for the benefit of Americans, the directors, by obtaining a freehold in a street like Cornhill and erecting a palatial building upon it, have shown their determination to remain in London, and to enable investors to take advantage of a system which has been profitable on both sides of the Atlantic. The building which Mr. MACVICAR ANDERSON has designed, and Messrs. CUBITT & Co. have constructed, has undoubtedly been costly, but the outlay has been warranted by a success which has been continuous during sixty years. It was considered advisable that the old premises which stood upon the site should not be entirely demolished, and the adaptation added to the difficulties of the architect's task. The illustrations we give will enable our readers to realise the architectural character of the building. But in order to do justice to the treatment it would be necessary to have coloured plates, for, as is suggested, various marbles have been employed to gain effect. Greek, Norwegian and Italian quarries have been laid under contribution, in addition to granite and Portland stone. The result of the combination should be seen in order to be fully appreciated, and the work in marble is among the most successful of Messrs. FARMER & BRINDLEY'S undertakings. There is no doubt that a building which must engage the attention of all visitors to Cornhill, and which will form the subject of many conversations when they return home, is an excellent investment for its owners. The Mutual Life Insurance Company deserve an increase of business for their courage in obtaining as suitable a building as could be constructed. There is nothing fantastic about it, for it is a commercial palace worthy of London, and one which it would be well if many English companies would imitate. We gave some interesting particulars of the prosperity of this company in our last issue.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE first general meeting of the Liverpool Architectural Society (Incorporated) since the incorporation of the Society was held on Monday.

Professor Simpson, in his presidential address, congratulated the members upon the incorporation of the Society. They had not been hasty in taking this step, for they had already celebrated their jubilee. Under their new title he hoped the Society would enjoy many years of increased prosperity. The Professor then referred to the decision of the Liverpool Cathedral committee that the style of the new cathedral should be Gothic, and after tracing the history of the Gothic revival in England, he remarked that in the large workshops there was no longer the enthusiasm for Gothic work which prevailed twenty years ago, and which made the Gothic revival more real than many supposed. Of the men whose genius carried the revival to its height few survived, and to these might be added some of the younger men who had remained true to their masters' traditions, but without the slightest exaggeration it might be said that the greater number of architects now practising in England were seeking development in other directions than Gothic. What was Gothic? Unfortunately Mediæval detail was still regarded by some, especially by those interested in but not practising architecture, as constituting the Gothic style. But this was the wrong way of looking at it. Construction, not detail, made a style. If the committee were willing to depart from the recognised forms of ornamentation, which hitherto had been more or less obligatory, and allow the architect who designed and the other artists who assisted a free hand in plan, ordinance and detail, then it was possible that a building could be produced suitable to modern requirements, and yet Gothic in the true sense of the word. But if, on the other hand, by Gothic the conventional was meant; if the term was to be narrowed to mean a reminiscence of Mediæval buildings; if the plan, mouldings, carvings and accessories were such as would conform to the standard of the amateur, whether ecclesiastical or lay, who took no interest in living architecture, but who found satisfaction in examining the work of the past, then there was every danger that the finest opportunity which had occurred since the time of Sir Christopher Wren was going to be thrown away. If the term Gothic was used in its narrow sense limitations would be placed on architects which workers in no other art would tolerate for a minute. Why they should always be the sufferers he failed to understand. They were daily told that other arts were advancing while theirs was standing still. He did not believe that. The advance in architecture was as great, if not greater, than that in any other art, but restrictions such as that proposed would be inflicted rendered advance doubly difficult. If the Emperor Justinian had commanded the architect of the new Santa Sophia to construct it in the Greek or in the Norman style the world would have been the poorer by one of its finest buildings. But the emperor had too much good sense; he allowed the architect fair play and a free hand, and that was all they asked from the Liverpool Cathedral committee at the beginning of this new century. If there was ever to be a new departure now was surely the time. Architecture more than any other art in existence suffered from a glorious past. What should be a source of strength to them was converted into a source of weakness. Nobody admired the old Gothic buildings more than he did. There was not a cathedral in England which he had not visited, and he had seen most of the best on the Continent, but that did not make him regard their style as the one most suitable for a modern cathedral. His objection was not so much to the decision that the style was to be Gothic as to the dictation that the style was to be anything at all. The citizens of Liverpool elected otherwise seventy years ago. If Elmes had been told he had to design in the Gothic style they would not have had St. George's Hall one of the most remarkable buildings in the world. He would be told that that building was different; that it was not ecclesiastical. No more were the Houses of Parliament, built at exactly the same time; and yet that did not prevent the committee from issuing instructions to architects that the style of the building was to be Elizabethan or Gothic. Had they advanced nothing in seventy years? Was the method observed in London in the first year of Victoria's reign to form a precedent to be followed in Liverpool in the first year of Edward VII? There was some excuse seventy years ago. The tide of the Gothic revival was flowing strongly, and men were full of enthusiasm for the new movement, but the tide had turned now, the old enthusiasm was dead and a new movement on totally different lines had taken its place. It was unfair to ignore this fact. Cathedrals were not built every day. Another such opportunity might not occur throughout the century, and the narrowing of the instructions to architects could cut out many men accustomed to deal with big architectural problems, but whose sympathy with Gothic was but slight, because to them the style was inappropriate to the requirements of the day, and incapable of further development

beyond the point reached 300 years ago. To turn to another point. Against the style dictated there were certain local objections. Liverpool had fine architectural traditions, but they were not Gothic. Its public buildings and many of the fine blocks of city offices erected before the middle of the last century were all Classic. So were the best recent buildings in the town. A Byzantine or Romanesque cathedral would harmonise with these surroundings, because both styles were founded on Classic work. The site undoubtedly lent itself more to the squarer Classic or Byzantine than to the longer, thinner Gothic. He was not, however, protesting so much against the inclusion of the Gothic, although he regarded it as unsuitable, as the exclusion of the other styles. That the style should be left open was one of the points the Architectural Society emphasised in the meeting held between the cathedral committee and a deputation from the Council of the Society. They intimated to the committee their disapproval of a limited competition, on the ground that outside the very few really well-known church architects, it could not be said that there were many who possessed special claims to be regarded as experts in cathedral planning and design. Many men had recently built excellent churches, but a man who built a decent church might not be capable of dealing with the much bigger problem of a cathedral. Provided the committee did not wish to appoint direct one of the well-known men as architect, the Society suggested a competition open to all English architects, and that proper assessors should be appointed. They further suggested that at least six months be allowed for the preliminary competition, and twelve months for the final. None of these suggestions had found favour; in fact, he understood the committee had decided to dispense with assessors altogether, and make their own selections from portfolios and drawings submitted. If this were true it was opposed to the method under which all important competitions were now decided. Practical considerations were ignored by the restriction as to the style of the cathedral, and the only result would be to fetter the architect and all whom he called to assist him. This was to be the first cathedral of the new century. Was it to be merely the coping-stone of the style of the last century, or was it to be the foundation of the style of the new? Here was a chance for an epoch-making building, for a second Santa Sophia, a second Amiens Cathedral. Was this chance going to be thrown away? The committee, he was sure, were animated by the same desire as all of them to see a building worthy of the city and worthy of the opportunity. But with all deference they were going the wrong way to obtain it. It was no offence to them to say that, not being architects, they were out of touch with the architectural movement of the day. They were clinging to a departing style. In an unrestricted competition it was possible that the best style sent in might be Gothic; if so, build it; but the decision of the committee prevented any attempt being made to show what was possible on other lines. The cathedral might take a quarter of a century to build, and at the end of that time if dry as dust design was now chosen, and the present architectural movement continued to grow as rapidly as it had done in the last ten or twelve years, it was probable that the first cathedral of the twentieth century, when finished, would be as obsolete in style as an old East Indiaman was now.

Mr. Bradbury (surveyor to the cathedral committee) explained the conditions with regard to the competition which had been confirmed at a meeting of the cathedral committee that day, and which will be found in our advertising columns. He pointed out that it had not been definitely decided to dispense with assessors, the committee having reserved to themselves the right of calling in professional assistance if they deemed it necessary. In his opinion the committee had tried to meet the views of the Architectural Society. At any rate he could testify that the points they had suggested were very carefully considered, and the first two conditions of the competition were drafted with the object of meeting them.

Mr. W. E. Willink failed to see any resemblance between the competition proposed and the one suggested by the representatives of the Society when they met the committee. It would have been very much better if the Society had never been invited to give their opinion at all, for it had been ignored, but the committee were under the delusion that they were meeting their views. A very large number of architects of repute, probably four-fifths, would be excluded from competing, because if they did compete they would be working on a style with which they were not well acquainted. The non-appointment of a professional assessor would ruin the competition, and the committee would find they had acted foolishly. Members of the Royal Institute of British Architects were prohibited from submitting plans unless a professional assessor was engaged. That the committee excluded everything except what they crudely called Gothic was a calamity. In proposing a vote of thanks to Professor Simpson for his presidential address, Mr. Willink remarked that it had been delivered on a melancholy occasion, for a great opportunity had been lost. How it came about that it was impossible for them to obtain a

hearing in a matter which so vitally touched their profession passed his comprehension.

Mr. Bradbury seconded the resolution. He did not intend to enter into any defence of the word Gothic as applied to the style of the cathedral, inasmuch as his opinion had not been asked.

Other members briefly supported the resolution, one gentleman remarking that it ought to be publicly known the architects of Liverpool were practically unanimous in condemning the action of the cathedral committee.

Professor Simpson, in responding, alluded to the newly-adopted instructions to architects, and asserted that far from meeting the views of the Society, the committee had done the very opposite of what they were asked to do.

THE ENCLOSURE OF STONEHENGE.

A CORRESPONDENT of the *Times* writes:—Stonehenge has now been enclosed by a barbed-wire fence four months or more, and some 3,000 persons have paid a shilling for admission to the enclosure. The line of the enclosure has no relation to the form of the monument, and a considerable area of ground is enclosed. Several carriage-ways leading from the neighbouring high roads to the monument—so strictly defined that they pass through clearly-cut gaps in the outer earthwork of the monument—have been obstructed by the fence—an act of doubtful legality. But one carriage-road has been admitted to be a public way, and has been respected. It leads across the downs from the direction of Wilton into and across the neighbouring high road, and is largely used. From it, at some little distance, the most striking general view of Stonehenge is obtained; the weird circles of stones are seen standing alone on the bare down, and give a curious impression of solitude and aloofness. This carriage-way cuts through the earthwork in two places and approaches close to the stones themselves. It is understood that proceedings for the diversion of this road by legal process are in contemplation. If these should be successful, the people of this country will be completely deprived of all right of access to a monument of absolutely unique interest and singular impressiveness—a monument to which they have freely resorted from time immemorial.

There are two points of view from which the enclosure of Stonehenge may be regarded. It may be considered in relation to the mere physical protection of the monument, or to its preservation for the benefit of the nation. The learned societies who counselled the enclosure had in view the first consideration only. They were alarmed by the fall of another trilithon on the last night of the old century—though, by the way, no barbed wire fence would have prevented this catastrophe. They thought they saw prejudicial effects in the unrestrained license given to the public to ramble and picnic amongst the stones without supervision of any kind. And they feared that the advent of the neighbouring camp would bring Tommy Atkins in his hundreds to quench his thirst for antiquarian lore and to wear away the stones by his untiring researches. It may perhaps be doubted whether the gradual downfall of the stones has been sensibly affected by the resort of the public to Stonehenge, or even by the roughest treatment it may ever have received. The external earthwork, no doubt, has been worn down and, as we have said, cut through in several places; but the gradual fall of the stones is probably due to time and weather alone. However, it may be admitted that some caretaking is desirable. It is quite another question whether (apart from pecuniary considerations) any enclosure at all is required. The British public is not now an unreasoning or mischievous body; and appropriate notices enforced by personal supervision would be quite as likely as fencing to secure reverential treatment for that which in itself inspires respect. And when we consider the question from the point of view of the preservation of the monument not merely as a collection of stones, but as a chapter in the history of these isles to be studied by the whole nation, the enclosure becomes not only unnecessary but highly mischievous.

For what is the position? The ground on which Stonehenge stands is admitted to be in private ownership, and according to the doctrines of English law, the priceless national relic which the soil bears also consequently belongs to a private owner. This owner, if he were so inclined, could cast down and cart away or break up every stone, and reduce the site to the condition of the adjoining down. Mr. Earle Drax, it must be remembered, did actually destroy Cæsar's camp at Wimbledon by way of asserting his ownership. But while there are few landowners who would be guilty of such an act of vandalism (the present owner of Stonehenge is, we believe, warmly interested in the precious possession to which he has succeeded), there are many to whom the joys of ownership are sweet, and who would not be indisposed to exclude the public from free access to an ancient monument on their land. Consequently the preservation of all rights of access enjoyed by

the public is most important to the nation. Now before the recent enclosure there is abundant evidence of access by the public, not only on foot, but in carriages, up to the very circles of Stonehenge. As we have said, so old are the roads and so well defined that the outer earthwork has been cut through to a depth of several feet in many places. It seems to have been assumed that a way which apparently terminated at Stonehenge could not be maintained as a public way. Some argument might perhaps be raised on the question, but a right of way to a church is well recognised, and, if it is a mistake not, a right of way to a point of view—the top of a hill—has been successfully asserted. There seems to be no reason why a right of way to an ancient place of worship or sepulture, to a place which was once a great tribal gathering-ground, should not be good in law. At any rate, the public had absolutely free access to Stonehenge, and in the absence of enclosure they could not have been denied such access. Thus, while the property was in private hands, the public had all they wanted—the means of viewing this strange legacy of distant ages. An enclosure completely alters the position. In the first place it destroys, or will, if left long unchallenged, destroy, all rights of way converging on the monument; and in the second place it actually excludes the public, and gives the owner not merely a property in Stonehenge (which he had before) but the exclusive enjoyment of the monument. It is true, of course, that the enclosure has been accompanied by arrangements for the admission of the public on a fixed payment. But it is not pretended that this admission is accorded to the public as a right, it is due to an act of grace on the part of the owner, who can at any time raise the price charged or close the gates entirely. And, further, every person who pays his shilling to see Stonehenge is negating the right of the public to see it without payment and confirming the owner in his right of exclusive enjoyment. It is extraordinary that the learned bodies who have, by their advice, made themselves responsible for this enclosure did not see that they were taking the most effective step which could be devised to deprive the nation of its enjoyment of Stonehenge.

It will be said that the tolls levied for admission are being expended on works of restoration, and that the owner could not be expected to execute such works at his own cost. This is rather a pitiful plea. If Stonehenge needs works of maintenance, the nation is surely rich enough to carry them out. Stonehenge is, perhaps, the most important megalithic monument, not only in the United Kingdom, but in the whole of Europe. Will the nation lose its enjoyment of such a unique possession for the sake of a few hundreds, or even thousands of pounds? But the fact is, the whole situation is anomalous. That Stonehenge should be at the mercy of a private owner as ridiculous as if Westminster Abbey were in that position. It must originally have been a public possession. By what means it became private property we do not know, but doubtless in the first instance by some royal grant of lands in dower, when there was little interest in the early history of the isles, and no thought was paid to the stone vestiges of that history. The nation should now recover its interest on proper terms, and this should be a preliminary step to any measures for regulating access to the monument. There are many ways in which the transfer can be effected. The owner can follow the excellent example of the Dean and Chapter of Salisbury Cathedral, who have placed the neighbouring most interesting remains of Old Sarum under the guardianship of His Majesty's Office of Works under the provisions of the Ancient Monuments Acts. A purchase outright may be arranged under those Acts, either by the Office of Works or by the Wiltshire County Council. Failing any arrangement by agreement, Stonehenge is so unique a monument and so absolutely national in its character that a measure of compulsory purchase would be justified. It is said that the owner has short since offered to sell to the Government, but at a price and on conditions which were prohibitive.

When once the nation is secured in the enjoyment of Stonehenge the conditions of the problem are radically altered. Any measures desirable for the protection of the monument then become a mere question of police; they cannot be wrested from the injury of the public. It might even be desirable to divert the admitted carriage-way, which, as we have said, cuts the outer earth bank in two places, and to take such measures as are desirable to emphasise the form and outlines of the monument in their entirety, though it is doubtful whether any fence is necessary for this purpose. But until the national enjoyment of Stonehenge is secured it would be suicidal on the part of the public to relinquish its admitted right to approach within the earthwork, and close to the stones of Stonehenge, by means of the existing carriage-way. This way is, at the present moment, largely used by those who do not care to pay a shilling to enter the enclosure, and from it a near view of Stonehenge can be obtained. It is to be hoped that the local authorities, the Parish Council of Amesbury and the District Council, without whose consent no diversion can be sanctioned, will stoutly oppose any application with that object, and it is even with

the consideration of these bodies whether some step should not be taken to obtain recognition of the public right over the ways already obstructed.

ARCHITECTURAL DESIGNS.

THE principles of design are as important as the mechanical art of drawing to an architect. He makes but a poor draughtsman who does not know the meaning of the marks he puts upon the paper. It is in this case as in poetry—he is the best artist who can express the most meaning in the fewest lines. A great critic has said that “he who talks of the rules of his art is only second-rate, and if he talks much he is no artist at all;” but since he wrote upon nothing else himself, and promised more, there is some reason to conclude that it was a fascinating subject. There is some universal principle which will please all people in all ages, but the appreciation it will receive depends upon the degree with which the pure feelings for beauty are unpolluted by the dross of fashion and perverted taste. To give names to the several qualities that can be expressed in architecture has long been a fertile source of interest, but it seems as though the numerous terms in use, instead of being conventional signs for things universally agreed upon, are rather like the monuments on a battlefield, to point out the places where there has been the most fighting.

The subject of architectural drawing divides itself into two classes—designs made for beauty and working drawings for constructive plans. Convenience of arrangement in the latter is not a general principle like the laws of form and colour in the former. The laws of form are less definite than those of colour; and with all their clearness, their mathematical analogy to music, and the universal dogma of prismatic equilibrium, we find in practice that though a pleasing effect cannot be produced by an exact balance of colour, there must be some prevailing tint to give a character to the work. The authorities for the use of colour in Classic architecture differ as to the manner of its application. Those who formerly considered it perfect by form alone were disappointed to find colour at all. The refinements of the minute Grecian curves are practically useless. Masons of the present day make long walls a little hollow to prevent them looking round, but it is not a subject for intense study in either case. Colour should never be used to complete form, but as an additional beauty after the form is perfect. The triangle is better than the square, and two ogees or a flamiform figure better than either. In streets and close squares the outline can only be a continental sky-line, broken by dormers and pinnacles, and if a building is detached, proximity to another of different outline will produce perhaps a disagreeable form of void between the two. This may be illustrated by balusters, which should be designed with great regard to the form of the light between them, which is the chief attraction for the eye. Exact imitations of nature are impracticable in the ordinary work of an architect's office. Warm buildings and blue skies are only effective because they are contrasts and complementary, and appear bright on the same principle as that by which Turner's pictures throw out their sunlight. The number of colours available in brickwork are small, but blue bricks should never be used, because the sky and distance are generally cold enough to balance the composition. Tiles are only addenda, whilst bricks may be worked into the construction. Coloured tiles were used in France in 1530 upon the Emperor Francis's palace of Madrid. The facings of street architecture might be cheaply decorated by moulded and coloured bricks. Shop fronts should be designed to attract attention by their individuality, but this is lost by one front merging into the next. One or two in a town are unusually prominent by returning to a fairly proportioned window on each side of a moderate door. Construction is sometimes forgotten in drawing for appearances.

In referring to the legends of natural types for the orders and styles, it is suggested that the Corinthian capital originated in some such custom as our own of tying evergreens round the columns at games and festivals; the upright leaves, the bead and cauliculi seem to point to this. The Grecians and Egyptians wished their art upon their temples, whilst our chief excellence is in the perfection of dwellings. To obtain light and fresh air are great points. A canon has been laid down by which 20 feet of cubic contents in a room should have 1 square foot of lighting aperture, but the same size of a window will light the room better from the end than the side. Bas-relief or sculpture should not be placed opposite the light, but this is the best place for pictures or hangings. The plasterwork of an apartment should be designed with great regard to the position of the light, and the plaster casts exhibited in different positions are illustrations of this. A cornice is particularly referred to, as designed to derive its beauty from light cast upwards. The lower moulding casts a shadow against which the light pattern upon its edge is shown to advantage. The cornice copied from the Classic exteriors should be lighted from above, which is not the case in a room. Ceilings should

have little ornament, but if any it should be small and plain. Animated figures and other suggestions of life should not be used in such unnatural positions, especially if above the natural size, as the eye always uses the human form as a standard for the magnitude of a room. A number of methods are mentioned of increasing the apparent dimensions and adding to the beauty of apartments; and it is suggested that architects should have more control over the finishing of a house. Although little is said of the mechanical practice of drawing it is of importance that the architect be master of his pencil, for directions to his draughtsmen will never convey the feeling to a curve that there is in one sketched at a sweep by his own hand, like the track of a swan in the water. It is probable that the more complex forms of beauty may derive their qualities from some invisible curve that floats about their point. Objects that appear out of place always do so because they attract the eye out of a smooth, graceful track; for, like lightning, the eye of taste will take the most direct line of conductors, and a rupture takes place at every undue interruption. The powers of projections and light parts for attracting the eye and the influence of colour or tones to increase or modify that power are the two grand points for study.

THE LAND TRANSFER ACT.

AT the annual meeting of the Law Society on Tuesday, Mr. J. S. Rubinstein, London, contributed a paper which he entitled, “A Legislative Blight,” being an attack on the Land Transfer Act. His argument was that the representations made that the effect of the Act would be to simplify and cheapen the transfer of land were delusive and fallacious. On the contrary, he contended, a purchaser now found a purchase took longer to complete, and the charges were considerably in excess of what they were previously. He recently completed for a client a purchase of a property he had bought for 1,250*l*. The client was well acquainted with the old system, but expected wonders from the new. When the day of reckoning arrived the client experienced a succession of shocks. The first was in finding that as a result of the new system he had to pay 5*l*. 12*s*. (being the additional charges consequent on registration), or over 20 per cent., additional costs. The second was in ascertaining that if he ever sold the property the certificate of possessory title he acquired would not help him or help his purchaser in the slightest degree. The third shock was due to the fact that, anticipating that his whole title would appear on the certificate, and that this would be the only document to take away, he found he had to take the deeds plus a certificate which was little else than an index to his own purchase deed. It certainly struck him that his deeds proved he was entitled to the property, and his certificate proved the same fact, and he asked what there was to prevent a person mortgaging the deeds in one quarter and mortgaging the certificate in another, and so raising money twice over on the same property. That the new system seemed designed to facilitate such transactions did not improve his client's opinion of compulsory registration. Since compulsory registration had been in force, and the expense of registration had to be added to the other costs, this fact had turned the scale in many instances, and induced a wavering client not to purchase. The tendency of the Act thus to resist transactions was seriously growing. He gave particulars of some cases that had come under his notice, illustrating the delays, difficulties and troubles the Registry put in the way of everyday business. The ground was certainly being sown with that “crop of nice questions” which they knew, on the authority of the Registrar-General, would fructify in due course. On the other hand, he admitted that Mr. Arthur Underhill's view that “but few proprietors will elect to register with anything but a possessory title” was borne out by the official returns. The salaries and expenses incident to registration for the three years 1898, 1899 and 1900 amounted to 54,600*l*., and the fees to 57,450*l*. As every county in England had the same right as London to have a registry office erected out of the public funds, the invention bade fair to involve the public and landowners in continuous outlay. He deplored the apathetic attitude of the public towards the new system. The City Corporation sent a deputation to the Lord Chancellor to urge that the new system should not be extended to the City until after an inquiry had taken place. The statement subsequently made in the House that the Government had no intention to hold an inquiry was, however, accepted without a voice being raised in protest. The Press rarely referred to the subject except to mention that so many thousand titles had been registered, which it treated as proof of the success of the new system, quite oblivious of the fact that this number had only been registered because registration was compulsory, and that the landowners who had been thus forced to register were groaning under its weight. The *Times* was justly looked upon as an organ of enlightened

public opinion. It was instructive to compare its attitude in 1897, before it was clear that the Act would be adopted in London, with the attitude it had since taken up. In 1897 all that the *Times* pleaded for was "two or three years of actual trial," and in 1900, when everyone who had been forced to go to the Registry joined in a chorus of condemnation, the *Times* designated a claim that the authorities should carry out their pledges and hold an inquiry as "querulous," and required them to "accept the inevitable" on the ground that the Act "had come to stay." At the risk of having some word used even stronger than "querulous" he emphatically reasserted that the Government was bound to carry out its deliberate pledges to grant an inquiry. Archimedes asserted that he could with a lever move the world if he could find a fulcrum large enough. Whatever its size, it would be insignificant in comparison to the one that would have to be found to move the official octopus when once it had fastened one of its suckers on to the public purse. With London within its grip, and with an Act which, now that the period of three years had expired, could at once be extended to every county in England, what hope was there that anything they could say or do would stay the blight that had settled upon London from spreading over the whole country? Black and drear as the outlook was, they must not retire from the field. They had, it was true, so far been defeated, and doubtless they could retire with a clear conscience and accept the gold mine that the new Act must prove to the profession as the consolation prize for their defeat. Their duty, however, to the public, to their clients, and to themselves imperatively called upon them to continue the fight to the bitter end in the hope that the public might even now open its eye before the descending knife completed its work.

Mr. Beale moved, and Mr. Kent (London) seconded, a resolution declaring that in the opinion of this meeting there had been sufficient experience of the working of the Land Transfer Act to justify a demand for full inquiry into the operation and effect of the compulsory registration of land.

Mr. McLennan (Rochester), Mr. Humfrys (Hereford) and Mr. Walters (London) spoke in support of the resolution, which was unanimously adopted.

THE STYLE OF THE LIVERPOOL CATHEDRAL.

A MEETING of the executive committee of the projected Liverpool Cathedral was held on Monday. The chair was taken by Sir William B. Forwood.

Mr. Robert Gladstone, in moving the confirmation of the minutes of the proceedings of the building sub-committee, said he desired to make some reply to the remarks which had been made with reference to the rapidity with which they had come to a very important decision—and that was the style of architecture to be adopted. He might say that when that decision was arrived at they had a very full committee, including the Lord Bishop and Lord Derby, very important members of the committee, and the subject was very fully and seriously considered; and as they had just heard the decision was unanimously in favour of the Gothic. There was no question raised as to the possibility of any other style being adopted. He thought they had come to a very sound decision, because however appropriate other kinds of architecture might be for public buildings such as town halls, or places like the Philharmonic Hall, theatres, &c., there could be no question whatever in the minds of thinking people that Gothic architecture produced a more devotional effect upon the mind than any other which human skill had yet invented. He had sometimes been asked why we had not got a twentieth century style, or at least why they should not strive for one; and why our architects could not invent something more in accord with present views of public worship and present ideas of religious architecture; and he could only reply that there appeared to be no such thing in existence, for, with the exception perhaps of the Crystal Palace, an erection of glass and iron, every public building without exception in this country was a reproduction in some form or other of former styles. He had taken the trouble to write down what Sir Gilbert Scott had said with reference to the most beautiful interior of Gothic architecture in this country—that of Westminster Abbey—when addressing the Institute of British Architects. Sir Gilbert said of Westminster Abbey that it was "a building which does not owe its claims upon our study to its antiquarian and historical associations, intensely interesting though these must be to every man worthy of the name of an Englishman. It has claims upon us architects, I will not say of a higher but of another character, on the ground of its intrinsic and superlative merits as a work of art of the highest and noblest order, for there are few churches in this or any other country having the same exquisite charms of proportion and artistic beauty which this church possesses; a beauty which never tires,

and which impresses itself afresh upon the eye and the mind, however frequently you view it, and however glorious the edifices which, during the intervals, you may have seen. He thought that all who had seen it must agree with what Sir Gilbert Scott had said. The great period of Gothic architecture was the hundred years which elapsed between 1220 and 1320, when the Early English entered upon the Decorative period. After that Gothic architecture became too much taken up with detail. In Westminster Abbey and other great churches built in that period, they found a majestic simplicity in the architecture which conduced, as he thought, most highly to devotional feelings, and to the proper conduct of public worship. Therefore he hoped the committee would adhere to their decision. On the subject of the selection of an architect there had been an unintentional mistake made in the news papers, which rather led people to believe that it was to be limited competition. The building committee recommended that it should be an unlimited competition. It stood to reason that there were many competent architects in this country who had had little or no opportunity of doing ecclesiastical work at all—still less on the scale of a cathedral—and they thought it desirable to let those who had not yet built churches, or even designed them, have an opportunity of showing what they could do. An advertisement had been drawn up, and would be inserted, inviting architects to send in portfolios of drawings, from which a selection would be made in due course, and their authors invited to enter a final competition.

The advertisement was then discussed, and it was finally decided that the committee should ask for an unlimited competition in the first instance, drawings of work already done or designs, to be sent in before January 1, 1902, the committee reserving to themselves discretion as to employing a professional assessor in making the selection of candidates for the final competition, and also the right to invite architects who should not take part in the first competition to send in designs for the final one.

The minutes were unanimously confirmed.

THE DESIGN OF FACTORY CHIMNEYS.

FROM an engineering standpoint a chimney is a vertical flue for removing the products of combustion, for inducing combustion, or for the removal of deleterious gases. The flow of the heated air and gases is due to their rarefied condition as they pass through the flue, thus constituting a column of air of less specific gravity than that of the ambient atmosphere.

Only brick chimneys are considered in this paper, and they should be constructed to fulfil the following essential conditions:—

1. The flue must be of proper height and sectional area necessary for a given velocity and volume of air for efficient combustion of the fuel burned in the furnaces.
2. Proportion and form of flue should be such as will offer the least amount of resistance to the flow of the gases.
3. Maintenance of the temperature of rarefaction by non-conduction through the walls or sides of the flue.
4. Provision for the expansion and contraction of the material composing the chimney.
5. Stability of the structure or power to safely withstand the external forces, being the combined force of wind and weight of structure.

Form and Dimensions of Flue.—The cross-sectional form of the flue is usually circular, octagonal or square, the relative efficiency being 100, 97 and 93, in the order named; the area should maintain throughout the height of the flue without reductions or enlargements. The dimensions are dependent on the kind and amount of fuel burned, the form and length of the ducts leading to the base of the chimney from steam boiler or other furnaces, and in some cases it becomes necessary to adjust the height to suit local conditions, such as adjacent high ground or buildings, or for the purpose of emitting deleterious gases at higher altitudes.

An engineer designing a chimney must and does have all knowledge of one essential; this is the power to be developed, and, consequently, the amount of fuel to be burned. With these data and statistics regarding the behaviour of chimneys in actual operation he is enabled to construct simple and reliable empirical formulas for his guidance. In the preparation or use of such formulas care must be observed to make due allowance for any conditions of moment varying from those upon which the formulas are based. It has been found that the far greater number of chimneys are subject to average conditions, and hence favourable to the use of empirical formulas. Some of the exceptions to these average conditions are when

* A paper read before the Engineers' Club of Philadelphia by Francis Schumann, and published in the *Engineering Record*.

urnaces are distant from the base of the chimney, when they are elevated and ducts lead downward to the base, when the ducts are restricted in area, or pass through damp or wet media, or when the chimney is surrounded by high buildings or near cliffs.

The following formulas are presented by Mr. Schumann as new and giving values agreeing very closely with those confirmed by actual and satisfactory results. The only claim made in their favour over other existing similar formulas is their greater simplicity.

K = total amount of coal burned per hour in pounds.
H = height of chimney in feet.
A = sectional area of flue in square feet.

The proper sectional area for a given amount of coal burned per hour should be:—

$$A = 650 K \div (36000) \times (650 K \div 36000)^{1/4}$$

in which 650 is the smoke produced in cubic feet per hour per pound of coal, and 36000 a velocity in feet per hour, or 10 feet per second, the velocity increasing with the amount of fuel burned per hour.

The area thus found may be altered to suit different heights of chimneys, but should not exceed 10 per cent. either way when used in the following formula for obtaining the height:—

$$H = 250 K \div (500 A - K).$$

The proportions resulting from these formulas apply to circular flues, and are ample for any kind of coal, whether anthracite, coarse, or fine or bituminous.

When the flue is octagonal or square the height, H, found above for given values of A and K, is to be increased (100÷97) and (10÷9) respectively.

The best economy in the furnaces is attained when the temperature of the gases at the base of the flue is between 550 and 600 deg. Fahr.

The amount of coal consumed per horse-power per hour is between 2.5 and 5 lbs., and burned at the rate of from 10 to 15 lbs. per square foot of grate surface.

Stability.—The stability of a brick chimney depends upon the strength of the material of which it is constructed to safely resist the stresses from the external forces, being the lateral force of wind and the superimposed mass, acting as a resultant at any horizontal plane throughout the height, or at the base of the structure.

The proportions must be such that the axis of rotation, or neutral axis of the resultant force, never falls within the respective cross-section, thus insuring compressive stresses of uniformly varying intensity only, tensile stresses not being permissible in masonry structures.

The non-conducting inner lining of the flue being separate from the outer shell, does not add its mass toward the stability of the chimney, but only to that of the foundation upon which it rests.

Procedure in Design.—After having decided upon the dimensions of the flue, find the outside dimensions at the top by adding to the flue diameter the thickness of the lining, the space between lining and shell, and the thickness of the outer shell at the top; the lining thickness need not exceed one-half inch, or 4 inches; the space, say 1 inch, and the shell, one inch, or 8 1/4 inches.

From these outer dimensions lay out the side lines of the shell with a batter of say 3/8 inch per foot down to the base of the chimney; subdivide the height into zones corresponding with the various thicknesses of the shell, resulting from the addition of brick dimensions, being respectively 4, 8 1/4, 12 1/4, 15, and 25 inches, and so on, each zone being of equal thickness throughout its height.

Determine the stability of each joint, commencing at the top; if deficient add to the mass by increasing the thickness of the walls, or by increasing the outside diameter.

The maximum force of the wind which the structure should withstand with safety is:—For square chimneys, 50 pounds per square foot of elevation; for octagonal and round chimneys, 35 pounds per square foot of diametrical plane.

Formulas for Stability—When a structure such as a chimney is under a compressive vertical force (mass) only, the neutral axis or axis of rotation of a sectional plane or joint will be at infinite distance from the centre of gravity of the plane; the resultant force will pass through the centre of gravity of the plane, which will be subject to compressive stresses of uniform intensity throughout.

When the structure is subject to a lateral force (wind) in addition to the vertical force, the resultant will intersect the sectional plane at a point beyond the centre of gravity of the cross-section with the direction of the lateral force. The neutral axis or axis of rotation will approach the centre of gravity of the cross-section from the side of the lateral force.

The position of the axis of rotation in a plane is dependent upon the amount of the external forces, but dependent solely upon the location of the resultant of the external forces (mass and wind).

When the axis of rotation passes through the cross-section,

one side of the section, the windward, will be in tension, and the other, the lee, in compression.

When the axis of rotation passes by the section, the stresses are wholly compressive and uniformly varying in intensity, as should be the case in masonry structures in which tensile stresses are not permissible.

The resultant external force in masonry structures should never fall outside of the core of resistance of the cross-section. The quotient of any moment of inertia of a cross-section, in relation to the neutral axis passing through its centre of gravity, divided by the distance of the edge of the section from the neutral axis and the area of the section, is the distance from the neutral axis to a point in the bounds of the core of resistance. In a circular or circle ring plane the core of resistance is bounded by a circle. In a square or hollow square it is a square with its diagonal perpendicular to a side of the plane.

When the resultant of the external forces falls outside the core of resistance the axis of rotation will pass through the cross-section.

When it falls within the core the axis of rotation will pass by the cross-section.

When it intersects the edge of the core, the axis of rotation will be at the edge of the cross-section, resulting in null stress at the axis of rotation, or the edge through which it passes, and double the normal stress at the furthest edge.

Let fig. 2 represent a symmetrical pyramidal prism of a given mass or weight subjected to a lateral force W, j j being a joint or sectional plane.

- Let m = mass or weight of prism above joint j j,
- A = area of its diametrical plane or projection, and
- b and b₁ = width at base and top, respectively;
- G = centre of gravity,
- W = total lateral force acting at G, and
- h = distance from joint to G, or lever arm for W.
- x = distance from centre of gravity of cross-section to intersection of resultant R (of mass and wind).
- w = pressure of wind per square foot, 50 pounds for plane surface and 25 pounds for cylindrical or octagonal.
- w₁ = pressure per square foot a given cross-section will resist when the axis of rotation is at the edge of section.

$$W = w A; h = 1/3 H (b + 2b_1) \div (b + b_1);$$

$$x = W h \div m; w = x m \div A h; w_1 = k m \div A h.$$

If m and x are known, the next step is the determination of the resulting stresses and their character, acting at the joint.

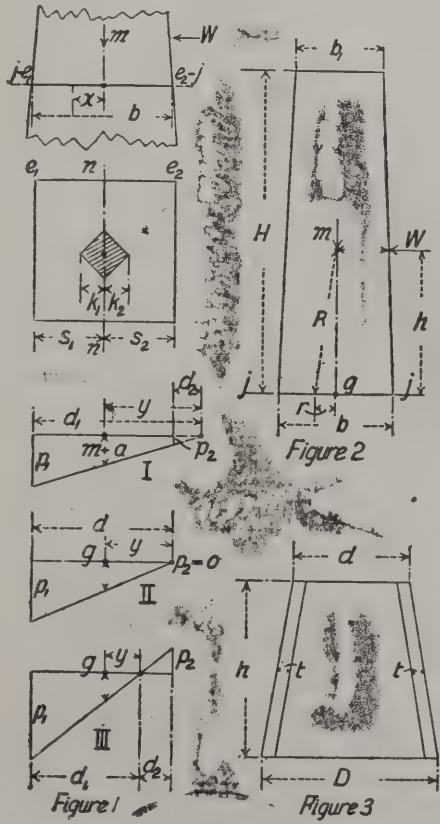


Fig. 1 shows a joint, j j, and its sectional plan, a solid square being chosen, with its core of resistance cross-lined. Three diagrams are also shown giving graphically the stresses throughout the cross-section for different positions of the axis of rotation.

Let a = area of section, and
 g = centre of gravity,
 I = moment of inertia,
 r = radius of gyration,
 k = distance from g to core of resistance,
 $n-n$ = neutral axis of cross-section through g ,
 O = axis of rotation,
 s = distance from $n-n$ to edge of section, lee side,
 s_1 = distance from $n-n$ to edge of section, windward side,
 y = distance from $n-n$ to axis of rotation O ,
 d = distance from axis of rotation to any point where stress is sought,
 d_1 and d_2 = distance from axis of rotation to respective edges, e_1 and e_2 ,
 p = stress per unit of area at any point distance d from O ,
 p_1 and p_2 = maximum and minimum stresses respectively at edge e_1 and e_2 .

When x exceeds k , axis of rotation falls outside of section; p_1 and p_2 compressive stresses.

When $x = k$, $y = s$, d_1 and p_2 become null, and $p_1 = 2m \div a$.

When x is less than k , axis of rotation falls within the section; p_1 compressive and p_2 tensile stress.

$r^2 = I \div a$; $K = I \div s a$; $y = r^2 \div x$; $p = m \times d \div I = m d \div a y$;
 $p_1 = m \div a + W h s_1 \div I$; $p_2 = m \div a + W h s_2 \div I$.

When $m \div a$ is less than $W h s_2 \div I$, the stress is opposite in kind, or tensile.

It is interesting to compare the results given by Mr. Schumann's formulas for the diameter and height of a chimney for a given horse-power with the values given by the formulas of Professor Lang, published in the *Engineering Record* for July 20, 1901, and the values given in Kent's "Mechanical Engineer's Pocket Book." The comparison is shown in the following table:—

H.-P. at 5 lbs. Coal per Hour.	Schumann.		Kent.		Lang.	
	Diameter, Inches.	Height, Feet.	Diameter, Inches.	Height, Feet.	Diameter, Inches.	Height, Feet.
500	57	100	57	100	55	112
1,000	74	130	72	150	78	141
1,500	86	150	86	149	97	163
2,000	96	170	96	175	111	181
2,500	103	185	102	200	124	198
3,000	111	202	108	200	138	216
4,000	127	206	127	208	158	240

It will be noticed that the results given by the Kent and Schumann formulas are practically identical, while those given by the Lang formulas are considerably larger for the same horse-power.

THE STOCKPORT WORKHOUSE COMPETITION.

PLANS were recently obtained by competition of a new workhouse infirmary proposed to be erected for the Stockport Union on a site purchased many years ago by the Board of Guardians for the erection of a workhouse. The new infirmary committee considered the report of Mr. Thomas Worthington, architect, of Manchester, who had been appointed to examine the seventeen sets of plans sent in and award the premiums offered, when it was decided by a majority not to accept for the present any of the three premiated plans on the ground that the cost limit in the instructions to competitors had been exceeded. At a largely attended meeting of the Board on Monday, Mr. George Andrew (chairman) presiding, Mr. F. R. Morley pointed out that the Guardians asked for plans showing an infirmary of 322 beds at an estimated cost not exceeding 130*l.* per bed. The estimates for the three sets of plans selected by the assessor were as follow:—No. 1, 51,682*l.*, or 160*l.* per bed; No. 2, 47,322*l.*, or 147*l.* per bed; No. 3, 58,272*l.*, or 180*l.* per bed. A majority of the committee considered that to accept one of these three sets of plans without a further report upon the remaining fourteen sets would be an injustice to those competing architects who had kept within the limit of cost of 130*l.* per bed.

Mrs. M'Clure asked if it was not the duty of the assessor to throw out the plans that exceeded the cost limit. At any rate, she thought the Guardians ought to be informed as to which were the best plans within the cost limit.

The Chairman suggested that the Guardians should first decide whether they intended to follow up the resolution of the former Board and build at Stepping Hill, or whether they meant to provide increased hospital accommodation on the site of the present workhouse at Shaw Heath.

Mr. Morley and Mr. C. Sharples stated their readiness to support the Stepping Hill site, the last named contending that there was no other course possible since a piece of the available land at Shaw Heath had been purchased and cleared for the erection of a Catholic church.

Mr. John Bateman challenged the clerk to produce any correspondence in which the Local Government Board said

they must go to Stepping Hill, and said he was not satisfied that they could not get all they required at Shaw Heath at much less cost than was shown in the estimates before them.

An animated discussion resulted in a decision to suspend operations as to a new infirmary until the opinion of the Guardians on the question of site has been expressed.

THE BELFAST CITY HALL.

THE following report was lately submitted to the improvement committee of the Belfast Corporation by the architect of the new city hall. It shows the amount already authorised by the Council, and the suggested expenditures that the committee have had under consideration:—Authorised expenditure—Amount of contract, 149,864*l.*; increased height of building, 3,750*l.*; projection of public hall, 1,000*l.*; facing courtyard with stone, 3,114*l.*; additional emergency staircase, 1,600*l.*; expenses of laying foundation-stone, 520*l.*; heating and ventilation, 1,535*l.*; additional coal store, 500*l.*; basement under rates and gas offices, 500*l.*; additional steelwork and floor construction at ground-floor level, 1,000*l.*; entrance porch to public hall, 500*l.*; slurry, 500*l.*; total, 164,383*l.* Suggested expenditure—(1) Internal decoration of dome and principal staircase, &c., 16,932*l.*; (2) sculpture, 2,000*l.*; (3) increase in size and height of main entablature and balustrade, 2,000*l.*; increased height of dome, 2,500*l.*; (4) plumbing, 1,500*l.*; (5) additional joinery, &c., to public hall, 2,000*l.*; (6) gallery to public hall, 3,000*l.*; total, 29,932*l.*; grand total, 194,315*l.*

The following resolution was adopted:—"That the report of the architect be adopted, and that the Council be recommended to authorise the extra expenditure suggested, which will effect great and desirable improvements on the building." In bringing forward this recommendation the committee feel that it embraces all the improvements that are likely to be required, with the exception of some marble spandrels between the arches and ceiling in the hall, and hard wood in substitution for pine in some of the windows, involving an expenditure of about 1,000*l.*

TESSERÆ.

Interlaced Ornament.

OF the many interesting memorials of the past met with in parts of the Balkan Peninsula, not the least important are those interlaced slabs from the early churches of Knin. They belong to a style of decorative art once common among Christian communities throughout Europe and some parts of Asia and Africa. In the course of the distribution of this style over such an extensive area its details naturally underwent various modifications in the hands of different artists, especially those inhabiting countries far from the centre of its primary development, such as the Saxons, the Celts and the Scandinavians. Nowhere has this divergence been more marked than within the British Isles, so much so that at one time it was the current belief that interlacings were a creation of the Celtic mind. But wider observation has proved that interlaced patterns were introduced from the East by the same channels which gave access to Christianity. At the same time, it is not denied that in the hands of the Celts these designs, especially in combination with the pre-existing spirals and trumpet shaped spaces, have been manipulated in such a manner as to give their productions a remarkable individuality of character. There is now a consensus of opinion that this form of ornamentation originated in the Byzantine school, and thence spread throughout Europe, acquiring greater intricacy and significance as it reached the outward limits of Christendom. The continental specimens on stonework are broadly characterised by a division of the interlacing bands into three ridges, a feature which is extremely rare in the Celtic area, the band in the latter case being either plain or divided into two ridges. There is reason to believe that this simplification of the band, though in point of ornamentation it may be regarded as a backward step, was due to necessities imposed upon the artist in his efforts at greater elaboration.

Early Church Towers.

There is in the Bodleian Library at Oxford a manuscript of Cædmon's Saxon Paraphrase of the book of Genesis, which is decided by persons conversant with ancient autographs to be undoubtedly of about the year 1000, rather earlier than late but not exceeding fifty years of that period. It contains rudimentary drawings, some of which have been engraved; a copy is preserved in the library of the British Museum (intituled, "Figuræ quedam antiquæ ex Cædmonis monachi Paraphraseos in Genesin, 1754"). In the plate marked "pag. 59" is a church with a square tower and a spire upon it; there is also a porch at the side of the church. The spire, as well as the church, is covered with round ended shingles. This is not only evidence of shingles being an ancient practice, but also of

pires and porches having existed long anterior to the time usually allotted to their introduction. Bentham in his history of Ely Cathedral expresses an opinion that spires did not occur much before the year 1222, and Warton thought not before the year 1200. On the outside of the tower of Castor Church in Northamptonshire the stonework is cut in imitation of shingles. Dr. Stukeley speaks of this tower as being an ancient piece of architecture. The tower appeared to be much older than the rest of the church; the subsequent addition of the other parts was evident in the contiguous work of the walls.

Saxon Building.

The situation of Britain after being quitted by the Romans prevented the natives raising more than temporary buildings, and therefore little advantage could be taken of the superior examples left by the former masters of the world. How little people in an abject state are capable of profiting by the best examples before their eyes has been witnessed both in Greece and Rome, where, becoming subject to barbarians, architecture quickly degenerated to a correspondent rudeness. The produce will always be influenced by the demand. A superior intelligence in what related to building could not be expected from tribes of roving Saxons, and any little advance that might have been made in the arts after the settlement of the Saxons in Britain must again have been depressed by the long conditions with the piratical Danes. In buildings of what is called the Saxon period it is probable that, if any vaultings occurred, they were confined to small groins in crypts, having above ground no other than arched apertures in the walls and arches over the columns and piers. Of the ancient buildings erected in the simple manner that has been mentioned we cannot expect at this distant period to find many examples. A few remains of small buildings, appearing of a remote age, are in the walls long and narrow windows, being on the inside only a few inches in breadth, but are widely splayed thin, and are many feet in height. Some of the windows have semicircular-arched heads, and others are terminated at the top with a sharper curve on the outside, the inside being framed into a low circular segment that extends to the upper extremities of the splayed sides.

The English Town.

Formerly a wall seems to have been considered necessary to constitute a town, and the derivation of the word, in its Anglo-Saxon form "tun," is usually referred to the verb "tunan," to shut or enclose; in its Dutch form, "tuyn," it signifies a garden; and in its German form, "zaun," it means a hedge. In legal language "town" corresponds with the German "vill," by which latter term it is frequently spoken of in order to distinguish it from the word town in its popular use. A vill or town is a subdivision of a county, as a parish is a subdivision of a diocese, the vill, the civil district, being usually co-extensive with the parish, the ecclesiastical district, and, *prima facie*, every parish is a vill and every vill a parish. Many towns, however, not only in the popular but in the legal sense of the term, contain several parishes, and many parishes, particularly in the North of England, where (probably from the difficulty of obtaining a resident clergy in places exposed to hostile inroads) the parishes are exceedingly large, contain several vills, which vills are usually called tithings or townships. As, until the contrary is shown, the law presumes that parishes (or vills) and parishes to be co-extensive, Lord Coke goes so far as to say that it cannot be in law a vill unless it hath, or times past hath had, a church and celebration of Divine service, sacraments and burials. But this, for which no authority is given, appears to confound parish and vill, and to be inconsistent with the cases in which it has been held that a vill may consist of several vills. The test proposed by Lord Coke is that a vill must have a constable, and that otherwise the place is only a hamlet, an assemblage of houses having no official legal character. Hence a vill is sometimes called a stablewick. Towns are divided into cities, boroughs and towns, or (as we should now call them) country towns. Towns belonging to the last of these classes have been described as places which, though enclosed, are not governed by cities and boroughs are, by their own elected officers. The Anglo-Saxon "tun" terminates the names of an immense number of places in England; and in the southern counties a farm enclosure in which the homestead stands is usually called the barton (barn-town), in law Latin, *bertona*.

The Christian Altar.

The dimensions of the high altar are thus stated by Bishop Bevilacqua:—"Allowing then an altar of three foote and an halfe, and a rising to it from the lower floore of a foote high; height of the altar from the lower floore will be foure foote and a halfe, or three cubits, which is the measure required in Leviticall law, and differs little in height from the altars in other parts, or those which are yet standing with us, if we will take their height from the lower floore: which, by reason of the continued and easie degrees of ascent to them,

may not unfitly be counted their basis or foote." The authentic mark of an altar-table was its five crosses. As no altar could be consecrated without relics, there was a small stone, called the *Sigillum Altaris*, by which the aperture for insertion of the relics was closed up by mortar tempered in holy water. What are the horns of the altar has been doubted by Warton. They have been called the corners of the altar. Du Cange says the horn of the altar is the side where the epistle and gospel were read. Symmachus, Gregory of Tours and others mention the ciborium, an arch over the altar, supported by four lofty columns, in imitation of the Propitiatory, which covered the Ark. It was sometimes illuminated and adorned with tapers. Where there was no ciborium a mere canopy hung over the altar, which was most common among us, a fine stone screen full of niches being the back of the altar, from which the canopy projects. Curtains called the *Tetravelum* were annexed and drawn round, that the priest might not be confused by view of the spectators. Under this ciborium or canopy hung the *Pix*, or box containing the Host, commonly a dove of goldsmith's work, esteemed so sacred that upon the march of hostile armies it was especially prohibited from theft, and Henry V. delayed his army for a whole day to discover the thief who had stolen one. A common altar-piece was a picture of the General Judgment, called *Mappa Mundi*, but others occur. Over the altar was put the *Palla*, carried out against fires; and over the *Pall* the Corporal, always made of linen, according to an order of Sextus in the year 133. The *Antependium* was a veil which hung before, as the *Dorsale* behind. Behind and about the altar were *Perticæ*, or beams, ornamented at the great feasts with reliquaries of ivory, silver, &c. Besides *piscinas* were the stalls, where the officiating ministers retired during parts of the service performed by the choir. Du Cange says:—"The *Sedes Majestatis* is a seat by the side of the altar, in which the minister about to celebrate sits while the *Kyrie*, *Gloria* and *Credo* are sung; from whence, as often as he arose, the deacon, removing his hood, or amess, used to comb his hair, although that office is now done in the vestiare before he comes to the altar." The altar-plate stood upon a side table called *Credentia* or *Ministerium*.

Position of Architecture among the Arts.

Architecture, unlike all other arts, contains something in its nature which prevents it from being, properly speaking, art, or anything more than decoration in the highest sense of the word. Architecture alone of all the arts has no subject furnished by nature. To what end the most beautiful building, if it were not for use? In whatever way you consider it, the idea of utility in the most extensive sense is inseparable from this art; yet this is an idea utterly at variance with art. On the other hand, buildings give a pleasure which we should seek elsewhere in vain. As colossal works of man, the enormous mass of which is invested with a beautiful and intelligible form, they stand midway between the productions of nature, mountains, rocks, &c., and the mere offspring of the human fancy, statues, and combine the advantages of both. Even the idea of utility, which instantly attracts men, perhaps conspires to produce this result, so mixed is the common impression which a building makes. The artistical impression is, indeed, very different; but even this cannot be perfectly pure, and the question remains whether architecture is to be treated as a perfectly pure art and utility to be sacrificed. The utmost it can attain to is, as it appears, the æsthetic treatment of a subject belonging to a totally different domain. This, however, applies only to ornamental architecture.

Cyclopean Walls.

The Italian cyclopean walls are built with great irregular blocks of stone, made even on the face, or nearly so, not squared nor laid in regular courses, but the inequalities are fitted to each other as much as possible and the interstices filled up with smaller stones. In what is probably the earliest style of all no tool seems to have been applied to the stone, but the rude masses are merely heaped on one another, taking care in the position of each successive block to place it where it would most nearly fit into the work, and probably keeping the smoothest side outwards to form the face of the wall; but the work is always rude and uneven. In the second style, the tool has been used, more or less, in order to make the great stones fit with some degree of accuracy; and in both these one may easily conceive the use of the leaden rule described by Herodotus, which being bent to the internal angle left on the top of the wall would be applied to the external angles of the stone intended to be placed in it. In the third sort of cyclopean walls, lines nearly horizontal are decidedly more numerous than those in any other direction, and here and there are some appearances of level courses. These, in later times, predominated more and more, till in the fourth and last style the only irregularity is found in the unequal thickness of the stones of the same course, corrected sometimes by the introduction of a sloping line, or more often by a notch to let the larger stone into the course above or below.

GENERAL.

The Conversazione of the Architectural Association will be held in the Gallery of the Royal Institute of Painters in Water-Colours on Friday, the 25th inst.

The Annual Meeting of the Architectural Association of Ireland was held on Tuesday in Dublin, when Mr. Charles MacCarthy, the city architect, delivered his address as President.

Mr. F. Matcham has prepared plans for a new theatre and other works for the Buxton Gardens Company, which will cost 25,000*l*.

The Treasurer of Christ's Hospital states that the announcement which has appeared to the effect that negotiations have been reopened between the governors of St. Bartholomew's Hospital and of Christ's Hospital, and that there is a prospect of a contract for the sale to St. Bartholomew's Hospital of the whole site of Christ's Hospital being concluded in the near future is incorrect.

Sir John Aird, M.P., will go to Egypt at the beginning of December in order to prepare for the Khedive's inspection of the great irrigation works, which are now approaching completion.

The Light Railway Commissioners have decided to grant the application made at Halifax for an order to authorise the proposed line from Holmfild to Southowram. This is to be about 4½ miles long with several sidings, and is estimated to cost 63,618*l*. The engineer to the scheme is Mr. Myers, Beswick.

The Statue of Queen Victoria which was unveiled at the Alexandra Palace on Saturday has been presented to the trustees by the sculptor, Mr. Onslow Ford, R.A. It is a plaster cast of the statue in bronze which Lord Roberts on Wednesday unveiled at Manchester.

A Meeting of Citizens was held in the Council Chamber, Edinburgh, to consider a proposal to hold an international exhibition in Edinburgh in 1904 or 1905. A committee was appointed to consider the question of site, the year of exhibition and other preliminary points.

Mr. Walter Stanton, architect and surveyor, Chesterfield, died on Monday at the age of fifty-five. The deceased was for a number of years the borough surveyor.

An Isolation Cottage, erected on the principle of a bungalow, will in all probability be established as soon as possible for the use of the inhabitants of Arundel. The works committee of the Town Council have recently been negotiating with the Duke of Norfolk on the subject.

A New Chapel was dedicated at Brislington last week. The plans were prepared by Mr. Frank Wills, and the building has been erected by Messrs. W. Cowlin & Son. The complete plans provide for a building to seat 700 worshippers on the ground-floor, and 110 in an end gallery, with a schoolroom adjoining to accommodate 150 children. The cost, including the site, has been about 4,000*l*.

The Hermione Lectures will begin on October 14 at Alexandra College, Dublin. They will be given by Dr. Waldstein, who is to take as his subject "Greek Art." In his first lecture the lecturer will take a survey of the peculiar character of Greek art as elucidated by the discoveries made in the last ten years. The remaining three lectures will be devoted to describing the excavation of the American school at the Argive Heraeum from 1892 to 1895.

Mr. W. A. Richardson having tendered his resignation as water engineer to the Birkenhead Corporation, it was decided to appoint him consulting water engineer, at a salary of 300*l*. per annum.

Mr. B. T. Batsford will issue early in November a revised and enlarged edition of "A History of Architecture on the Comparative Method," by the late Professor Banister Fletcher and Mr. Banister F. Fletcher. This edition has been revised and considerably enlarged by the junior author, and includes the Saracenic and Eastern styles. It now has 256 full-page plates, one half being from photographs of buildings, the other from specially prepared drawings of constructive and ornamental detail, including over 1,300 illustrations.

The Sussex Archeological Society will discuss at their next Council meeting a proposition to establish a national fund with the object of purchasing Battle Abbey. It is proposed to use the mansion as a county museum and library.

The Local Government Board has appointed Mr. James Green (Weatherall & Green) as valuer of the various properties alleged to be "bettered" by the London County Council in connection with the Westminster Improvements and the Thames Embankment Extension.

The Surveyors' Institution have now issued their calendar and list of sessional arrangements from November 1901 to May 1902. The first ordinary general meeting of the session 1901-2, will be held on Monday, November 11, when the president Sir John F. L. Rolleston, M.P., will deliver an opening address.

The Brighton Corporation have decided that Mr. A. R. Tiltman's commission on the expenditure on works at the Aquarium shall not exceed 1,250*l*., being 5 per cent. on the sum proposed to be spent.

M. Denys Puech executed a bust of the Czar at a few days' notice from a collection of pictures and portraits. The work was a commission from the French President, who made it present to the Russian monarch.

The Westminster Ratepayers passed a resolution on Friday declaring that action of the Westminster City Council in the matter of the paving contracts was open to most serious objection, first, in regard to their acceptance of the Improved Wood Pavement Company's tender, and secondly, in regard to the adoption of American red gum, and recommending that the contract entered into with the company be rescinded, and that the suitability of American red gum for street paving should form the subject of special and expert inquiry, pending which any further paving operations with it be stopped.

The Department of Records in Ireland has come into the possession of a large map of the "Government of Athlone," which, with other maps and manuscripts of the Headfort collection, was acquired by the Commissioners of Woods, Forest and Land Revenues in 1837 from the representative of Sir Thomas Taylor, who was deputy surveyor-general of Ireland in the reign of Charles III.

A Series of fire tests on tile and plaster blocks and thin metal-plaster partitions have been conducted by the Department of Buildings of New York City.

The Louisiana Purchase Exposition to be held in 1904 will, it is stated, be larger than any previous exposition in Europe or America. About 11,000,000 dols. will be expended for construction work. It is planned to apply about 7,000,000 dols. of this amount for the buildings and 4,000,000 dols. for the grounds. The general plans have been drawn up by a commission of architects.

A Tablet in memory of Christopher Anstey, the satirical poet of the eighteenth century, author of the "New Bath Guide," has been recently affixed to 5 Royal Crescent, Bath, where he lived for thirty-five years. The inscription reads, "Here lived Christopher Anstey, 1770-1805."

The Foundation-stone of a new Catholic church to be erected in the Mile-end Road was laid by Cardinal Vaughan on Saturday. The building is being erected from the designs of Mr. Walters, and will, when completed, accommodate 600 worshippers. It is in the Perpendicular Gothic style and will cost 11,000*l*.

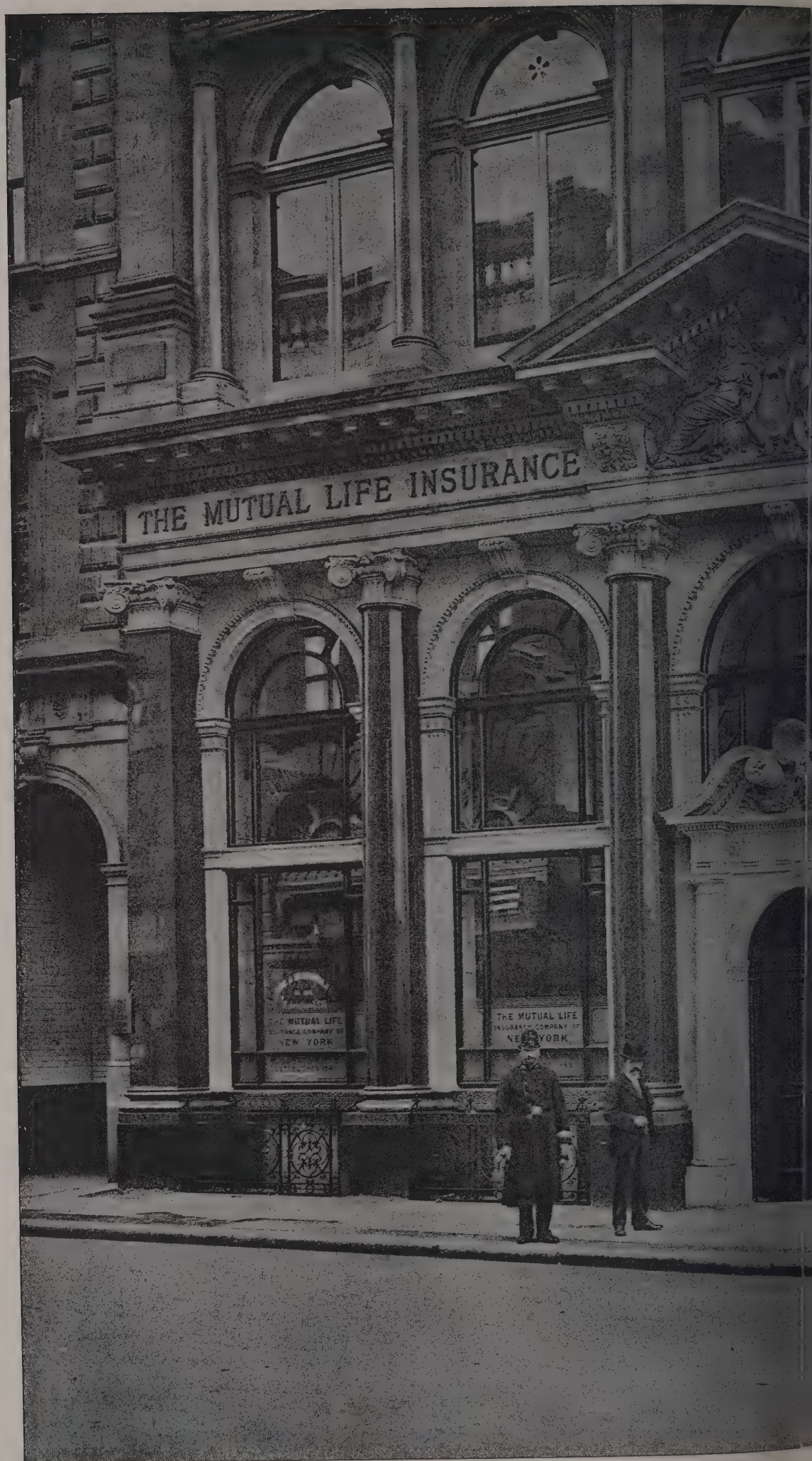
Mr. Adrian Jones has completed the clay model of the monument which is to be erected to the memory of the Royal Marines who fell in China and South Africa. It represents two Royal Marines, one lying on the ground wounded, while the other, erect and determined, faces the enemy with fixed bayonet. On the sides of the pedestal will be displayed the regimental badge and motto and the names of the fallen heroes, while at each corner a dolphin will be placed. It is hoped that a suitable site near the Admiralty will be allotted for the memorial.

The American Institute of Congress opened their thirty-fifth annual convention on October 3. Papers were read on "Some Phases of Exposition Making," by Mr. Carleton Sprague; "The Management and Design of Expositions," by Mr. Thomas R. Kimball; "The Exterior Colour Effects of the Pan-American Exposition," by Mr. C. Y. Turner; "The Electrical Installation and Decorative Effects of the Pan American Exposition," by Mr. Luther Stieinger; "Government Architecture at Expositions," by Mr. E. A. Crane.

The Northern Architectural Association will hold a excursion meeting to-morrow, the 12th inst., at Newcastle. Members will assemble at the Newcastle Breweries Office, Haymarket, at 3 P.M., and after inspecting these buildings will visit the electric power station.

The Rev. H. P. Gurney, principal of the Durham University College of Science, Newcastle, in his report has stated that the fund for the completion of the college building amounted to 51,000*l*. The suggestion of their treasurer, Dr. Hodgkin, that a suitable memorial to Lord Armstrong would be to erect a statue upon some prominent site, and to dedicate the college to his memory, had received the hearty support of Mr. Watson-Armstrong, and was cordially adopted by the Council. They resolved to ask the University to consent to change of name, and to invite subscriptions to an Armstrong memorial fund. A public meeting was held, and resolution were adopted approving of the scheme. Upwards of 20,000*l* was promised at that meeting.

St. Peter's Church, Bristol, having been subjected to very complete course of restoration, at a cost of 3,500*l*., was reopened on Sunday last. The restoration has been in hand some nine years, and the money was expended in the following manner:—1,200*l*. upon the tower, 900*l*. upon the south wall, 400*l*. upon the heating apparatus, and 1,000*l*. upon the interior

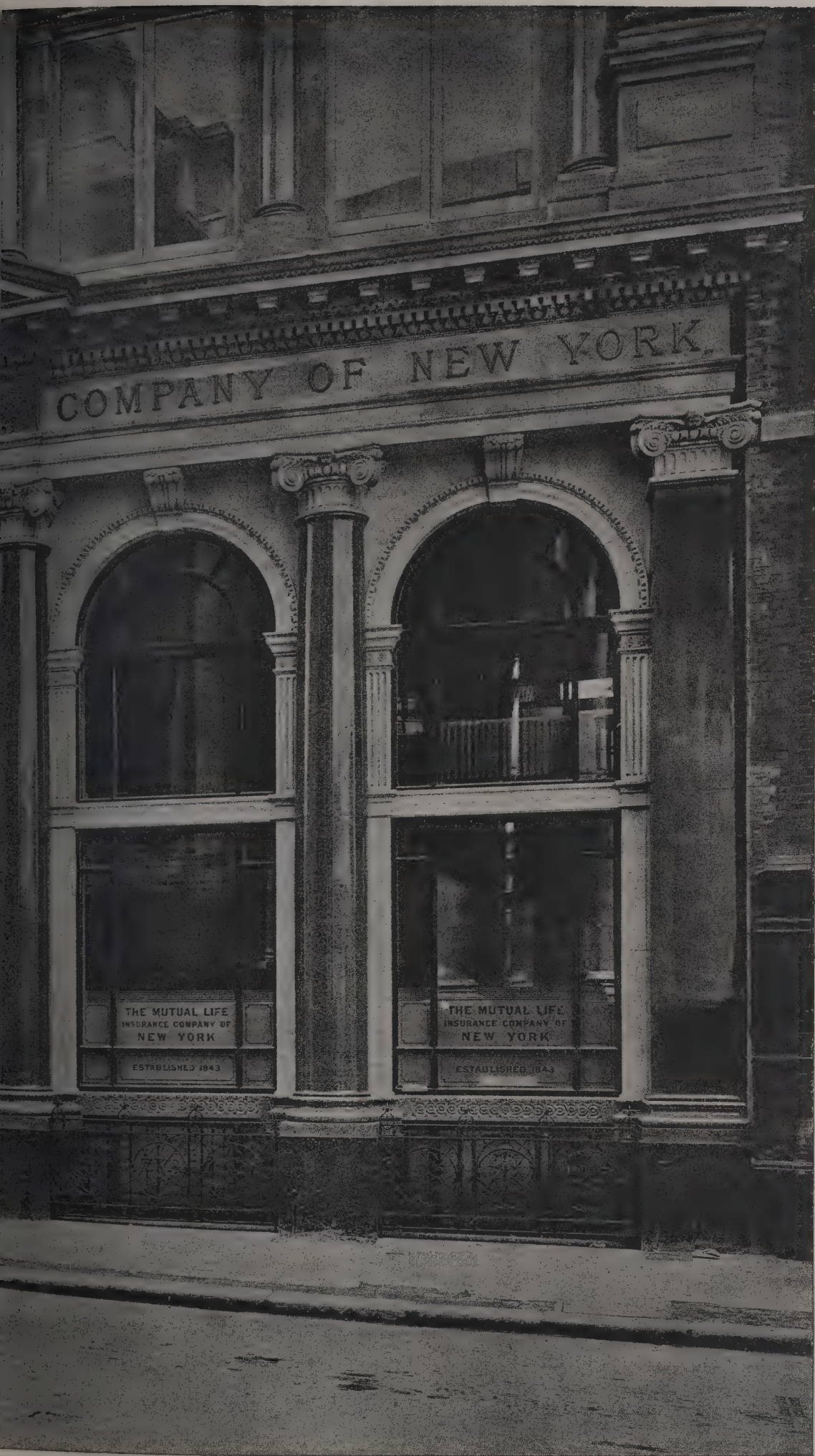


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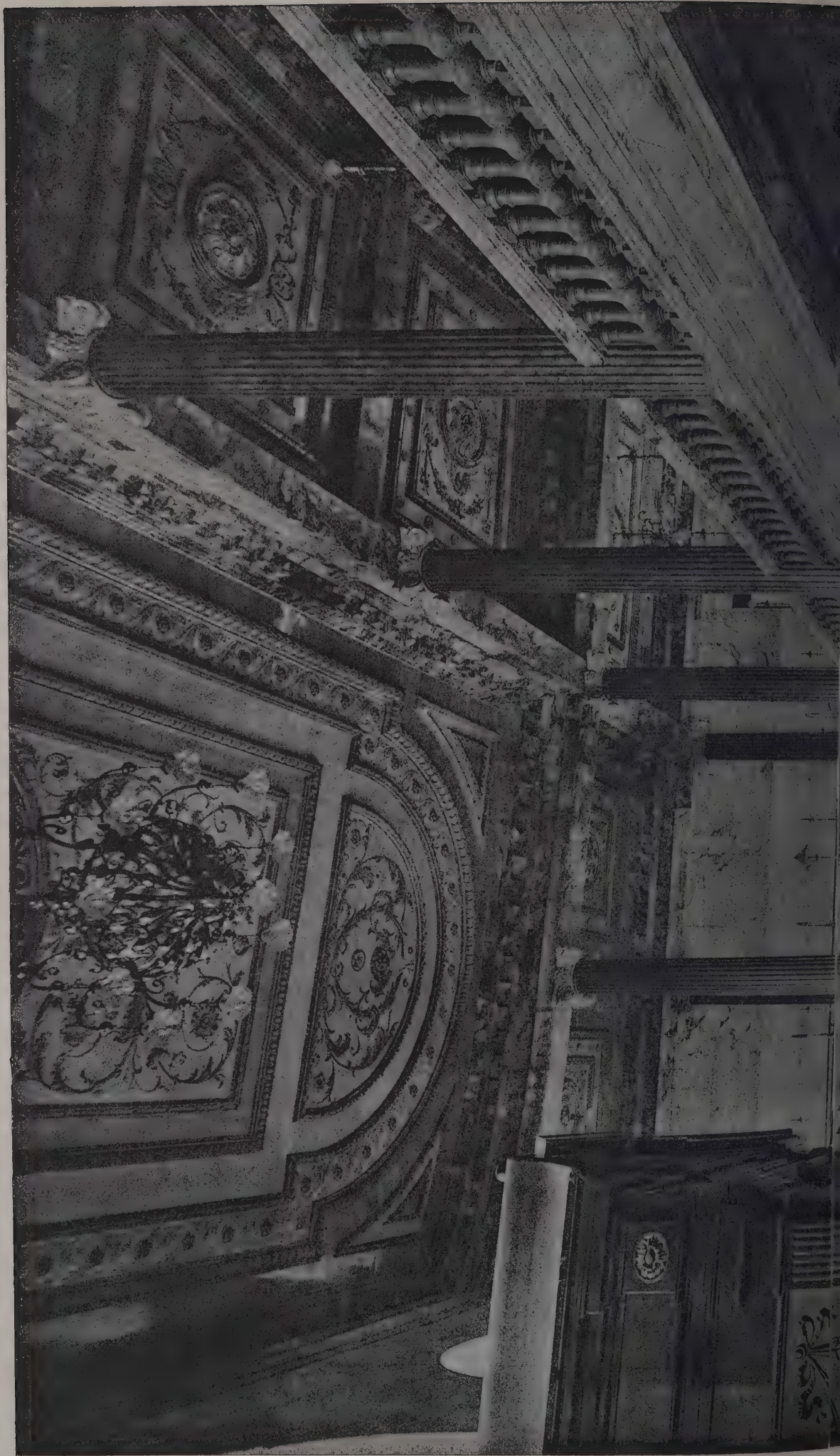
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S.E., Architect.

Ophe Architect, Oct 11th 1901.





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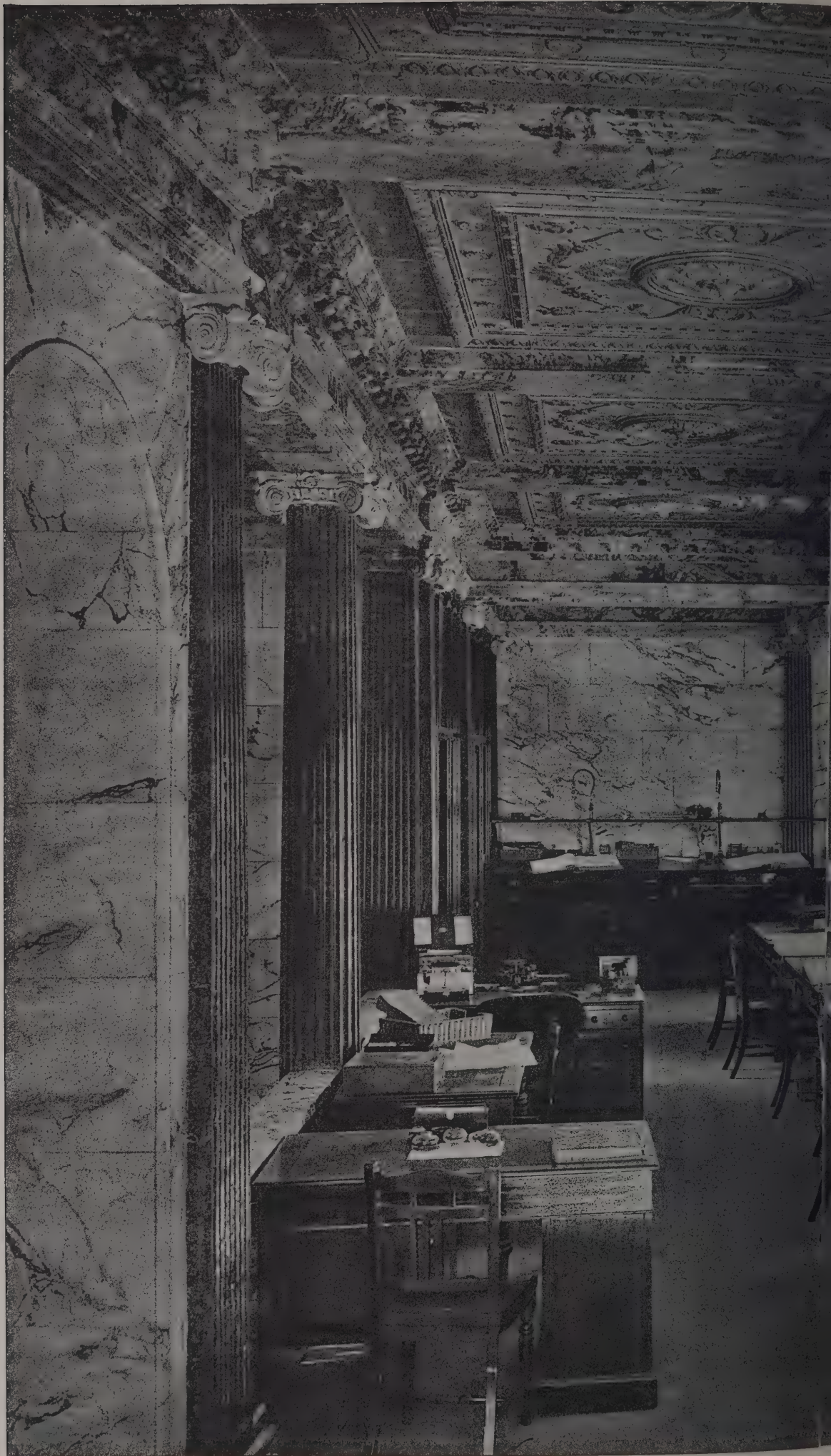
J. MACVICAR ANDERSON, F.R.S.E., Architect.



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J. MACVICAR ANDERSON, F.R.S.E., Architect.

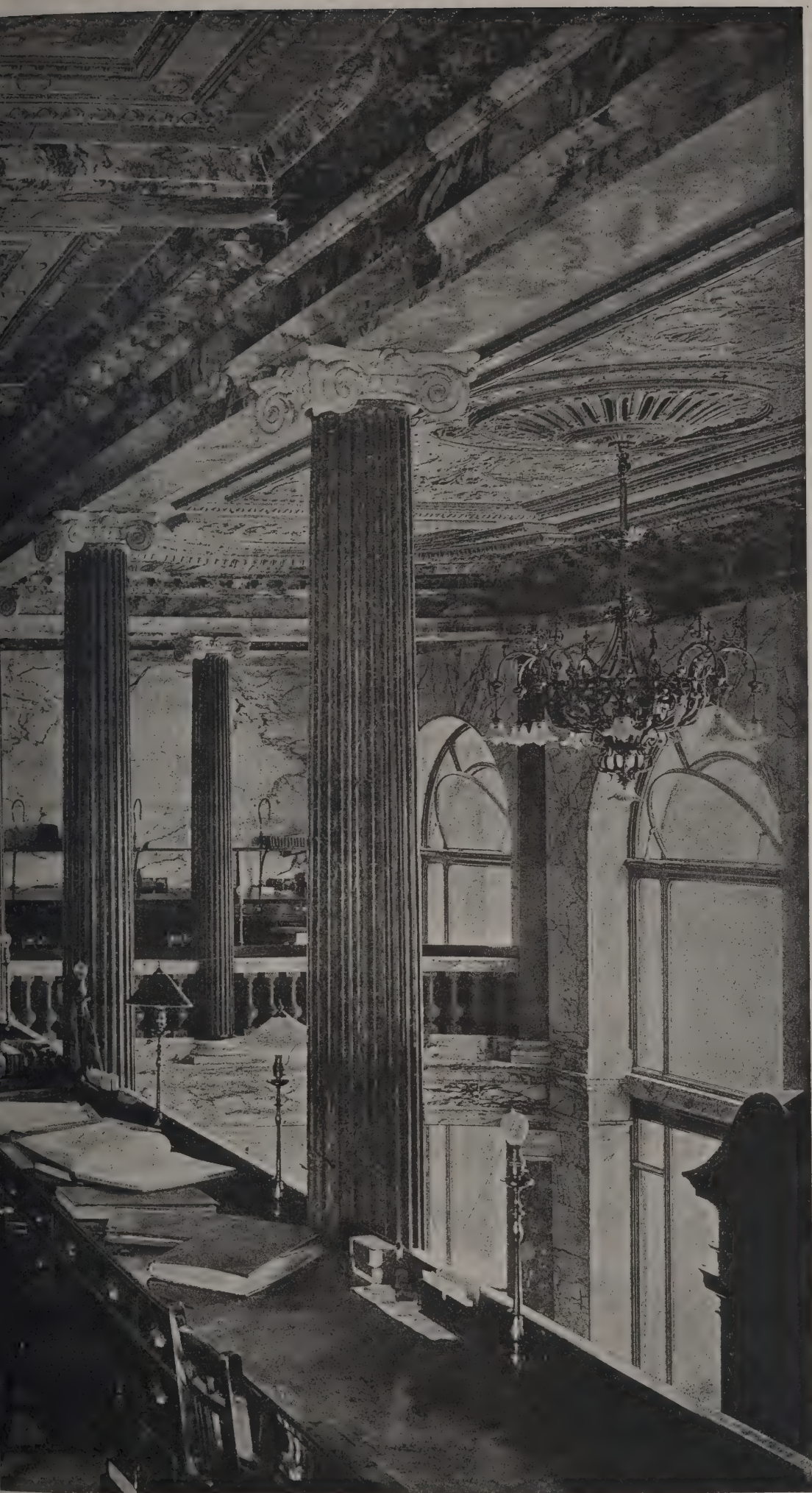


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NEW OFFICES OF THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK, CORNHILL, E.C.
STAIRCASE.

J. MACVICAR ANDERSON, F.R.S.E., Architect.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 25*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

CAMBERWELL—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

IRELAND—Plans are invited for the drainage of the town of Tuam. A premium of 20*l.* is offered. Mr. James Daly, acting clerk, Tuam.

TADCASTER—Oct. 26.—Competitive schemes are invited for extending sewage works from the present sewage beds of the Garforth sewage works to a site already selected. Premium 20*l.* Messrs. Bromet & Son, 16 Park Row, Leeds.

CONTRACTS OPEN.

ABBOTSKERSWELL—Oct. 23.—For erection of a school-master's dwelling-house, Abbotskerswell, Devon. Mr. Samuel Segar, architect, Union Street, Newton Abbot.

ARGENTINE REPUBLIC—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ARMLEY—Oct. 21.—For erection of board-room and offices at Hill Top, Armley, near Leeds. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

ASTON MANOR—Oct. 24.—For construction of a public urinal to accommodate fourteen persons, Aston Park. Mr. G. H. Jack, Council House, Albert Road, Aston Manor.

BARNSELEY—For erection of business premises, Market Hill, Barnsley, and for pulling-down the present building. Mr. G. Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

BATLEY—Oct. 14.—For erection of extensions to Hanover Street schools, Batley. Messrs. C. H. Marriott, Son & Shaw, architects, Church Street Chambers, Dewsbury.

BATLEY—Oct. 18.—For supply and erection at the electricity works, Batley, Yorks, of three Lancashire boilers, one economiser, two jet condensers, one electrically-driven feed-pump, injectors, steam, exhaust, feed and condenser pipes and accessories, and a travelling crane. Messrs. Lacey, Clirehugh & Sillar, 2 Queen Anne's Gate, Westminster.

BECKENHAM—Oct. 14.—For erection of two firemen's cottages, with room to contain a hose-cart, in Station Road, Shortlands, Beckenham. Mr. John A. Angell, surveyor.

BEN RHYDDING—For erection of a house at Ben Rhydding. Mr. H. S. Fleming, Moorlands, Bingley.

BETHNAL GREEN—Oct. 29.—For supply and erection of one Alliott & Paton's improved Washington Lyons steam disinfecter, with all the necessary buildings, fittings, &c., at the infirmary, Cambridge Heath, N.E. Mr. D. Thomas, clerk to Guardians, Bishop's Road, Bethnal Green, N.E.

BLACKBURN—Oct. 26.—For providing and fixing two triple-expansion pumping engines, with a 6-ton traveller, iron flooring and appurtenant works, at the Throstle Street destructor site. Mr. William Stubbs, borough engineer, Municipal Offices, Blackburn.

BOOKHAM—For erection of proposed Kennels for the Surrey Union Hunt. Messrs. Charles Smith & Son, architects, Reading.

BRADFORD—Oct. 16.—For erection of a villa residence at Hollingwood Lane, Great Horton. Mr. Sam Spencer, architect, 344 Great Horton Road, Bradford.

BRISTOL—Oct. 14.—For extension of shed "M" at Avonmouth Dock, the length of the extension being about 210 feet. Secretary of the Docks Committee, 19 Queen Square, Bristol.

BRISTOL—Oct. 15.—For erection of new baths in Maze Street, Barton Hill. Mr. W. S. Skinner, architect, Edinburgh Chambers, 16 Baldwin Street.

BRISTOL—Oct. 16.—For erection of a ranger's lodge, St. George's Park, Bristol. Mr. T. H. Yabbicom, city engineer, Queen Square, Bristol.

BOURNEMOUTH—Oct. 15.—For construction of concrete foundations to car-sheds. Mr. F. W. Lacey, borough engineer, Municipal Offices, Bournemouth.

BUCKFASTLEIGH—Oct. 15.—For construction of covered service reservoir, excavating and laying about 6 miles of 4-inch and 3-inch cast-iron pipes and other works in connection therewith, supplying about 150 tons of 4-inch and about 80 tons of 3-inch cast-iron pipes and all special pipes required. Mr. T. W. Stainthorpe, engineer, Gate House, Totnes, Devon.

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CAMBRIDGE.—Oct. 24.—For erection of an additional wing on the female side to accommodate about eighty-eight patients and their eight attendants, at the Cambridgeshire, &c., Asylum, Fulbourn, near Cambridge. Mr. A. P. MacAlister, architect, 20 St. Andrews Street, Cambridge.

CANNOCK.—Oct. 17.—For laying mains, erection of pumping station, reservoir and other appurtenant works in connection with the Cheslyn Hay water supply. Mr. R. E. W. Berrington, engineer, Bank Buildings, Wolverhampton.

CARLISLE.—Oct. 15.—For erection of thirteen dwelling-houses in Jackson Street, Greystone Road. Messrs. Johnstone Bros., architects, 39 Lowther Street, Carlisle.

CHALFORD.—Oct. 28.—For erection of an infants' school at Chalford Hill, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

CHELTENHAM.—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

CLAY CROSS.—Oct. 17.—For erection of school, fence-walls, conveniences, &c. Mr. John H. Unwin, clerk, School Board Offices, Clay Cross.

COLCHESTER.—Oct. 14.—For supplying and fixing hot-water apparatus for heating the whole of the workhouse and supplying the baths, lavatories, &c., with hot water; also for supplying and fixing baths and sinks as required. Mr. Charles E. White, 57 North Hill, Colchester.

CORNWALL.—Oct. 21.—For erection of an infants' school, additions to girls' school, boundary walls, &c., at Newquay. Mr. James Pearce, clerk to School Board, 1 Lehenver Villas, Newquay.

CROYDON.—Oct. 16.—For erection of a coal store and toolshed at the isolation hospital at Beddington Corner. Mr. James Wilson, clerk, Municipal Offices, Fell Road, Croydon.

CROYDON.—Oct. 17.—For erection of school buildings to accommodate about 600 children, with the necessary administrative offices, at Shirley Lodge Farm, Shirley Woodside, near Croydon. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

DARLINGTON.—Oct. 21.—For construction of two public urinals in Hopetown Lane and North Road. Mr. Hy. G. Steavenson, town clerk, Houndgate, Darlington.

DEAL.—Oct. 17.—For a pair of lift pumps and other machinery, apparatus and articles connected therewith at the

Deal pumping station. Messrs. T. & C. Hawksley, civil engineers, 30 Great George Street, S.W.

DEAL.—Oct. 17.—For a steam horizontal compound condensing engine to develop 45 i.h.p. to 50 i.h.p. when running at a speed of 20 revolutions per minute, two steel Lancashire boilers, &c., at the Deal and Walmer pumping station. Messrs. T. & C. Hawksley, civil engineers, 30 Great George Street, S.W.

EASTBOURNE.—Oct. 21.—For erection of branch public library and baths, Seaside. Mr. William Chapman Field, borough architect, Town Hall, Eastbourne.

FULBOURN.—Oct. 24.—For erection of an additional wing on the female side to accommodate about eighty-eight patients and their eight attendants at the Cambridgeshire, &c., Asylum, Fulbourn, near Cambridge. Mr. A. P. MacAlister, architect, 20 St. Andrews Street, Cambridge.

HACKNEY.—Oct. 28.—For erection of three workshops and outbuildings at Cassland House, Cassland Road, N.E. Mr. A. W. S. Cross, architect, 58 Conduit Street, Regent Street, W.

HAMPSTEAD.—Oct. 15.—For erection of a parochial hall in connection with Trinity Church, Finchley Road. Mr. J. B. Lofting, surveyor, 37 Old Queen Street, Westminster.

HANLEY.—Oct. 14.—For alterations and additions to the printing works, Market Street, Hanley, Staffs. Messrs. R. Scrivener & Sons, architects, Hanley.

HEREFORD.—For erection of premises for the Young Women's Christian Association. Mr. W. W. Robinson, architect, 10 King Street, Hereford.

HONLEY.—Oct. 17.—For alterations and additions to Reins Mill, Honley, near Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—Oct. 18.—For construction of an underground convenience in the Market Place, containing eleven urinals, five w.c.'s and a small lavatory. Mr. A. E. White, city engineer, Town Hall, Hull.

IRELAND.—Oct. 15.—For erection of a Protestant chapel on the asylum grounds. Sir Thomas N. Deane & Son, architects, 15 Ely Place, Dublin.

IRELAND.—Oct. 17.—For carrying-out enlargements and alterations in the present fever hospital of the workhouse, Ballymahon. Mr. P. MacGreevy, Clerk to the Guardians.

IRELAND.—Oct. 17.—For erection of a restaurant for the Cork International Exhibition Company. Mr. Henry A. Cutler, Municipal Buildings, Cork.

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IRELAND.—Oct. 19.—For rebuilding the workhouse, Newry. Mr. John Brown, architect, Newry.

IRELAND.—Oct. 19.—For improvement of Annalong harbour, co. Down. Mr. Robert MacIlwaine, secretary to the County Council, Court House, Downpatrick.

IRELAND.—Oct. 21.—For supply and erection of heating and ventilating apparatus at the Youghal lunatic asylum, Cork. Mr. Henry A. Cutler, Municipal Buildings, Cork.

IRELAND.—Oct. 28.—For works for the Great Northern Railway Company (Ireland), viz. stationmaster's house at Moira; cottage at Broomhedge, near Belfast; coal store at Cookstown. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Oct. 28.—For renewal of portion of the roof over the Belfast passenger station, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

ISLE OF WIGHT.—Oct. 16.—For supply of materials and execution of works in connection with the Newchurch water supply. Plan and specification of the work may be seen at the Rural District Council Offices, Pyle Street, Newport, I.W.

KEIGHLEY.—Oct. 15.—For rebuilding the Station inn at Keighley, for the Midland Railway Company. Messrs. Milnes & France, architects, 99 Swan Arcade, Bradford.

KENDAL.—Oct. 15.—For erection of stone walling set in mortar. Mr. R. Hampton Clucas, borough surveyor.

KNARESBOROUGH.—For the repewing, decorating, &c., of the Wesleyan chapel. Mr. George F. Danby, architect, 10 Park Row, Leeds.

LANCASTER.—Oct. 16.—For additions and alterations to the Millstone hotel, Main Street and Aldrens Lane. Mr. John Greene, architect, Meeting House Lane, Lancaster.

LEEDS.—Oct. 21.—For erection of board-room and offices at Hill Top, Armley. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

LEVENSHULME.—Nov. 2.—For refuse destructor installation. Mr. James Jepson, surveyor, Levenshulme.

LONDON, S.E.—Oct. 15.—For erection of a receiving ward for children at the workhouse, Renfrew Road, Lower Kennington Lane, S.E. Mr. Sydney R. J. Smith, architect, 14 York Buildings, Adelphi, W.C.

MANCHESTER.—Oct. 14.—For construction of a culvert, &c., for the diversion of the Shooter's Brook. The Secretary, Rivers Department, Town Hall, Manchester.

MANCHESTER.—Oct. 16.—For erection of a police and fire station at Mill Street. Particulars can be obtained at the City Surveyor's Office, Town Hall, Manchester.

MIDDLESBROUGH.—Oct. 14.—For erection of a school and schoolhouse on the Grey Towers Estate, Nunthorpe, near Middlesbrough. Mr. J. Mitchell Bottomley, architect, 28 Albert Road, Middlesbrough.

MIDDLESBROUGH.—Oct. 15.—For erection of a dolphin for the protection of the outfall of the new sewer at South Bank. Mr. C. McDermid, district surveyor, Council's Offices, Whitworth Road, Grange Town, R.S.O., Yorks.

MIDDLETON.—Oct. 21.—For erection of a car-shed and workshops at Middleton, Lancs. Mr. A. L. Barber, secretary, Donington House, Norfolk Street, Strand, W.C.

NORTH SUNDERLAND.—Oct. 17.—For erection of house, shop, bakehouse, &c., at Sea Houses, North Sunderland, Northumberland. Mr. George Reavell, jun., architect, Alnwick.

OTLEY.—Oct. 29.—For construction of a reservoir, &c., in the parish of Middleton. Mr. John Waugh, engineer, Sunbridge Chambers, Bradford.

PEMBROKESHIRE.—Oct. 15.—For extension of Rosslare Pier. Mr. Otway, engineer, Inchicore, Dublin.

PLAISTOW.—Oct. 22.—For erection of forty double tenement houses for the working classes at Eve Street. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

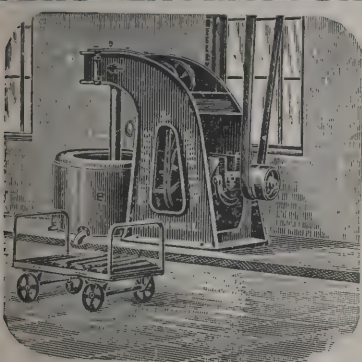
PONTEFRAC.—Oct. 14.—For erection of two houses in Linden Terrace. Mr. Chas. Keyworth, architect, Bank Chambers, Pontefract.

PRESTON.—Oct. 18.—For repairing the roof of the covered market, Preston, Lancs. Particulars may be obtained at the office of the borough surveyor, Town Hall, Preston.

RADCLIFFE.—Oct. 21.—For construction of a stone retaining wall to the river on the Market Place, alteration and renovation of the exterior of the market hall and erection of lock-up shops on the northerly side of the Market Place. Mr. W. L. Rothwell, surveyor, Council Offices, Radcliffe.

ROCHDALE.—Oct. 15.—For laying about 4½ miles of cast-iron pipes, 13 inches in diameter, from Bottoms, in the

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SALISBURY.—For rebuilding and enlarging a malthouse and store in Rolleston Street. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

SCOTLAND.—Oct. 14.—For supply, delivery and erection of a main switchboard at Kirkcaldy. Mr. Wm. L. Macindoe, town clerk, Kirkcaldy.

SCOTLAND.—Oct. 14.—For erection of a brick dwelling-house, Blackdog Croft, Aberdeen. Messrs. Walker & Duncan, architects, 3 Golden Square, Aberdeen.

SCOTLAND.—Oct. 14.—For addition and repairs to dwelling-house at Elgin gasworks. Mr. Hugh Stewart, town clerk, Elgin.

SCOTLAND.—Oct. 24.—For erection of semi-detached villas at Nairn. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—Nov. 1.—For construction of service reservoir, filters, pure-water tank, &c., at Fairmilehead, Edinburgh, about 2 miles south from the Morningside Road station on the suburban railway. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SHENFIELD.—Oct. 14.—For erection of farmhouse at Sawyers' Hall, Shenfield, Essex. Messrs. Smith & Marshall, surveyors, Chippenham, Wilts.

SLOUGH.—Oct. 15.—For erection of new gasworks at Upton, Lea, Slough. Mr. R. Martin, chairman, Gas and Coke Co., Castle View, Chalvey, Slough.

SOUTHWOLD.—Oct. 17.—For erection of stables and coach-houses at the Crown hotel, Southwold, Suffolk. Mr. G. H. Page, architect, Trinity Chambers, Colchester.

STEPNEY.—Oct. 17.—For supply of arc-lamp columns, lamps, fittings, switchboard for controlling supply of three-wire system, &c. Mr. Arthur Wright, consulting electrical engineer, 27 Osborn Street, E.

TAUNTON.—Oct. 14.—For erection of seventeen bedrooms, &c., adjoining the nursing institute, and alteration and extension of the children's ward. Mr. J. Houghton Spencer, architect, 5 Hammet Street, Taunton.

THORPE-LE-SOKEN.—Oct. 26.—For alterations and erection of an infants' room at the Rolph schools, Thorpe-le-Soken, Essex. Mr. Chas. E. Butcher, architect, 3 Queen Street, Colchester.

WALES.—Oct. 15.—For erection of twelve houses at Turberville Road, Llwynpia, Rhondda Valley. Mr. W. C. Pritchard, Glamorgan Coal Company's offices, Llwynpia.

WALES.—Oct. 15.—For extension of Rosslare Pier, Fishguard, Pembrokeshire. Mr. Otway, engineer, Inchicore, Dublin.

WALES.—Oct. 18.—For erection of a cookery kitchen at Gladstone Board school, Cardiff. Mr. E. W. M. Corbett, architect, Castle Street, Cardiff.

WALES.—Oct. 19.—For erection of a school for 756 children at Pontlottyn, including board-room, headmaster's house, cookery kitchen and caretaker's house. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Oct. 19.—For erection of a small school at Monmouth. Mr. Henry Stock, architect, 9 Denman Street, London Bridge, S.E.

WALES.—Oct. 19.—For erection of six semi-detached dwelling-houses at Bryncoch, near Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—Oct. 22.—For deepening a shaft at Garth, Cardiff. Apply to Elders Navigation Collieries, Ltd., Merchants' Exchange, Bute Docks, Cardiff.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysymedw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Oct. 22.—For erection of a clergy house, Fitzhamon Embankment, Cardiff. Messrs. Veall & Sant, architects, Cardiff.

WALES.—Oct. 28.—For erection of schools at Brynteg, near Wrexham, and also for alterations and additions to existing schools. Mr. R. J. Kendrick, clerk to Broughton School Board, 1 Henblas Street, Wrexham.

WALTON.—Oct. 16.—For erection of a parish room at Walton, Suffolk. Mr. Henry J. Wright, architect, 4 Museum Street, Ipswich.

WEST KENSINGTON.—Oct. 29.—For erection of a sub-district post office. Copy of the conditions and form of contract may be seen on application to Mr. Henry Tanner, H.M. Office of Works.

WHITBY.—Oct. 18.—For wiring the electricity works Church Street, the sub-station under the Council's offices Flowergate, and the public shelters, conveniences and hand-

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WILLESSEN.—Oct. 22.—For additions to hospital for infectious diseases. Mr. O. Claude Robson, engineer, Public Offices, Dyne Road, Kilburn, N.W.

WITHAM.—Oct. 16.—For erection of an infants' school to accommodate 100 at Chipping Hill, Witham, Essex. Mr. W. P. Perkins, surveyor to the Urban District Council, Witham.

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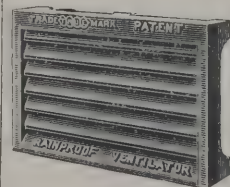
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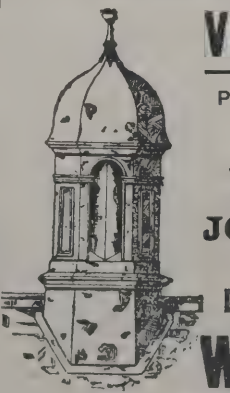
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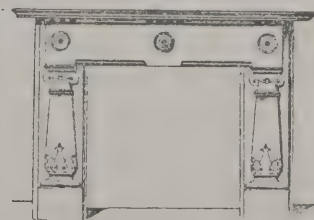
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For sewerage works in Mill Road, Lower Green. Mr. A. J. HENDERSON, surveyor.			
Felkin & Watson	£476	0	0
Barry Building and Contracting Society, Ltd.	437	5	0
H. Bentham & Co.	348	0	0
S. Atkins	330	0	0
S. KAVANAGH, Surbiton (accepted)	307	12	3
For making-up Ashley Road, Thames Ditton. Mr. A. J. HENDERSON, surveyor.			
Felkin & Watson	£325	13	10
W. Adamson	294	3	0
H. Bentham & Co.	292	0	0
T. Adams	271	1	4
Lawrence & Thacker	263	8	0
S. Atkins	241	16	0
S. KAVANAGH (accepted)	234	15	8

EXETER.

For work connected with new farm buildings, Whitestone Cross. Mr. A. BROMLEY SANDERS, surveyor.			
G. HERBERT, Exeter (accepted)	£136	0	0
For alterations and sanitary work at Atwill almshouses. Mr. A. BROMLEY SANDERS, surveyor.			
STEPHENS (accepted)	£64	0	0

FOLKESTONE.

For widening and surface-water drainage of Risborough Lane, Cheriton, near Folkestone, Kent. Mr. FREDERICK W. RUCK, surveyor, Maidstone.			
W. Coker	£7,983	2	10
Tuff & Miskin	7,447	16	6
Road Maintenance Co., Ltd.	7,434	9	4
Arnold & Sons	7,135	9	6
Goodwin & Jeffery	6,355	0	0
WALLIS & SONS, Maidstone (accepted)	6,228	0	0

HORNSEA.

For extension and removal of creosoted wood fencing, proposed to be erected at the cemetery, Southgate, Hornsea, Yorks. Mr. W. G. WARBURTON, surveyor.			
J. O. Pickering	£80	0	0
G. L. Scott	75	0	0
J. STEPHENSON, Hornsea (accepted)	68	10	0

ILFORD.

For electric lighting and gaswork at Downshall school. Mr. C. J. DAWSON, architect, Ilford.			
T. H. Dennis	£1,203	13	0
Lighting Corporation, Ltd.	448	7	6
Beaven & Sons	431	5	0
Coley Electric Works	396	7	10
J. T. Mayfield & Co.	395	0	0
A. Fernhead	364	12	0
Electrical Contracting and Maintenance Co.	360	17	6
W. Simmons	346	14	0
W. H. Tilley	306	12	6
J. C. CHRISTIE (accepted)	285	15	0
Murrell Bros. (electric lighting only)	248	7	6
For hot-water heating at Downshall school. Mr. C. J. DAWSON, architect, Ilford.			
Dargue, Griffiths & Co.	£413	10	0
W. H. Tilley	407	10	0
Jones & Attwood	369	0	0
Werner, Pfeiderer & Perkins	363	10	0
E. E. Logsdon	358	0	0
Beaven & Sons	344	0	0
Lighting Corporation, Limited	326	0	0
Mackintosh & Sons, Ltd.	315	0	0
J. H. Christy	313	5	0
PALOWKAR & SONS (accepted)	294	10	0

IPSWICH.

For the construction of a service reservoir to hold about 4,000,000 gallons of water.			
H. Lovatt	£28,272	18	5
T. Oliver & Son	28,118	5	5
H. J. Einzell	27,848	0	0
J. H. Viekers & Co., Ltd.	27,184	0	0
Johnson & Co.	26,430	10	0
G. Callender & Co.	24,046	5	6
G. Double	22,603	9	0
C. Wall	21,523	0	0
A. Coe	21,140	19	6
B. Cooke & Co.	20,903	0	0
Moran & Son	20,840	0	0
G. Grimwood & Sons	20,399	0	0
G. BELL, Tottenham (accepted)	19,807	0	0

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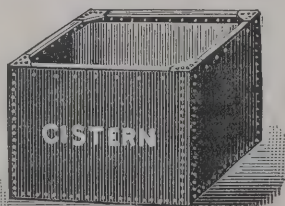
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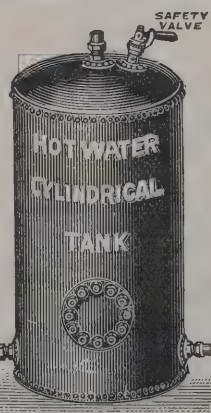
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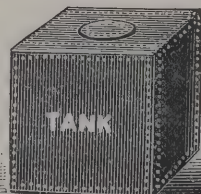
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IRELAND.

For supplying and erecting at Clogher workhouse a new cart weighbridge.	
Hodgson & Stead	£25 0 0
Riddle & Co.	22 10 0
H. POOLEY & SON, LTD., 27 Victoria Street, Belfast (<i>accepted</i>)	20 0 0
Johnston Bros.	19 15 0

KINGTON.

For taking-down existing old bridle bridge and erecting a steel trough decked bridge over the Hindwell Brook at Broadhurst, Little Brampton, Hereford.	
J. Price	£374 0 0
R. Morgan	348 0 0
J. GRIFFITHS, Presteign (<i>accepted</i>)	330 17 6

LEEDS.

For erection of thirty w.c.'s with ashplaces at Upper Cross Street, off Saxton Lane, Marsh Lane.	
F. Puffett	£574 0 0
W. Wade	498 6 0
S. Ormerod	487 4 0
Slater & Son	436 6 6
J. Ferguson	426 10 0
C. Myers & Sons	410 0 0
W. Best	400 0 0
F. O. Furrall	390 0 0
J. Walker	385 15 7
I. Gould, Ltd.	370 0 0
I. Harpham	350 0 0
J. Spofforth	340 0 0
J. E. Binns	330 0 0
R. Buttery	300 0 0
JACKSON & MONKMAN, Leeds (<i>accepted</i>)	284 16 0

LONDON.

For supply and fixing of a water-tank and connections at Bridge school.	
H. & J. Measures	£500 0 0
F. W. Llewellyn & Co.	300 0 0
Blake & Knowles Steam-Pump Co.	292 0 0
W. Rogers	275 0 0
Stephens, Smith & Co., Ltd.	267 0 0
Fraser & Co.	255 0 0
G. WILBY & Co., Manchester (<i>accepted</i>)	199 0 0

LONDON—continued.

For fitting-up kitchen department at the Joyce Green Hospital.	
R. & A. Main, Ltd.	£2,612 6 0
Clements, Jeakes & Co.	2,200 0 0
W. Summerscales & Sons, Ltd.	2,145 0 0
Benham & Sons, Ltd.	2,067 10 6
Wenham & Waters, Ltd.	2,009 0 0
J. & F. May	1,877 0 0
MOORWOOD, SONS & CO., LTD, Sheffield (<i>accepted</i>)	1,688 0 0
For fitting-up Messrs. W. Thomas & Co. new premises, 41, 42 and 43 Grand Parade, Harringay, N.	
Cadman & Son	£1,070 0 0
MARCHANT & HIRST (<i>accepted</i>)	998 0 0
Jenrick & Crocker	744 0 0
For supply and fixing of rain awnings on the training-ship <i>Exmouth</i> .	
R. W. Medhurst	£185 0 0
W. Schermulz	175 0 0
C. J. & W. Goldsmith	149 1 8
J. SMITH & CO., 119 Minories, E.C. (<i>accepted</i>)	132 0 0

MIDDLESBROUGH.

For extensions to the borough asylum.	
R. BLACKETT & SONS, Greencroft, Darlington (<i>accepted</i>).	

PLYMOUTH.


For erection of schools at Salisbury Road.	Mr. H. J. SNELL,
architect, 11 The Crescent, Plymouth.	
H. E. Skinner	£27,462 0 0
A. R. Lethbridge	26,063 0 0
Pearn Bros.	25,789 0 0
T. May	25,665 0 0
J. H. Blackell	25,639 0 0
J. Cockerell	25,397 0 0
Tozer & Son	25,083 0 0
Wakeham Bros.	24,373 0 0
Laphorn & Co.	24,268 0 0
Allen & Tozer	24,000 0 0
A. Andrews	23,780 0 0
J. Partridge	23,427 0 0
W. E. BLAKE, Plymouth (<i>provisionally accepted</i>)	22,447 0 0

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READING.

For construction of ladies' swimming-bath and erection of lodge and conveniences in the King's Meadow recreation-ground. Mr. JOHN BOWEN, borough surveyor.

Swimming-bath.

H. W. Godwin	£7,399	0	0
Collier & Catley	6,550	0	0
Pattinson & Sons	6,169	0	0
McC. E. Fitt	5,655	0	0
H. HILL, Maidenhead (accepted)	4,627	0	0

Caretaker's lodge and sanitary conveniences.

H. Searle	1,397	0	0
J. Dixon	1,377	12	10
H. W. Godwin	1,342	0	0
W. Pattinson & Sons	1,301	0	0
Collier & Catley	1,294	11	0
G. S. Lewis & Bro.	1,240	0	0
MCC. E. FITT, Reading (accepted)	1,234	0	0

RUSHDEN.

For erection of fire-station and cottage, Newton Road, Rushden, Northants. Mr. W. B. MADIN, town surveyor.

H. Sparrow	£1,805	0	0
Whittington & Tomlin	1,635	0	0
Hacksley Bros.	1,590	0	0
T. Wilmott, jun.	1,588	10	0
R. Marriott, jun.	1,585	0	0
C. E. BAYES, Rushden (accepted)	1,575	0	0

SCOTLAND.

For erection of a shed at Sledmuir, Kirriemuir. Mr. D. ROSS, road surveyor.

Accepted tenders.

C. Ogilvy, Kirriemuir, joiner	£83	15	2
A. & C. Shepherd, Forfar, plumber and slater	45	14	0

For street works at Carnoustie. Mr. RICHARD P. FLEMING, burgh surveyor.

C. WILSON, Carnoustie (accepted)	£284	14	4
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SHREWSBURY.

For street works in Montague Place, Belle Vue. Mr. W. CHAPPLE EDDOWES, borough surveyor.

C. HARRIS, Shrewsbury (accepted)	£226	5	3
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ST. ALBANS.

For additions to the schoolhouse, Bernard's Heath, St. Albans. Mr. H. E. HANSELL, architect.

W. Sharp	£225	0	0
H. J. Skelton	195	0	0
W. Sparrow	192	15	0
Goodchild & Sons	187	10	0
VAIL & CO., Culver Road (accepted)	167	10	0

For erection of house and shop at corner of Hatfield and Laurel Roads, St. Albans, for Mr. F. W. Fox. Mr. HENRY E. HANSELL, architect and surveyor.

H. J. Skelton	£800	0	0
W. SHARP, Watson's Walk (accepted)	775	0	0

For erection of a detached house in Russell Avenue, Spencer Park, St. Albans, for Councillor Flint. Mr. HENRY E. HANSELL, architect and surveyor.

C. Miskin & Sons	£850	0	0
E. Dunham	792	0	0
J. T. BUSHELL, Worley Road (accepted)	695	0	0

For erection of offices and store sheds, Grimston Road, St. Albans, for Mr. J. A. Pratt. Mr. HENRY E. HANSELL, architect and surveyor.

E. Dunham	£463	0	0
W. Sharp	430	0	0
H. J. Skelton	375	0	0
J. Andrew	362	6	0
W. Stevens & Sons	332	0	0
W. GOODCHILD & SONS, Catherine Street (accepted)	279	8	6

TEIGNMOUTH.

For new hot-water work and repairs at Vine Cottage. Mr. A. BROMLEY SANDERS, surveyor, Exeter.

T. FRANCIS, Teignmouth (accepted)	£80	0	0
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TOOTING.

For alterations at the Mitre hotel. Messrs. CHART, SON & READING, architects, Croydon.

Burges & Sons	£750	0	0
KEYS, Tooting (accepted)	695	0	0

UFFCULME.

For new barn and other buildings at Foxhill farm. Mr. A. BROMLEY SANDERS, surveyor, Exeter.

SLARK, Kentisbeare (accepted)	£180	0	0
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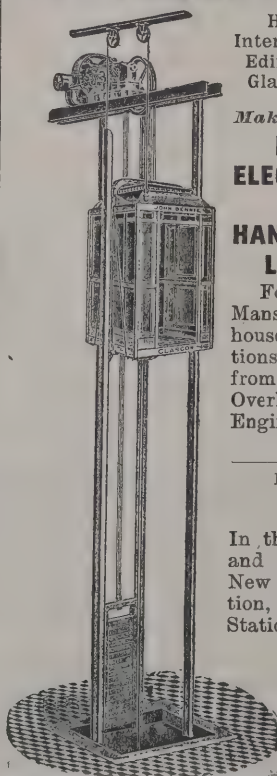
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Houses, Glasgow,
&c., &c.

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For painting with two coats of best paint the whole of the exterior iron and woodwork of the union workhouse, isolation hospital and gates.

T. E. C. BARLOW, Frances Street (accepted) .£34 12 6

TUNBRIDGE WELLS.

For street works in Cambrian Road, part of Stephen's Road and part of Shatters Road. Mr. W. H. MAXWELL, surveyor, Town Hall.

Cambrian Road.

W. Arnold & Sons	£1,092	0	0
W. H. Wheeler	967	0	0
L. Charlton	964	0	0
E. H. King	953	0	0
T. Hallett	940	0	0
Lawrence & Thacker	919	0	0
J. JARVIS, Vale Road, Tunbridge Wells (accepted)	890	0	0

Shatters Road.

W. Arnold & Sons	1,214	0	0
L. Charlton	1,118	0	0
E. H. King	1,063	0	0
T. Hallett	1,048	0	0
Lawrence & Thacker	1,017	0	0
J. JARVIS (accepted)	972	0	0
W. H. Wheeler	914	0	0

Stephen's Road.

W. Arnold & Sons	1,000	0	0
E. H. King	939	0	0
L. Charlton	907	0	0
T. Hallett	890	0	0
Lawrence & Thacker	882	0	0
W. H. Wheeler	852	0	0
T. G. Challans	843	0	0
J. JARVIS (accepted)	798	0	0

WALES.

For laying 770 yards of cast-iron water-main at Deganwy, Conway.

Jones & Son	£388	0	0
Chantrey & Co.	357	0	0
R. E. PRITCHARD & Co., Tywyn, Conway (accepted)	337	0	0

WALES—continued.

For road improvement at Tonyrefail. Mr. G. S. MORGAN, surveyor, Pontyclun.

M. Thomson	£288	1	10
Osmond Bros.	224	0	2
Barnes, Chaplin & Co.	217	13	0
J. Edwards	213	8	6
T. DAVIES, Pontyclun (accepted)	193	13	7

For repairs and additions to the parish church of St. Bride's-super-Ely, near Cardiff. Mr. GEO. E. HALLIDAY, architect, Cardiff. Quantities by Mr. J. W. RODGER, Cardiff.

E. Lewis	£519	8	6
D. Thomas & Son	479	0	0
Morris & Thomas	369	0	0
HARRIS & DAVIES (accepted)	342	5	0

For additions to schools at Maindy, near Cardiff. Mr. GEORGE E. HALLIDAY, architect, 14 High Street, Cardiff. Quantities by Mr. JOHN W. RODGER, surveyor, Cardiff.

W. Cox	£1,489	12	10
Blacker Bros.	1,430	0	0
S. Shepton & Son	1,315	0	0
W. Symonds & Co.	1,303	18	0
A. W. Cadwallader	1,290	0	0
D. Thomas & Son	1,280	0	0
C. C. Dunn	1,230	0	0
G. COUZENS & Co, Cardiff (accepted)	1,187	0	0

For widening a bridge over river Ely. Mr. J. HOLDEN, engineer, 35 St. Mary Street, Cardiff.

F. Ashley	£493	17	6
T. Rees	486	17	0
W. Cox	466	5	0
C. H. Cooksley	450	0	0
C. Davies	408	4	4
J. EVANS, Cardiff (accepted)	344	2	0

For road works at Gilfach Goch. Mr. G. S. MORGAN, surveyor, Pontyclun.

M. Thomson	£184	9	0
J. Edwards	169	4	9
Osmond Bros.	159	8	6
T. Davies	153	8	0
Barnes, Chaplin & Co.	147	12	0
W. ROWLANDS, Gilfach Goch (accepted)	117	4	9

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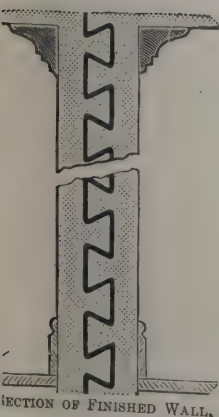
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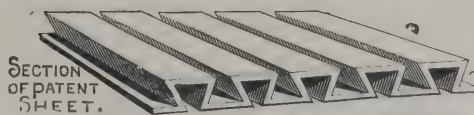
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WAVERTREE.

For erection of a branch public library in Picton Road, Wavertree, Liverpool.
 MORRISON & SONS, Liverpool (*accepted*) . £7,985 0 0

WHITEHAVEN.

For construction of new sewers and sewer connections at the workhouse, Whitehaven. Mr. GEO. BOYD, engineer, 33 Queen Street, Whitehaven.
 H. KITCHIN, Whitehaven (*accepted*) . . . £88 0 0

WINDSOR.

For erection of workshops and stores.
 Butcher & Hendry £739 0 0
 A. H. Reavell 735 0 0
 HOLLIS & SONS, Windsor (*accepted*) . . . 567 0 0

Received too late for Classification.

LEWES.

For making-up King Henry's Road and De Warrenne Road.
 H. A. CHAMBERS, Seaford (*accepted*), £2,174 and £726 2s.

ST. PANCRAS BATHS.

THE handsome and substantial baths and washhouses which have been erected by the borough of St. Pancras at a cost of 93,000^l., were opened on Wednesday. The architect of the new building, which is constructed to serve the requirements of 50,000 people, is Mr. T. W. Aldwinckle, and the builder Mr. C. Wall, of Chelsea. The structure has good frontages to the Prince of Wales's Road and two other roads, and includes within its external walls four swimming-baths, 129 slipper-baths, and a washhouse with fifty washing compartments. During the winter the bath will be boarded over and the hall let for entertainments and meetings, it having seating accommodation for 1,200 persons. Lady swimmers have also been carefully provided for. The painting of the whole of the interior, which presents a bright and cheerful appearance, has been carried out in Ripolin, and Messrs. Tom Jones, Lock & Co. have provided their patent gearing for opening the fanlights, and also the bar handles and plates to the doors.

TRADE NOTES.

WE have been requested to state that Messrs. Wm. Mallinson & Co., timber merchants and importers, of Hackney Road, N.E., have at the present time a very large stock of bone dry Cuba mahogany from seven to eight years old.

THE new Board schools, Fenny Stratford, are being warmed and ventilated by means of Shorland's patent Manchester grates, supplied by Messrs. E. H. Shorland & Brother, of Manchester.

THE Roden Convalescent Home, for the Wholesale Co-operative Society, Limited, has been fitted with the latest improved low-pressure hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, employing their "Rahnee" radiators and "Rex" radiator valves.

MR. HENRY G. MURRAY, church decorator and stained-glass artist, late of 155 Buckingham Palace Road, S.W., informs us that, in consequence of his premises being required for the Victoria Station improvements, he has removed his office and studios to Britannia Studio, 11A Caroline Street, Eaton Square, S.W., two minutes' walk from Sloane Square.

MR. SAM DEARDS, of Harlow, has been favoured with contracts for his patent glazing on the roofs of the buildings for the Wantage Engineering Company; Messrs. Hooker's factory, Walthamstow; the Electric Light Works, Lewes; Messrs. Brand & Co., Mayfair Works, London; for His Majesty's Military Prison, Aldershot; and for Messrs. Crompton's Arc Works, Chelmsford.

THE London Fireproof Platewall Company are now erecting their smooth-faced platewall partitions, which require no plastering, at the new premises of the South-Western District Post Office, Howick Place, S.W., for H.M.'s Board of Works, and have recently completed similar partitions for the London County Council at their new offices in Cockspur Street, Charing Cross, S.W.

A NEW eight-day turret clock showing the time upon one external copper dial 4 feet in diameter, to the design of Mr. T. G. Jackson, architect, 14 Buckingham Street, Strand, London, has been erected in the new cricket pavilion, Giggleswick, the work having been executed by Wm. Potts & Sons, clock manufacturers, Guildford Street, Leeds, and Newcastle-on-Tyne, for Mr. W. Morrison, J.P., Malham Tarn, near Settle, Yorks.

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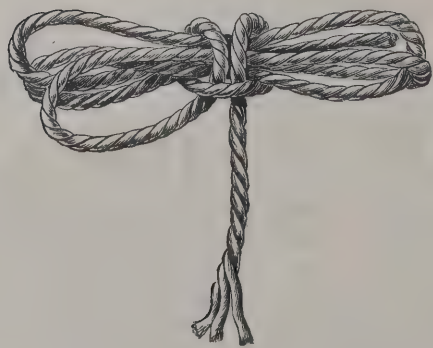
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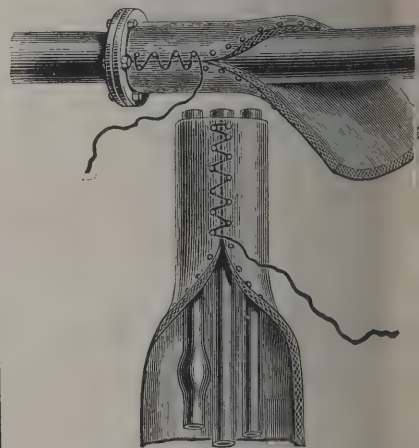
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ELECTRIC NOTES.

THE appointment of electrical engineer at Dewsbury has been given to Mr. Campion, electrician, in the employ of the Blackburn Corporation. The salary commences at 300%.

AT a meeting of the York City Council the electric-lighting committee recommended the Council to authorise them to expend 50,000% for further extensions of the plant, &c., and the recommendation was approved.

AT Coventry Mr. E. A. Sandford Fawcett, Local Government Board inspector, held an inquiry into an application of the Coventry Corporation to borrow 23,200% for electric-light extensions, 17,275% for street improvements and sewerage, and 2,350% for street improvements. There was no opposition.

VARIETIES.

THE Skipton Urban Council have advanced the salary of the surveyor, Mr. John Mallinson, from 150% to 200%.

THE Clacton Urban Council have under consideration the question of procuring a site for the erection of municipal buildings.

A NEW wing which has been added to the Sunday schools in connection with Perry Barr Wesleyan chapel, Aston Lane, Birmingham, was formally opened on Tuesday afternoon.

THE new Catholic church at Castlebar was solemnly dedicated on Sunday, the 6th inst., by his Grace the Archbishop of Tuam.

THE Governors of the Yardley Charity Estates, at their meeting on Monday morning, received a recommendation from the almshouses committee to build the new almshouses on land adjoining the girls' school at Yardley.

A DESIRABLE public improvement is being urged on the local authorities of Kensington and Hammersmith, viz. the formation of a new road in continuation of Blechynden Street, North Kensington, under the West London Railway, and thus connecting Latimer Road with Wood Lane. The estimated cost is 8,800%.

THE Bexhill terminus of the South-Eastern Railway is rapidly approaching completion, the Sidley station, one mile from Bexhill, having been finished some time since. It is expected that the line, which will connect with the South-

Eastern main line near Battle, will be open for traffic in a month or so.

THE newly built cottage hospital in Grape Lane, Whitby, intended to take the place of the temporary hospital in Church Street, is now open. The old premises of the York Union Banking Company in Baxtergate were purchased for 700%, demolished, and a modern building erected at a cost of about 1,100%, towards which about 300% is still required.

ON the 5th inst. St. Gabriel's Episcopal church, Greenfield Street, Govan, was dedicated. It is of plain Norman style of architecture, and built of red pressed brick, with white stone facings. Adjoining is a hall, which can be so arranged as to form a north chancel. The church is seated to accommodate 300, and the hall 170 persons. The buildings have been erected at a cost of 2,000%, from plans prepared by Mr. James Chalmers, architect, Hope Street, Glasgow.

THE Glasgow Architectural Association held its first meeting for session 1901-2 in their rooms, 187 Pitt Street, on the 1st inst., when Mr. Chas. E. Whitelaw delivered his opening address. There was a good attendance of members. The office-bearers for the session are:—Messrs. Charles E. Whitelaw, president; Wm. J. Blain and James Lochhead, vice-presidents; Alexander N. Malcolm and Wm. J. Lukeman, hon. secretaries; William Haldane, hon. treasurer; D. Bennet Dobson, hon. librarian.

EMPLOYÉS of the Birmingham estates committee are engaged upon retiling the roof of the Council house. The tiles with which the building was originally covered have been found to be of a soft nature, and atmospheric action causes them to perish. Frost flakes them and makes them porous, and consequently recently numbers of small leaks have been found in various places. It has therefore been decided to adopt a different make and pattern. Part of the roof has already been taken in hand, and any unperished tiles which may be stripped from it will be used in repairing the old portion of the roof. It is intended gradually to replace the old by the new pattern over the whole of the roof. The work done in this manner will not throw any heavy expense on the rates.

THE church of St. Botolph, Stow Longa, Hunts, dating from Norman times, and containing work of all the succeeding centuries, was reopened on Wednesday, October 2, by the Lord Bishop of Ely, after rebuilding of the clerestory and nave and aisle roofs from designs by Messrs. John & S. Inskip Ladds, joint architects, of 7 Doughty Street, W.C. The new

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clerestory is based upon the fragments of the former one, which were found during a previous restoration. It is of Early Perpendicular character, and has been erected in Weldon stone by Mr. Henry Ashley, of St. Neots. The new roofs are of English oak; that to nave is of hammer-beam construction, and into the three middle principals the old tie-beams of the late roof (which was of debased seventeenth-century character) have been framed. The roofs of aisles are quite plain, except at eastern end of south aisle, where a side chapel has an ornamental ceiling. The nave is covered with tiles and the aisles with lead, and a new wood-block floor has been laid. The work has cost 1,150*l*.

BUILDING AND BUILDERS.

THE memorial-stone of the new Prestonfield Church, in Dalkeith Road, Edinburgh, was laid on the 4th inst.

PLANS have been passed by the Hornsey District Council for the completion of a Catholic church at the corner of Womersley Road and Dashwood Road, Stroud Green.

THE foundation-stone of a new church, which is being erected for Melville United Free congregation, Aberdeen, was laid on the 5th inst.

THE memorial-stone was laid on the 5th inst. of a new chapel for the Primitive Methodist Connexion at Knaresborough. The buildings are expected to be completed about next June. The estimated cost is 3,500*l*.

AT the monthly meeting of the Warrington Town Council, it was announced that the Local Government Board has sanctioned the borrowing of 10,000*l*. for the provision of a smallpox hospital, 8,702*l*. for the extension of the fever hospital, and 3,000*l*. for the extension of the public baths.

AT a largely-attended special meeting of the shareholders of the Buxton Gardens Company, a scheme presented by the directors for a new theatre was, after a little discussion as to style of architecture, unanimously adopted. The new building will cost 25,000*l*., including a reconstructed entrance to the gardens.

THE foundation-stone of the new church of St. Nathaniel, Crookes Moor, Sheffield, was laid on Monday. This church, a portion of which is to be consecrated for service on June 30 next, will be the centre of a new parochial district taken from the parish of St. Philip's, and will comprise a population of 8,000 persons.

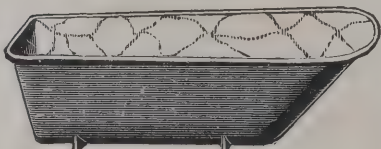
THE foundation-stone was laid on the 5th inst. of Melville United Free church, Aberdeen, which is being erected on the corner site on the south side of Skene Street, at its junction with Rose Street. The design, which has been furnished by Messrs. Brown & Watt, architects, is of a Classic character, the feature of the building being the graceful campanile that rises to a height of 120 feet at the corner of Skene Street and Rose Street. The principal elevation, which is towards Skene Street, is finished with a pediment over the centre compartment. The main entrance is by the tower. Internally the arrangements are very complete, and with its galleries the place will seat 760 worshippers. Satisfactory provision has been made for lighting (which will be by electricity), heating and ventilation. Along the Rose Street elevation extends ample hall, classroom and other accommodation. The two principal elevations and the four sides of the campanile are to be built of white Kemnay granite. The total cost of the buildings will be over 7,000*l*.

ONE is always sure of finding a capital entertainment at the Palace Theatre, the shareholders in which, by the way, have just been gratified with a dividend of 20 per cent., thanks to the generous policy which Mr. Charles Morton so consistently pursues. The biograph, which at this establishment has become a standing dish in the bill of fare, has just been reinforced by some strikingly interesting pictures of the Danish Royal Family, as recently gathered together at Fredensborg. There are four series of these pictures, the first film representing the arrival at Helsingor of King Edward VII. in the uniform of an admiral. Another film shows thirty-two sovereigns or princes of the Imperial and royal houses of Europe walking in a sort of informal procession in the gardens of Fredensborg, the King of Denmark leading, and walking arm-in-arm with his daughter (Queen Alexandra). King Edward, the Czar, the King of Greece, the Hereditary Prince and Princess of Denmark, the Dowager Empress of Russia and the reigning Empress of Russia are also present, and all appear to be having a good time. In another are seen the Grand Duchesses of Russia and the Princesses of Sweden and Norway playing in the private garden of Fredensborg Castle, some of their august relatives looking on or joining in their game; and the final film depicts the departure of the royal visitors. The programme contains many other attractive items, the most appreciated perhaps being Miss Esmé Beringer's delightful fencing sketch.

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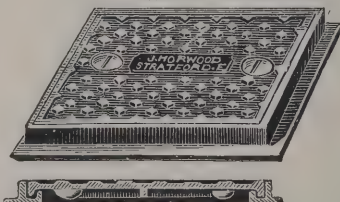
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NEW ART GALLERY AT BURY.

ON Wednesday the Earl of Derby opened the Bury (Lancs) Municipal Art Gallery and Public Library. This handsome building has been erected from designs by Messrs. Willoughby & Woodhouse, of Manchester. The foundation-stone was laid on April 29, 1899, and the building has now been completed at a cost of about 30,000*l.* It stands at the corner of Moss Lane and Silver Street, forming a block about 100 feet square. The site is well chosen, for the new gallery is not only near the centre of the town, but, being in a fairly wide street with a small open space on one side, can be viewed to advantage. The architects have made good use of their opportunity, and have designed an imposing structure, faced with stone, in the modern Classical style, with a portico on each of the two street fronts. The broad, flat wall-spaces are relieved by double rows of columns and a frieze sculptured in low relief. As seen from either front the building is certainly dignified and effective, and forms a welcome addition to the street architecture of Bury. The library, containing about 12,000 volumes and fitted with the latest improvements, occupies the ground floor. On the first floor, approached by a stone staircase from a circular hall intended for sculpture, are five large galleries for pictures and other works of art. All these rooms are exceptionally well lighted, and the dull red colouring of the walls makes an excellent background for the pictures.

NEW CATALOGUES.

THE great variety of purposes and practical uses to which the novel lighting system of the Electric Lighting Boards Company, Ltd., can be applied are admirably illustrated in the company's recently-issued catalogue and price list. Of the practical utility of this system we have already had occasion to speak, and we are pleased to see that our prophecy as to the speedy recognition of its many merits has been more than justified, as it has been largely adopted in France in connection with the National Fête, and also on the occasion of the Czar's visit, and in the colonies in the decorations in honour of the visits of the Duke and Duchess of Cornwall, while in London it has been installed on a liberal scale at the Theatre Royal, Drury Lane, Royal Opera House,

Covent Garden, London Hippodrome, Shaftesbury Theatre, Oxford Music Hall, Lyric Theatre, Crystal Palace, Sydenham, Grafton Galleries, Cookery Exhibition, London, &c., as well as many other establishments, both public and private, while it has been welcomed with equal favour in the provinces. We may, perhaps, add that owing to the rapid increase of their business the company have now taken possession of a large double factory in York Road, where business operations will be commenced on a large scale, both for the Metropolis and our provincial centres.

MESSRS. S. CLARK & CO., of Park Street Works, N., have sent us a neatly got up and well illustrated catalogue of their well-known "Syphon Stoves." As is pretty generally known, the installation of these handy and effective stoves is essentially simple, and the amount of gas which they consume is, relatively, phenomenally small. It is, in fact, claimed that they produce the heat of a coal fire at the cost of one penny for three hours' burning. The heat produced is pure, equable and agreeable, and can be graduated or sustained at the will of the user. They are so constructed that a moist or dry atmosphere is obtainable at pleasure. The action of the stoves is under perfect control, as the heat can be increased or diminished by simply turning the supply tap. They are perfectly safe for conservatory use, and are strongly recommended for bedroom and sick chambers. Oil stoves on the same principle are also a specialty of the firm.

MR. JOSEPH FISHBURN, of High Wycombe, is the inventor and patentee of a labour-saving apparatus for the use of builders, which is steadily gaining ground in the favour of contractors and other large and small employers of building labour. The apparatus in question is known as Fishburn's patent labour-saving winch, and its object is the raising of loads of bricks, mortar, stone, slate, or, for that matter, any ponderous bodies of materials to the top or other intermediate stage of a scaffold, in place of its being carried in the old manner by a labourer climbing a ladder. That the winch in question has caught a firm hold on the fancy of those in a position to turn it to practical use is evidenced by the rapidly extending radius of the circle in which it is being employed, and we think that those builders who are not already acquainted with it would do well to apply for a descriptive catalogue.

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WOLVERHAMPTON NEW WESLEYAN CHAPEL.

THE new Wesleyan chapel, which is being erected in Darlington Street, Wolverhampton, may now be considered as practically completed, a few minor finishing touches only being required. It is an architectural ornament to the leading street in which it stands, and from whichever way it is observed it has a pleasing appearance. While red-pressed brick has been mainly used in the exterior walls, the stone dressings have been interspersed in a manner to make the front and side in School Street present a very attractive addition to the thoroughfares, and two turrets in front of the massive dome in the rear add to the beauty of the building. Inside the chapel has been made light and graceful. The decorations are mainly white, with blue mosaic at the dome. The ceiling is a lofty arch supported by two rows of pillars, and flanked by smaller arches forming aisles for the length of the worshipping portion of the chapel. At the lower end the light from the dome is thrown upon the rostrum. A gallery runs round three sides, and is circular at the Darlington Street end. It is handsomely designed and worked in oak, the pillared balustrade being intersected by chastely-designed oak panels. The rostrum has a circular railing immediately in front, and is approached by a staircase. On either side parallel with the rostrum are two transepts. The seating on the floor level takes the form of modern pews facing the rostrum, with cross seats at the side. Upstairs the galleries are filled with rows of chairs, and in the children's gallery are benches. The building is so arranged as to be well lighted in the day-time, and at night electricity will be used as the illuminant. In the basement are vestries, classrooms, with kitchen and cooking-range, &c., together with choir-room and other apartments.

SOCIETY OF ENGINEERS.

At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on Monday evening, October 7, Mr. Charles Mason, president, in the chair, a paper was read on "Preliminary Investigations for Water Supply," by Mr. Sydney A. Hollis.

The author first pointed out the difficulties which were encountered by engineers in tropical and sub-tropical countries in the gaugings of rainfall and rivers. Some statistics of

remarkable and erratic rainfalls in the Cape Peninsula were given. The author then gave a detailed account of the gaugings carried out by him at Steenbrass river, Cape Colony. He stated that the gaugings were taken with a view to the ultimate formation of a large storage reservoir by means of a dam across the mouth of the valley, the object being to obtain a supply of water for some of the suburbs of Cape Town. A large gauge weir was erected, measuring 60 feet across, and it was found that the flow of water in the river fluctuated between half a million gallons and 300 million gallons in the twenty-four hours. A description was given of the river gauges constructed to measure the flow of water in winter and summer, with particulars of the number and position of the rain and evaporation gauges.

A paper was also read on "Irrigation Works in South Africa," by Mr. J. Freebairn Stow.

The author first referred to the report of the Royal Commission on the settlement of time-expired soldiers and others in South Africa on the conclusion of the war, and pointed out that the Commissioners were strongly impressed with the value of irrigation works being undertaken in order to convert the vast area of dry veldt into an agricultural site, capable of providing produce for intending settlers. The author then drew attention to the persistent attempts made in 1886 by the late Mr. H. S. Orpen, at that time surveyor-general of Griqualand West, to induce the Government of the day to take up the subject of irrigation works.

The author then described the first scheme of irrigation ever attempted in South Africa on a large scale, and referred to the failure which attended the project. He then gave an account of the scheme prepared by Mr. Litchfield for irrigating the veldt in the vicinity of Douglas, a town about 80 miles to the south-west of Kimberley. The author then described the ingenious and somewhat rough and ready means adopted for the construction of the masonry dam across the Vaal river, and pointed out the engineering difficulties encountered. The employment of convict labour was referred to, and stress was laid on the benefits which accrued therefrom. The use of explosives in the blasting operations, necessitated by heavy rock cuttings, and the methods adopted for crossing the valleys and running the canal round the kopjes were described, and the difficulty of insuring a safe passage across or under the irrigation canal for storm water from off the numerous kopjes was also discussed. The manner in which the last sections of the masonry dam were built in was described, and the author

LABOUR SAVING WINCHES.

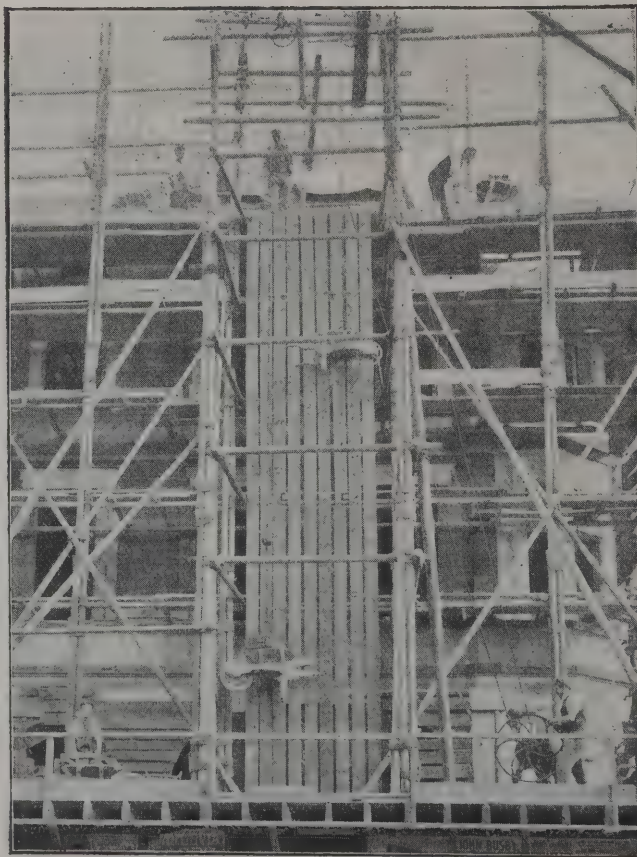
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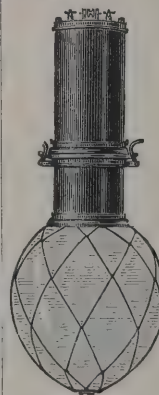
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gave examples of the way in which engineering work in a rough country was carried on, and how plant and material were transported where railways were unknown. In conclusion, he referred to the favourable attitude of the Government of Cape Colony in respect of irrigation works.

FREE LIBRARY AND TECHNICAL INSTITUTE AT GOSPORT.

THE new Free Library and Technical Institute which has been erected in Gosport at an outlay of between 7,000*l.* and 8,000*l.*, was formally opened on the 25th ult. It is well situated at the corner of Clarence Road South, and faces the Thorngate Hall and the Urban District Council's offices.

The public entrance to the free library department is placed in the centre of the Walpole Street façade, the entrance porch giving direct access to the lending library, the reading and news-room, the reference reading-room and the librarian, whose centrally placed office affords every facility for the efficient supervision of all the rooms comprised in the library department.

The rooms in the art department, occupying the whole of the first floor area of the front, or Walpole Road elevation, have been carefully arranged in accordance with the requirements of the Science and Art Department. They are lighted by means of windows and skylights, placed in the north wall and in the roof of the front block.

The technical institute is placed in the return block facing Clarence Road. In designing this department due consideration has been given to the possibility of the rooms being required for the purposes of a day science school. The accommodation provided comprises the following rooms, viz. on the ground floor, a physical laboratory, a chemical laboratory and a classroom; and on the first floor, a cookery-room and two large classrooms. The caretaker's rooms are placed in the upper stage of the tower.

The works have been well carried out by Messrs. Rashleigh & Son, of Southampton, under the immediate supervision of Mr. H. Frost. The architect, whose admirable design was selected in a limited competition, is Mr. A. W. S. Cross, of 58 Conduit Street, London.

A modelled plaster frieze over the library entrance was designed and executed by Mr. F. E. Schenck. The centre portion depicts the landing of Henry de Blois on what is now the Gosport

shore, and the east and west panels are emblematic (1) of Henry Cort, whose works were situated on Gosport Green and by the river Meon at Funtley, about 1785; he was an inventor, who discovered the process of converting hard pig-iron into a soft and malleable condition. And (2) of the Lady Alwara, the wife of the Saxon Thane Leowin, from whom Alverstoke is said to get its name.

LEICESTER COUNTY ASYLUM.

IN 1897 the Leicestershire County Council sanctioned a proposal to build an asylum for 600 or 700 patients at a cost of 120,000*l.*, and the visiting committee of the Leicestershire and Rutland Asylum were authorised to recommend a suitable site accordingly. The Lunacy Commissioners reported favourably on a site lying between Narborough and Enderby, and the Councils concerned warranted the purchase of the estate. The Government Departments assenting, the land has been acquired by the authorities. Messrs. Everard & Pick were appointed architects, and the buildings sub-committee of the principal committee have visited several recently-erected asylums so as to obtain at first hand the fullest information. The investigations made in this and in other ways has led to the discovery that the preliminary estimate passed by the Councils is quite insufficient for the purpose in view. The improved methods in the treatment of the insane cost more, the provision of suitable accommodation for the staff is more expensive, while the price of material has gone up. When the asylum is completed it will have cost 300*l.* per bed. In some places this amount has actually been considerably exceeded, and it has been pointed out to the committee that the initial proportionate cost per bed must of necessity be higher, owing to the fact that the administration buildings are provided for the higher number of patients to be eventually accommodated, instead of the smaller number for which provision may be completed at first. The Lunacy Commissioners have advised that accommodation should be made for not less than 650 county patients, and that administration departments should be designed in view of future extensions. After consideration the committee have decided to recommend that an asylum should be built for 628 county and 60 charity and private patients, 688 in all, instead of 600, as first suggested in the report of 1897, and they think it will be the wisest economy in the end to put up administration buildings for 900

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or more patients. Estimates carefully prepared show that nearly 95,000*l.* will be required for the patients' buildings, upwards of 26,000*l.* for the official blocks, and 27,000*l.* for store-rooms, kitchens, workshops and so forth. Other necessary expenditure brings up the total to 261,148*l.*, to which a sum of 20,000*l.* must be added for contingencies, making 281,000*l.* in all, against the 130,000*l.* or 140,000*l.* which was in the minds of the committee four years ago. Of this sum Leicestershire will have to shoulder eight-ninths and Rutland the remainder but against this must be placed the proceeds of the sale of the present asylum, while the present cost of boarding out patients will cease, and the taking in of outside patients should produce a considerable profit. The position of the existing charity in view of the new asylum has been the subject of careful thought, and it has been arranged, subject to the approval of those concerned, that two blocks of suitably furnished buildings, each to hold thirty patients, be erected at Narborough, separate from, but connected by corridors with, the main building, two-thirds of the cost to be defrayed by the charity, and the remaining third in the proportion of one-ninth from Rutland and the remainder from Leicestershire. A sum of 5,000*l.* owing by the two counties to the charity is to be taken in part payment. The County Councils of the two shires will be recommended to sanction an expenditure of 241,278*l.* in the erection of the new asylum at Narborough, and that application be made to the Local Government Board to authorise a loan for the necessary works.

THE WIDENING OF PICCADILLY.

THE improvements committee of the London County Council, in a short report on the proposed widening of Piccadilly between Hyde Park Corner and Walsingham House, remark that the Council agreed on October 9, 1900, to adopt a proposal made by the First Commissioner of Works, and on July 23, 1901, the Council referred the working drawings, specifications and estimate of the cost, 29,400*l.*, to the manager of the Council's works department with a view to carrying out the paving and other work without the intervention of a contractor. At the beginning of the Council's recess, however, when tenders for the necessary materials had been obtained by the manager and the workmen had begun to stake out the land, a letter was received from the First Commissioner as follows:—"House of Commons, August 16, 1901. Dear Mr.

Torrance,—You will, of course, have followed the correspondence and articles which have appeared in the Press during the last two or three weeks in regard to the Piccadilly widening, revealing a large amount of misconception on the subject, for which I confess, after the explanations which appeared last year and the reception then accorded to them, I was unprepared. I have found it impossible to avoid a pledge to have the work postponed, and I have been in communication in that sense with the clerk to the improvements committee. You may be assured that I have taken this course with great reluctance and regret, more especially in view of the public-spirited and loyal manner in which the London County Council has accepted and adhered to the proposal which emanated from my department. I have a very lively sense of the consideration which I owe to the Council in the matter, and it is my intention, after a short interval for further deliberation, to consult the Council on its reassembling as to the course to be pursued. You will see in to-morrow's papers a report of what I have said to-day to a deputation which has come to me on the question.—Yours very truly, A. Akers-Douglas." The Chairman of the Council replied as follows:—"County Hall, Spring Gardens, S.W., August 17, 1901. Dear Mr. Akers-Douglas,—I am much obliged to you for your letter of the 16th inst., explaining so clearly the action you have felt compelled to take in connection with the proposed widening of Piccadilly. I fully agree with you that it is very unfortunate that so many who have written to the Press recently have done so from a misapprehension of the facts, but no doubt the short postponement of the work as suggested by you will enable them to ascertain the true position of affairs. Your statements to the deputation which waited upon you yesterday, and the letter from the chairman of the improvements committee in the *Times* to-day, will undoubtedly make the case clear to any one who follows the subject. I shall have much pleasure in asking the improvements committee immediately after their recess to give very careful consideration to anything you desire to bring before them upon the subject.—Yours very truly, A. M. Torrance." The committee, after submitting the correspondence, state:—"We are seeking an interview with the First Commissioner, and we propose to submit to the Council at the next meeting a full report stating in detail all the facts connected with the improvement. This being so, we refrain for the present from either explaining the merits of the scheme or commenting on the postponement of the work."

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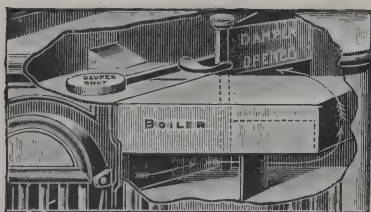
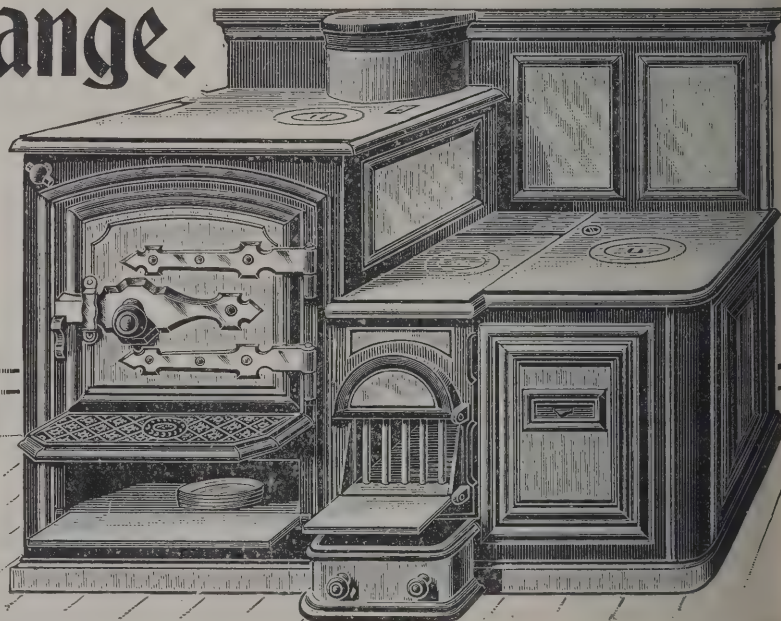
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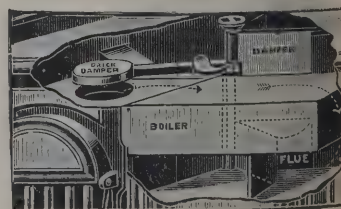
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**ASSOCIATION OF MASTER HOUSE PAINTERS
AND DECORATORS.**

THE eighth annual convention of the National Association of Master House Painters and Decorators of England and Wales has been held in Leicester.

The mayor (Alderman T. Windley), on behalf of the town said he offered them a very cordial welcome to Leicester. The Association came among them at a time when the town was passing under a cloud occasioned by the sudden and altogether unexpected death of their late Chief Magistrate. He trusted that their meetings would tend to the advantage of the Association, and ultimately to the public good. He was specially pleased to see that one of the objects of their Association was to stimulate and arouse a spirit of emulation on the part of the apprentices in the trade, and by means of prizes and competitions to educate them and make them more proficient in the art of painting and decoration for which they were being trained. That was an object which must command universal approbation and approval.

Sir John Rolleston, M.P., said he felt it to be a great compliment to be asked to associate himself with the Mayor in the cordial welcome which he had extended to the National Association of Master House Painters and Decorators. Among the signs of progress to which his worship had referred, and which were visible on every hand, was the improvement in house-decoration. It was visible not only in the palace and the castle, but in the houses of the people. They recognised that this was very largely due to the skill of the members of their Association. There was no doubt that the taste of the public was conforming to colour and good ornament, and although much had been done in the past there was still room for greater improvement, and this convention and exhibition were steps in the right direction.

Mr. J. Barker said that since his appointment to the office of President he had had in view one purpose, viz. to make the Association strong in helpfulness and usefulness to its members, and to those engaged in their service. This brought him to a most important point in their work—the proper training of their boys. If he could stir up a desire within them to do all they possibly could for the boys entrusted to their care he should feel that one element of progress had entered into their work, and was laying the foundation of future success. He feared the spirit of the age exhibited too much indifference, and the sooner they woke up to this fact the better. No one could walk along the streets or main roads of our cities and large towns any evening without this fact being brought very forcibly to their notice. The only road to success was by careful study and application and the utilising of every spare moment. Were they as masters and leaders taking the pains to enlarge their ideas and enrich their experience as they ought to do? Decorative design was to-day in the melting-pot, so to speak. There was a new spirit abroad which, as decorators, they needed to study and value aright if they were to hold their place in the estimation of the public. The rapid strides made in recent years in the art world materially affected them, and should be most welcome to one and all. In conclusion, he trusted their meetings and deliberations would be helpful, for their object had been to stimulate and inspire them to future effort.

Mr. T. Preston said the reason why their Association had been so successful was because everybody who had been connected with it had been up and doing. When they started their Association they set out with three objects in view. They desired to receive recognition from the craft with which they were connected; they desired to receive recognition from the public; and, lastly, they desired recognition from public men. These objects were being attained; they had good ground for gratification for the recognition they were receiving from public men.

At the afternoon's meeting the secretary's report was passed, and stated that the year had been marked by the greatest activity in all departments of the Association's work. An international studentship scheme had been considered, and had now taken shape sufficiently to be issued to the boys, apprentices and sons of members of the three associations in London.

The convention was resumed on the following day at the Temperance Hall, under the presidency of Mr. Jno. W. Barker.

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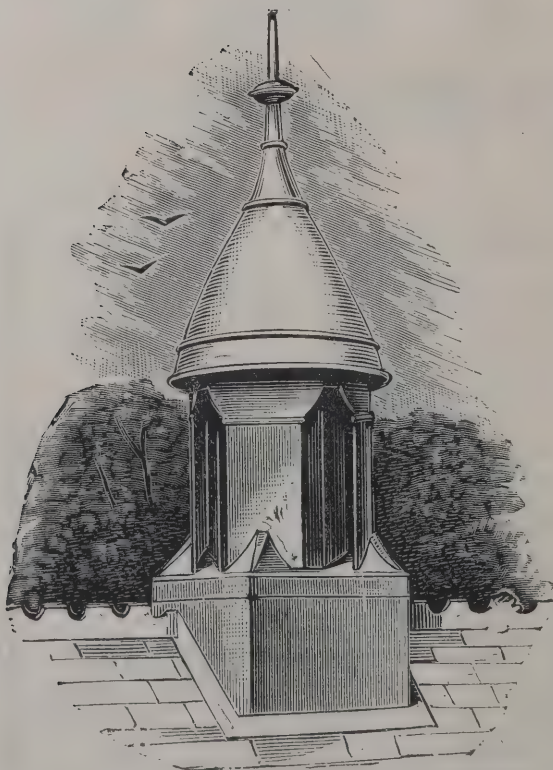
The Teaching of Apprentices.

Mr. H. Looke, of Hull, read a paper on "What to Teach an Apprentice." After alluding to the local efforts which were being made in connection with technical schools, he said there was outside those efforts undoubtedly great scope for their Association in connection with the training of their apprentices. One of the avowed objects of the National Association was the raising of the status of the painting trade and the personnel engaged in it. What means would be the most effective? It had lately been the fashion to expect mighty things from combination, and it must be admitted that some commercial benefits had resulted therefrom. But combination was not everything; it was upon the training of the young that their efforts should first be directed. Plain painting would never raise them to the high level which it was their aim to reach. It was upon the decorative and artistic side that they would place their craft upon a better platform. If they as a handicraft were content with their present position, well and good; but if they aspired to a semi-professional status it was time for them to do something which would enable them to justify their aspirations. It had been a favourite pastime to declaim about the nobility of their calling, but as a matter of fact the decorative painting trade was now in a state of mental bankruptcy. The art of painting and decorating as practised in this country to-day was in no sense fine, or even art. It could only be placed in the same category as tailoring, cabinet-making, or any other domestic art. It was even debatable whether it was on a level with those modest occupations, for was not almost every embellishment provided for them, and were they not merely agents of the manufacturers? Their paints were mixed for them by the manufacturer, who, in fact, was killing them by kindness, and that being so were they not merely the tools to do their bidding? To the older men this did not much matter, because the knowledge they had gained could never be taken away from them; but how were their boys to learn the secrets of the craft, whilst the manufacturers held the ascendancy? For the making of a clever master-painter, five factors or qualifications were required—skill, knowledge, taste, tact and energy. They wanted skill coupled with knowledge, applied with taste, and managed with tact and energy. Here they had the Alpha and Omega of the qualified craftsman. Skill was of foremost importance. The art of drawing was the pivot upon which all their efforts for betterment must, in the first instance, turn. Trades' combination would not do it, commercial protection would not do it, but the practice of

drawing would. He said it deliberately that not only should their boys, but every child ought to learn to draw, for the cultured and educated eye had means of enjoyment all its own. It not only looked at things, but it saw them. Of the second qualification, knowledge, chemical and technical knowledge claimed precedence. Without that the man was but an inferior workman, and the master less than half of what he ought to be. The chemistry of colours might be said not to exist so far as the rank-and-file of their workmen were concerned, and yet considering that bread and butter depended upon it, it should be at the finger-ends of everyone in the trade. The second kind of knowledge that claimed attention was architectural knowledge, without which no painter could attain to a true understanding of his work. Coming to the third qualification, taste, he said that taste chiefly, as far as they were concerned, consisted in self-repression. Diversity of taste he held as the greatest blessing imaginable, and every decorator should make the most of it. Taste, as far as they were dominated by its teachings, consisted of the rightful and proper application of those principles to which the study of architecture and kindred arts formed the natural introduction. The qualifications he had named were not so often found in combination as the exigencies of their calling required, but the materials from which to develop them were as plentiful in this country as in any other. They were called upon to lay to heart the lesson that the education of their rank-and-file had not kept pace with that of the manufacturing community or the public generally. In conclusion, Mr. Looke urged that artistic education ought to be the motto of their Association and its watchword for years to come.

Mr. Harris (Plymouth), in moving a vote of thanks to Mr. Looke, rather demurred to his sweeping statement regarding their subservience to manufacturers. He was quite at one with him in regard to the value of original work, but he was quite convinced that the majority of master painters of England and Wales were not restricted so much by their want of ability in this direction as by the financial difficulty under which England was living at the present time. He (the speaker) believed that the travelling scholarship attached to the Association was doing excellent work. He thought that in following the lines which South Kensington had laid down of giving opportunities to a few of their best students of going abroad, a large number of lads were working for this coveted scholarship, and they were being educated and raised, although they failed to attain the mark for which they were striving.

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Mr. Sibthorpe (Dublin) seconded the resolution, and feared that Mr. Looke had raised the standard so very high that generations must elapse before their trade could hope to attain to anything like the realisation of it.

Mr. Thompson (Belfast) supported the resolution, and it was agreed to.

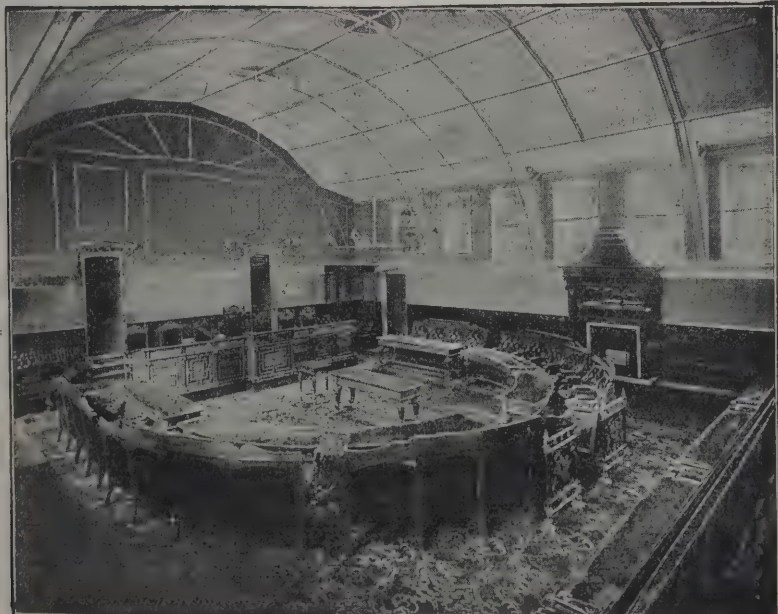
Mr. Looke, responding, said no doubt it would take years to educate the younger members of their trade in the method he had indicated, but it would not take years to give them some sort of sensible understanding in the matter. The rough-and-ready gist of what he had had to say was this—was manufacturing domination going for ever to rule this country, or was handwork to become a more important feature of their handicraft?

Thoughts on House Decoration.

Mr. Walter Crane, the eminent artist and art critic, then read a very able and interesting paper under the title of "Some Thoughts on House Decoration." In the course of it he remarked that house decoration would seem to be almost synonymous with civilisation, and certainly had been coextensive with its development in the world. The domestic interior, so far as they were able to realise it, and all that it implied, afforded the best visible evidence both of the standard of living and refinement and sense of beauty existing among a race of people of any age or country. In proportion as the conditions of human life became more and more artificial and removed from nature, man seemed to require the aid of art. Decoration, indeed, might be regarded as a sort of æsthetic compensation for the increased artificiality, complexity and restraint of civilised life. Every race and every age, acted upon by all sorts of influences, climatic, social, economic, commercial, political, historic, evolved its own ideas of home and comfort, and these in the long run were the fittest to the circumstances and conditions, but by no means always the best. But the forces which fashioned their lives and characters, which determined their habits and pursuits, also determined the character of their surroundings. The very ideas of home and comfort which one might consider more fixed and permanent, seemed, with the increased complexity of modern life, especially on the lines of the present development of large cities or commercial centres, liable to change. The practice of living in flats and residential hotels must surely tend to displace or modify, in the mind of the ordinary citizen, older ideas of what constituted the completeness and organic relation proper to an independently-constructed dwelling. The contraction of space, and

sometimes of light, commonly associated with flats, could not have a favourable physical effect, and the impossibility of any garden setting—beyond a window-box—must affect the general health, as well as a healthy sense of decoration. The decorative designer certainly depended largely for freshness of inspiration and suggestion in design and colour upon growing plants and flowers, upon the sight of birds and animals, of the ever-changing sea and sky, and the colours of the landscape. Having provided small brick boxes, with slate lids, as houses for the people, and packed them together in straight rows, all alike, on the eligible building land of their towns, they proceeded to economise space (and secure more unearned increment to the square foot), by packing such boxes one on the top of the other and calling them mansions or residential flats. On the other hand, the collective dwelling of which they saw the germs in the better type of modern flats, with a common kitchen and dining-hall, might have an important future, and there was no reason why, given favourable conditions, dwellings on the plan of collective living or collective homes should not have dignity and beauty, as well as the comforts of a home. From the decorator's point of view, the plan and scale of such collective dwellings might afford fine scope for art; a large public room, such as the hall and the common dining-room, might be simple and dignified with panelled walls, leaving a space above for a continuous frieze of figures, or divided into separate subjects, illustrating local history or legend, poetry, romance, or symbolism of life and nature. The true place, however, for the decorative perpetuation of local history and legend was the town hall, and it was satisfactory to know that this principle had been thoroughly recognised in at least one important city of England, and in a modern town hall—he alluded to the frescoes of Ford Madox Brown, which vividly and dramatically illustrated the history of Manchester and her worthies, and appropriately decorated the walls of the city hall. In Birmingham, also, he believed, a scheme of painted panels had been devised to illustrate local history, and students of the municipal school of art had competed for the design of these. This seemed an excellent idea, which might be generally adopted. Every town which had municipal buildings and a municipal school of art might do much, not only to stimulate public spirit and local feeling, but also materially help young students and designers, by giving them an opportunity of doing public work, and thus getting practice with the highest kind of decorative art—mural painting. Surely, if they had any pride of place, if they regarded their

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towns and cities as something more than mere mills for money-making, they must feel how greatly the interest and beauty of those towns and cities might be added to in such ways as these, as well as public parks and gardens, fountains, trees along the streets and seats and shelters. He certainly congratulated Leicester upon the recognition of the importance of increasing the beauty of their streets—at any rate, in the residential portion of the town—by trees, parks and open spaces for her people. Indeed, having regard to the future of the race, and the importance of space and open air, and surroundings of some beauty, to the health of the people, and especially of children, it became a public question of pressing importance this of the condition of life in their cities. One remarkable demonstration or object-lesson had been given, thanks to the initiative, energy and philanthropy of Mr. George Cadbury, at Bournville. He had proved, at least, that factory work might be carried on amid pleasant surroundings and means of recreation for body and mind, and that a working population could be housed in close proximity to their work in picturesque and cheap healthy dwellings surrounded with ample gardens. The Garden City Association was also in the field with Mr. Ebenezer Howard's scheme for uniting agriculture, horticulture and manufactures, with beautiful and healthy dwellings in garden cities, which would, it was hoped, relieve the overcrowding of their great towns. Now, he took it, a painter or a decorator must be primarily concerned with producing something of beauty. Let his problem be of the simplest. A good sense of colour was of the first importance. A knowledge of how to produce certain tints, the effect of one tint upon or in juxtaposition with another, the best grounds for different tints—all these things, in addition to the workman's skill of hand in laying on paint evenly, were essential parts of a painter's and decorator's training and equipment. There was nothing like paint after all. In fact, whether inside or outside, the town house required constant cheering up by the painter and decorator, but it must be the decoration that cheered and not inebriated. Dear to some decorators' hearts was graining. Wonderful and sometimes fearful were its results. Nothing to his mind could be more sordid and unpleasant than the woodwork of a room grained to imitate oak. There was nothing like white paint for the woodwork of modern rooms. The mouldings would give the necessary relief. If their technical schools where house-painting was taught, instead of devoting time and skill to teaching methods of imitative graining, were to endeavour to train the pupils to

use the brush as decorators, and encourage them to design and paint simple or ornamental borders, fillings and friezes, such as might be useful in interior decoration, and train them to be able to space out walls with simple but tasteful sprays of leaves and flowers, decoratively treated, and painted by direct, clean brush touches, they would be doing much more excellent as well as interesting work, work which in its practical results ought to prove more pleasant and useful both to house-painters and to householders. In deciding on a scheme for the decoration of one's house, one must consider what should be the chief decorative points, and endeavour to lead up to them. As a rule, in modern drawing-rooms and living-rooms there were too many colours, as well as too much furniture. There was, no doubt, a determined effort in the direction of a return to simplicity both in house designing, furniture and decoration on the part of the more refined and cultured, as a reaction perhaps against the ostentation and luxury of the appointments of the extremely or newly rich, or the pretentiousness of the decorations of monster hotels, whose coarse imitations of decadent periods of French art did duty for splendour. How charming a cottage could be made, how picturesque and pleasing, though quite new, how perfectly in keeping with its surroundings and fitted to its site, he lately had an opportunity of seeing in the neighbourhood of Leicester, designed by Mr. Ernest Gimson. Relationship was, of course, the essential in all decoration, otherwise it became a patchwork of complicated pattern and colour. It mattered not what their materials might be, or by what means, costly or simple, they sought to obtain their effect, all must be in keeping with the right place and suitable to the conditions and surroundings: rich and splendid if the aim were to be rich and splendid; simple and quiet if the aim were to be simple and quiet; but without the pretence of richness or obtrusive display on the one hand, or the sometimes extreme rudeness, boldness and roughness which accompanied what looked like the affectation of simplicity on the other.

A very hearty vote of thanks was subsequently passed to Mr. Crane for his valuable paper.

At the afternoon session Mr. Fletcher, headmaster of the School of Art, read a paper on "The Value of Design and Reticence in Decoration," in the course of which he said there was no one in all the building trades with more power for making or marring a building than the decorator; his position was unique. It was his taste mainly which decided the treatment; the client, more often than not, being uncertain as to his

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own taste referred the matter to the decorator, whose business it was to beautify. There were cases, of course, where the client in the matter of wall-papers would have the latest thing—the last and most blatant pattern had come upon the market, and to this fashion even the arguments of good taste were of no avail. The fashionable thing, however, was rarely the most refined. Could not manufacturers keep from year to year the finest things, and have a separate garish lot for the fashionable person? It was in vain that they asked for a good pattern which was a year old. The value of design did not necessarily mean the value of ornament. Primarily, he hoped that this paper might lead them again to suggest to their clients the value of reticence, to enhance the effect of that ornament which was fit and fine. It was still difficult to surpass the restful dignity of rooms which were decorated before wall-papers were invented. A knowledge of design, as an education in taste, was of great value. This knowledge led to the value of pattern as a whole, and with it it was possible to transform a poorly-proportioned apartment into one of seemly shape, or by an emphasis of one part or another to draw attention from an ugly construction. Where additions or alterations had been made to a building destroying its unity and breadth, the painter's sense of design might pull the whole together, and unite parts which were isolated. With reference to mouldings the same might be said. If the section of a moulding was properly designed it gave its own decoration by its light and shade. The effect of many a simple and dignified house or block of buildings was often completely ruined by picking out the various parts in different colours, when a reticent and broad treatment was best. When style was only unconsciously recognised the different building trades were not divorced from each other; each craft worked with the same aim in view, or their aim changed so slowly that the work of succeeding workmen was not incongruous. Nowadays buildings were raised in a confusion of different styles, and if their decoration was not in keeping with them confusion became chaos. Just as mouldings might suggest the treatment, so also might the plan. The pictures and furniture might also suggest the scheme of the decoration. The value of simple elements in design was apt to be overlooked. At the present time the most successful work was based on the simplest lines and elements, the variation of one or two units being often the basis of an entirely satisfying and beautiful effect. By reason of the simplicity of the means employed, the work had an additional source of interest. Bound up with the question of simplicity of detail in

the form and scheme of patterning was also the question of colour. The one suggested the other. In the decoration of rooms and halls of assembly the colour and the character of the design were mainly decided by the fact that the walls (which formed the main part of the surface to be treated) were to be a background for pictures or people, and just as for a background for good pictures they should not choose a strong and restless pattern, so, as a background for people, they avoided that which, like incandescent gas, showed them to disadvantage. Considering people and pictures, and the diversity of parti-coloured objects behind which the decoration had to stand, they would agree, he thought, that it was safest and best to keep both colour and pattern on simple lines. By the emphasis of these two points, design and reticence, it was not meant to imply that there was no place with which gorgeous colour and elaborate pattern might be employed with fitness. But when it was employed it was of the first importance that it should be of the best—such work as Ghiberti or Morris might have done. It was a mistake to allow anyone but a master to handle elaborate pattern. What he had mainly sought to bring before them was the importance of a reticent use of ornament—the value of simpler and better design, the broader treatment of painted surfaces, less picking out and, if possible, more original work fitted to the constantly differing requirements. It was in this, a better direction, that taste was trending, and they should be more than ready to lead it. In conclusion, he ventured to remind them of the dignity of their calling. If the decorator's position was unique (on the principle, *finis coronat opus*), his responsibilities were proportionately wide and deep. It was his part to crown and consummate the work of those who had laboured before him. Not his employer alone, but all around were his clients; out of doors his fellow-townsmen were daily under the influence and it should be the inspiration of his work, and within the house the result of his taste should be the ally of rest and refreshment and of all the virtues which went to make it home.

A vote of thanks to Mr. Fletcher for his paper was carried unanimously.

The following officers were elected for the ensuing year:—President, Mr. Graham Cole (Newcastle); vice-presidents, Mr. J. W. Ballamy (Birmingham), Mr. Jas. Riley (Nottingham), Mr. William Simpson (Hull), Mr. Geo. Tawse (Sunderland). The treasurer and secretary were re-elected.

A vote of thanks was passed to the retiring President and officers for their services during the past year, and a cheque of

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50% was presented to Mr. J. Milligan, secretary of the educational committee, for his services.

It was decided to hold the next convention at Newcastle-upon-Tyne.

THE DRAINING OF THE ZUYDER ZEE.

A FOREIGN OFFICE report on the draining of the Zuyder Zee (No. 565, Miscellaneous Series) has been issued. It is prefaced by a letter to the Marquis of Lansdowne from Sir H. Howard, British Minister at The Hague, in which he says:—I have the honour to report that a Bill on the subject of the draining of the Zuyder Zee was recently introduced in the Second Chamber of the States-General by Mr. Lely, the Minister for the Waterstaat, who likewise furnished the Chamber with a memorandum in explanation of the measure, giving a historical retrospect of all former proposals of this nature, as also the most complete details concerning his own proposal. . . . Mr. Lely's memorandum on his scheme is, in my opinion, of such historical, technical and general interest, that I have deemed it my duty to transmit herewith to your lordship copies of the Bill and memorandum, together with translations of the same. The scheme in all its details is so well described by Mr. Lely that it is only necessary for me to point out its main features. The plan really consists of first enclosing and afterwards gradually partially reclaiming the Zuyder Zee, the pumping out of the water to be effected by steam pumps. The first work will be the construction of a dam from Wieringen, in North Holland, to Piaam, in Friesland. This dam will have sluices into the North Sea. The next works will be the creation of two polders, or areas of dry land reclaimed from the Zuyder Zee; the first, between Wieringen and Medemblik, to be called the "North-west," or "Wieringen Polder," and the second, between Hoorn and Marken, to be called the "South-west," or "Hoorn Polder." The rest will remain a fresh-water lake, at all events in so far as Mr. Lely's plan is concerned, but should the latter prove successful his ministerial successors may in days to come create two more polders on the north-east and south-east of the lake. The two polders will be of the following area, viz. the Wieringen Polder, 21,700 hectares, containing 18,700 hectares of fertile land, and the Hoorn Polder, 31,520 hectares, containing 27,820 hectares of fertile land. The entire work is to be completed in eighteen years. The enclosing dyke from Wieringen to Piaam will be finished in the ninth year. In the eighth year will be commenced the works for dyking the

Wieringen Polder, which in the fourteenth year will be dry and ready for sale. In the eleventh year the similar works on the Hoorn Polder will be begun, and will be completed in the eighteenth year, when an area of upwards of 46,500 hectares of fertile soil will have been reclaimed. The cost of this gigantic work is estimated in round numbers at 95,000,000 fl. (7,916,667*l.*), which amount is to be raised by loans, and it is proposed to pay off the principal and interest by an annual increase of the Budget of 2,000,000 fl. (166,667*l.*) during a maximum period of sixty years.

The remainder of the report consists of a translation of the Bill and a transcript of Mr. Lely's explanatory memorandum.

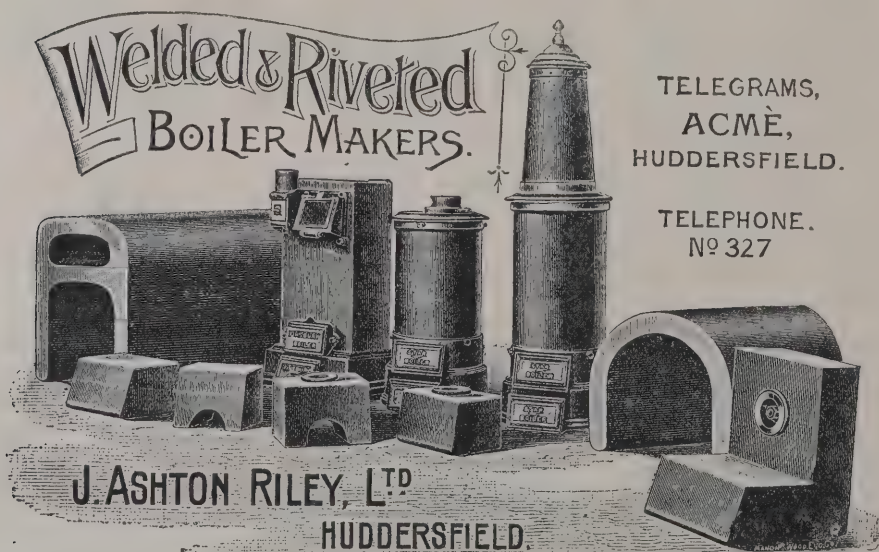
THE BOROUGH IMPROVEMENT SCHEME.

Six years ago the late Vestry of St. George the Martyr suggested to the London County Council the expediency of widening Long Lane and improving the approach to Tabard Street from the Borough High Street by constructing a road through a portion of the churchyard. The Council having thoroughly considered the matter from all standpoints, decided in June 1896 to apply to Parliament for powers to effect the improvement, the estimated gross cost of which was 207,400*l.* and the net cost 190,000*l.* The proposed alterations comprised the widening of Long Lane between Southall Place and Borough High Street to 50 feet, whereas originally it varied from 23 feet to 40 feet. The scheme necessitating the inclusion of a portion of the churchyard, it was agreed to give an equivalent in land hard by.

Parliament having given a ready assent to the scheme, the Council began to acquire the property towards the end of 1897, and it has continued to enlarge its holding ever since, with the result that a considerable portion of Long Lane now belongs to them. To one owner of property in the street, viz. Mr. A. J. Denman, beer-can manufacturer, 8,000*l.* compensation was awarded in the spring of the present year, and there have been several other heavy claims to meet. The work of demolition is now in progress. Here, as elsewhere, the County Council will pursue its usual practice. When the land has been cleared that not required for the new street will be let on lease.

A scheme has been prepared for rehousing persons of the labouring classes displaced by the carrying-out of the improvement on a site in Le Roy Street, but by the Act the Council

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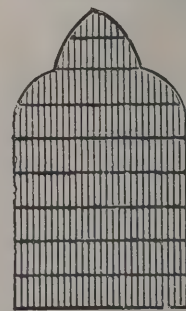
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cannot displace persons of the working classes till the scheme for rehousing has been approved by the Home Office. With regard to the Long Lane improvement, we understand, says the *Daily News*, that any remains which may be found in the churchyard of St. George's will, under the provisions of the Act, be transferred to Brookwood, where they will be reinterred at the cost of the County Council. Close at hand to the old church is the site of Marshalsea Prison, whereon now stands a large printing and manufacturing stationers' business. It was in this gaol that Charles Dickens's father was imprisoned for debt, and the place is intimately associated with the story of "Little Dorrit" and her family. It was in the vestry of St. George's Church that Little Dorrit found refuge, and was accommodated by the kindly old sexton with a bed formed of pew-cushions, with the book of registers as a pillow. It was in St. George's Church, too, that she subsequently married Arthur Clennam. The Borough, where the County Council are now engaged in carrying out important improvements, is in a variety of ways associated with the distinguished novelist who was the first to occupy the editorial chair of the *Daily News*.

ELECTRIC LIGHTING AT WALTHAMSTOW.

WALTHAMSTOW presented quite a gala air on the occasion of the recent inauguration of the electric light, the installation of which necessitated the application to the Local Government Board for a loan of 41,000*l*. The new station, covering some 2 acres of ground situate in Essex Road, Hoe Street, is already capable of lighting the principal streets, where there are sixty-three arc lamps each of about 1,400 candle-power, and applications have been made by inhabitants for current for no less than 15,000 eight candle-power lamps. Already 54 miles of cables have been laid in the streets. Many new arrangements have been introduced by the electric-lighting committee. For instance, attached to the arc lamp columns are two sixteen candle-power lamps, which will be lighted after 11 P.M., when the arc lights are turned off. A system of "free wiring" has also been introduced, by which means householders can have their premises wired at once without any immediate heavy cost to themselves. The charge for current is fixed at 5*d*., 4½*d*. and 4*d*. per unit, according to the amount consumed. People availing themselves of the "free-wiring" system will, over a certain period, pay an extra

½*d*. per unit to meet the cost of laying the wires. Electricity for motive power can be obtained at 2½*d*. per unit, and motors for industrial purposes or lifts will be provided by the Council upon a carefully-considered instalment system.

The plant is substantial, and consists of two gas generators, three gas-engines of the three-crank type, each of about 100 horse-power, with dynamos coupled direct. The dynamos are here worked by gas-engines, and the gas is generated on the Dowson principle—that is, by injecting steam over red-hot coals in a furnace. The cost of this method works out to about 2*d*. per 1,000 feet, while coal-gas costs 3*s*. 10*d*. per 1,000, and about 4,000 feet of the former do the work of 1,000 feet of the latter, thus saving 3*s*. 2*d*. The main building, erected by workmen directly employed by the Council, is 123 feet long and 79 feet wide, and comprises the engine and battery-rooms, with stores and offices overhead.

Ample provision has been made for increasing the plant whenever the demand for more light is made. In fact, two more gas-engines, each of 250 electrical horse-power, and two dynamos are under order. The District Council having in view the development of this charming locality, are projecting further means of inter-communication—either electric trams or a light railway—and the current will be supplied from this station.

COST OF ELECTRIC LIGHTING.

AT the inauguration of the Longton Corporation electric-light works Alderman Baker, chairman of the gas and electricity committees, said there was a general consensus of opinion in the country that there should not be large profits made either from electricity or gas. In their case this was very important, because they had placed both undertakings under one authority, and for many reasons they thought they had done so wisely, but in order to be quite unbiassed and ready to supply either light indifferently, it was almost necessary they should supply both at cost price. He thought he should be able to show them that under some circumstances, perhaps many, electricity would be the cheaper illuminant, and he had a strong opinion that in very many cases a combination would be very beneficial both to the consumer and themselves. He was afraid that the system of charging they had adopted had so far had a deterrent effect on the adoption of the electric light. It was, no doubt, very difficult to understand, and there was, unless the consumer understood how to take care of

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himself, an element of uncertainty which was at least trying, and yet nothing was so certain as the fact that a sliding scale must be adopted, or the undertaking would be a failure. A flat price would be unfair to the profitable consumer, for there were consumers to supply whom would spell ruin, and the profitable consumer's price would have to be raised to cover the loss on the unprofitable one. That was universally acknowledged to be inseparable from electric lighting, and although it was not claimed that the system they had adopted was absolutely perfect, it was acknowledged to be nearer perfection than any other at present devised. He had often been asked whether he could not give some simple formula as to cost which people could carry away with them. He had hesitated about doing so until he had more opportunities of discussing the point with those having the system actually under their management, but he thought he might now attempt something of the sort. He would make the comparison of an ordinary gas-burner at 3s. 1d. per thousand cubic feet with a standard 8 candle-power electric lamp at 8d. per unit maximum and 2d. per unit minimum, as adopted by them. The cost of a 16 candle-power lamp would be twice that of an 8 candle-power lamp and a 32 candle-power four times, and so on in proportion for the other sized lamps. Now an ordinary gas-burner, if burnt for 365 hours, that was an average of one hour per day, would cost 6s. 8d. per annum. An electric lamp used for the same time would cost 7s. 6d. A gas-burner burnt for 730 hours, that was an average of two hours per day, would cost twice 6s. 8d., namely, 13s. 4d., but an electric lamp used the same time would only cost 9s. 6d. Again, a gas-burner burnt 1,095 hours, or an average of three hours, would cost three times 6s. 8d., or 1l. An electric lamp used the same hours only 11s. 6d. Again, a gas-burner burnt 1,460 hours, or four hours per day, would cost four times 6s. 8d., or 1l. 6s. 8d. An electric lamp for the same time 13s. 6d. So they would see that while the cost of an electric lamp for one hour per day was more than the cost of gas, with an average of two hours per day or more the reverse was the case, and while the cost of gas increased at the rate of double the initial cost for each additional hour, the electric lamp for each additional hour only added 2s. to the initial cost. This was a most important factor, and in the case of a long consumption the balance in favour of the electric lamp was very marked. He was afraid, however, that he might mislead them with the above comparison so far as light for light was concerned, as it took a 10 candle-power lamp to equal the light

of an ordinary gas-burner, and the prices therefore would stand at 9s. 6d. for a one-hour consumer, 11s. 6d. for two hours, 13s. 6d. for three hours, and 15s. 6d. for four. Still much in favour of electricity for two or more hours' consumption. But he must not disguise the fact that in electricity there were some pitfalls which did not exist in gas. As in the case of gas, several lamps might be used to burn a total of 365 hours or 730 as the case might be, but they must burn sequentially, none of them simultaneously (as might be done in gas), or it would not secure the cost of 9s. 6d. for 30 hours, with an addition of 2s. only for each additional hour. If a second lamp was lighted the first must be put out. The second lamp must be in substitution of the first, not in addition to it. The limit of time allowable for the simultaneous lighting of two or more lamps without being recorded was 10 minutes. To study economy the great point was not so much to turn the light out on every possible occasion as to take care that such a number of lamps only were in use as might be required regularly day by day. It was advisable to light one room one evening and another the next evening, and if there were, say, five lamps in each room they would still count as five lamps, but if the two rooms were even occasionally lighted up simultaneously they would count as 10 lamps, and the average hour's consumption of each lamp would thereby be decreased. Now five 8 candle-power lamps, with an average consumption of two hours each, would cost five times 9s. 6d., or 47s. 6d. a year, while ten lamps with an average consumption of one hour (making together the same total number of hours) would cost ten times 7s. 6d., or 75s. This was the great point where the householder especially could take care of himself to so great an extent and help them, for their engines were of only limited capacity, and electricity was not storable like gas, but must be practically supplied direct from the engines, so that while they might not be able to meet a large simultaneous demand upon them, they would gladly welcome that same demand spread over a longer time. If they could (like gas in the gasholder) store electricity they could work the engines constantly during the twenty-four hours and supply nearly ten times as much with the same engines and dynamos as they could now, and so decrease the cost of capital charges per unit to one-tenth of what it now was, and if this difficulty as to storage was ever practically and economically solved, they might depend upon it that gas would have no chance against electricity for lighting purposes. It was true there was one way it could be solved even now, that was by obtaining consumers who would take

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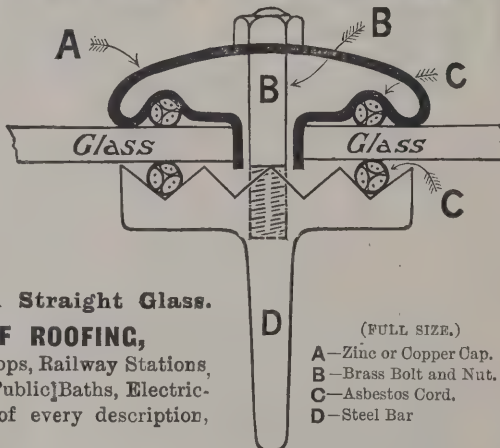
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electricity in the daytime, and not require it when the demand for lighting in the evening came on—a day-load, as it was called. This, however, was rarely obtainable to the full extent of the capacity of the plant, and the station that could get such a load was very fortunate and its success assured. A good help in this way would be motors for use in the manufacturing. The motors were much less liable than gas-engines to get out of order or to give trouble, and occupied much less space and were more portable. The success of the undertaking would depend upon the support they received. They were told by other electric authorities that so far they had done very well and made a good start in the numbers of their consumers. These would alone go a long way in keeping their present engine fully occupied. He felt very confident himself that there were plenty of consumers in Longton who could with advantage to themselves use the electric light, and it would be their endeavour to secure such consumers, and not those to whom it would be a disadvantage. They would rather start slowly and give satisfaction than secure those who might afterwards blame them for not having advised them well and truly.

BUILDING IN GLASGOW.

AT the opening of the Glasgow Dean of Guild Court, Dr. Robt. Gourlay made the customary annual statement. He said:—

Before we take up the ordinary business of the Court I wish, very shortly, to glance at the work of the past year. The number of linings granted has been 498, and the valuations of these represent a sum of 1,559,294^l. These linings are made up of 105 houses and shops, 4 public buildings, 16 churches and schools, 113 warehouses, stores and workshops; 240 alterations and additions, and 20 new streets of 5,264 yards in all. Of the houses for which linings have been granted 377 are for those of one apartment, 1,124 of two apartments, 554 of three apartments, 123 of four apartments, 92 of five apartments and only 176 for those of six rooms and upwards. If we throw out the larger houses of six rooms and upwards we find that houses of two rooms are nearly equal in number to those of all the others, viz.—one, three, four and five rooms—put together. The linings for one-room houses, I am glad to see, have been steadily on the decrease during the last eight years, and this year compares most favourably with that of nearly thirty

years ago, when the linings for this class of house were nearly four times what they have been in the year just closed. The houses of one apartment are equal to about 20 per cent. of the whole for which linings have been granted, and the houses of one and two apartments are equal to about 50 per cent. of the whole for which linings have been granted. Some of you may remember, bearing on this, a striking statement made by the late John Bright in his rectorial address to the students of Glasgow nearly twenty years ago, in which he quoted figures to show that 41 per cent. of the houses in Glasgow were then of one apartment, and 37 per cent. beyond the 41 of two rooms, bringing out the fact that 78 per cent., or four-fifths, of the houses were of two rooms and under. And at that period nearly one-third of the whole people of Scotland dwelt in houses of one room, and more than two-thirds in houses of not more than two rooms. No wonder that John Bright, with his natural eloquence, said:—"I plead not for the great and for the rich, I plead for the millions who live in homes with only one room." We have made some progress since John Bright appealed for the dwellers of one room, and I trust the day is not far off when, in the interests of health and decency, the one-room house will be unknown in our midst. The value of the dwelling-houses and shops for which linings have been passed during the year is 678,574^l. These are spread over the different outlying districts of the city, but only in the districts of Queen's Park and Maryhill—with three exceptions—are there houses being built having six rooms and upwards. In the Eastern, in St. Rollox, and in the two districts already named there is abundant evidence that the city is growing rapidly, its many and varied industries, which have fortunately taken root with us, drawing many no doubt to this great and busy centre. It is also interesting and satisfactory to note that no one district has a monopoly of our public works. The old does not give place entirely to the new, and the East and St. Rollox hold their own against the western flow of the river Clyde. The past year, with linings of over a million and a half in value, is not a record year, but only seven times in the last thirty years has it been surpassed, and when we consider that ever since the extension of the city boundaries nearly ten years ago the valuation of the linings granted by the Dean of Guild Court has every year exceeded one million sterling, and in two of these years has been over two millions, and in other two close on these large figures, we can realise how important is the work given this Court to do, and how needful it is in the best interests of the city and of its vast population,

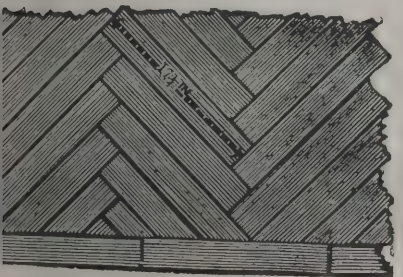
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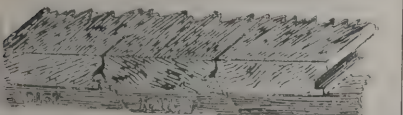
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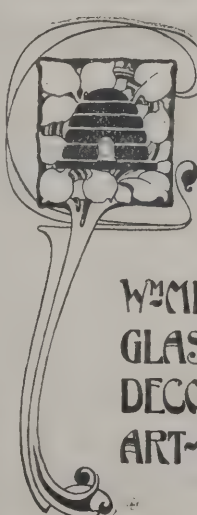
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but specially its great working population, that the Acts we seek to administer should be interpreted with an earnest desire to do the best we can to make every dwelling-place over which we have jurisdiction attractive and wholesome to rich and poor alike. I desire to acknowledge the loyal, able and practical help I have had from my friends the sub-dean and the lymers of the Merchants and Trades' Houses, the wise and willing guidance in points of law from my learned assessor, Professor Moir, and Mr. Ramsay, and the ability and care shown by Mr. Nisbet in his notes on the plans brought before the Court. I, too, would wish to thank Mr. Neilson, the procurator-fiscal, for the courtesy and anxiety with which he has discharged his not always pleasant duties, and you, gentlemen, who from time to time have appeared here, for the respect and deference you have ever shown to the Court, and for your desire at all times to help and not hinder its work.

CANAL BURST IN BIRMINGHAM.

AT an early hour on Saturday Sept. 28, says the *Birmingham Post*, a serious and destructive canal burst occurred near the centre of Birmingham, causing widespread consternation, but fortunately resulting in no loss of life. An arm of the Birmingham and Wolverhampton Canal penetrates into Newhall Street and terminates at the Newhall Street wharf, forming a cul de sac. At that point Messrs. Jones, ironfounders, are erecting new premises, and excavations were being made with the view of strengthening the canal wall. Owing to these excavations, or to some defect in the canal basin, suddenly the wall collapsed, and the water rushed through the gap with tremendous force. The irresistible torrent carried away huge masses of masonry and heavy iron stanchions, and carving out a new channel for itself poured down Lionel Street several feet deep, and submerged the works of Messrs. Hope, ironfounders, and Messrs. Mitchell & Co, pen manufacturers. In a few moments the basement and lower portions of the pen factory were filled with water to a depth of 12 feet. Fortunately the offices and store-rooms were on a higher level and escaped the flood, or otherwise a large quantity of pens would have been destroyed.

Continuing its course the flood dashed down Newhall Street, flooding Messrs. Elington's works and the cellars of houses and factories on each side of that thoroughfare,

ultimately finding its way into Fleet Street, where there is another branch of the Birmingham and Wolverhampton Canal. On the banks of this arm is a house occupied by Samuel Brewer and his wife and six children. About half-past three o'clock Mr. and Mrs. Brewer were awakened by the sound of rushing waters, and looking through the window saw that the premises were surrounded by a deluge. The house was shaking on its foundations and its collapse seemed imminent, the yard and outhouses having already been carried bodily into the canal. With the assistance of the police, however, the family were extricated from their precarious position, and shortly afterwards the footpath sank nearly 2 feet, and the foundations of the house were undermined so that temporary supports had to be provided. The greatest damage was occasioned by the flood at this point, the road being torn up, the kerb-stones scattered, and the asphalted pavements ripped up for some distance. Another volume of water rushed into Ludgate Hill and Water Street, where the basement and ground floors of the Corporation electric-lighting works were inundated, the cable tunnels being flooded. At one of the public-houses in the neighbourhood the barrels of beer were swept away. Prompt action was immediately taken by the police and the canal officials to stop the flow of water, the lock being closed at Friday Bridge, and the canal dammed at the commencement of the branch. As a result of the accident work had to be suspended at several factories and workshops.

THE TRAMWAYS ACT, 1870.*

THE Act has now been thirty-one years in operation, and has never been amended. This view is not the result of opposition to municipal trading, nor based on any idea that municipal ownership of tramways is an economic mistake. 1. History and Effect of the Act.—The decision in *Reg. v. Train* (1862) rendered it necessary to obtain Parliamentary authority to lay down a tramway. The object of the Act was to facilitate tramways by substituting provisional order for Bill. It was, however, hedged round with restrictions. 2. The Vice of the Departmental Method of Legislation.—The essence of the departmental method is that the inspector who holds the local inquiry (if any) has no authority to decide. The Board of

* Abstract of a paper read before Section F of the British Association at Glasgow, by E. F. Vesey Knox, M.A.

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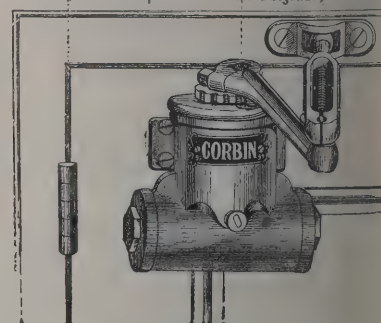
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Trade have failed to obtain any respect for decisions in really contested cases. In such cases the practice of promoters is now to go to Parliament direct. 3. The Want of Compulsory Powers for the Taking of Land—English roads are seldom suited for tramways without alterations, yet the Tramway Order may not authorise the taking of land for road widening. 4. The Frontagers' Veto—Frontagers in narrow places can prevent tramways by a mere mechanical veto. This has led to single lines and other bad tramways. 5. The Veto of the Local Authorities.—This veto has sometimes been abused, and has tended to discourage the best schemes and the soundest promoters. It is not, however, likely that an objection by a local authority based on reasonable grounds would ever be overruled. 6. The Purchase Clause.—There were some good reasons for inserting a purchase clause, though nothing of the sort had been applied to railways, and gas and water undertakings have only been purchased under special Acts at a very full price. It is now hopeless to contend that there should be no power of purchase; the really debatable matters are the period and the method of valuation. Mr. Shaw Lefevre anticipated that promoters would not mind the purchase clause, because there was no limitation of profits. What they did was to try to take their profit through inflating the capital, and clear out. Hence abortive schemes and disappointed investors. The comparison between the price at which railway and tramway capital can be raised is not less instructive than that between private and municipal credit for tramway purposes. The best class of investors have been discouraged by the Tramways Act, and the cost of capital for tramway enterprise has consequently been increased. The great discovery of the application of electricity to tramways came just when the purchase periods in England were running out. There was consequently a long delay in adopting the new invention, and though England ought, but for Parliament, to have led the world, as it did in railway construction, it has been kept behind other countries, and has suffered social, economic and industrial loss. There is no country which had so great a need for electric tramways as England. The corporations have been slow to try experiments owing to their careful trusteeship of the ratepayers' money. The method of valuation is more important than the period of purchase. If goodwill is not to be paid for, there is no adequate motive for developing a business. The corporations have actually lost on balance, for while Tramway Act price is less than enough for a good tramway, it is too much for a bad tramway. It pays the company

better, when the purchase period is approaching, to retain an obsolete equipment, which ought to be scrapped, so as to make the corporation buy it. Practically no tramways are now made by companies on Tramways Act terms without modification, but the retention of the Act on the statute book still does a great deal of injury to tramway enterprise.

NEW WORKHOUSE, NOTTINGHAM.

STEADY progress is being made in the final stage of the erection of the new Nottingham Workhouse at Bagthorpe, and the various blocks of buildings have now, says the *Nottingham Guardian*, sufficiently approached completion to enable the visitor to form a fairly accurate idea of the appearance which the establishment will possess when the time comes for its opening. The inclusion of so extensive a range of buildings—covering close upon 70 acres of land—under the generic title of "workhouse" scarcely conveys to the mind of anyone who has not visited the site an adequate conception of the extensive dimensions of the establishment which is being constructed by Mr. F. Evans to the order of the Nottingham Board of Guardians and in accordance with the plans of Mr. Arthur Marshall, under the supervision of Mr. Foxworthy (clerk of the works). The operations of the builders are now being most actively pushed forward in the nine large blocks, ranging east to west on the south side of the site, which constitute the workhouse proper. Of these blocks, the five to the west of the administrative building in the centre are for the accommodation of male inmates, the four to the east being for females. Between each there is an airing-court wherein the inmates will take outdoor exercise, and communication between the blocks is provided by means of a central corridor 900 feet in length. The corridor is roofed between the buildings, but is open at the sides save for an iron palisading, and by means of subcorridors it gives access indoors to all parts of the establishment which it traverses. The workhouse blocks are each three storeys high, and the roofing of them all is now complete with one exception. The frontage on the south side of the administrative block is surmounted by a central tower 66 feet high, which is used as a water tower. To the left of the main entrance are the offices and committee-rooms, and to the right a suite of rooms for the matron is provided. The primary feature of this building is the dining-hall, a roomy apartment with a handsome open-timbered roof of

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pitch-pine. Herein 500 persons can be seated at table, and a movable partition will separate the male from the female inmates at meal times. From the dining-hall corridors lead to the kitchen, sculleries and stores. The kitchen is very spacious, the light from the windows being supplemented by a lantern roof. Throughout the culinary department the walls are lined with white-glazed bricks, a dado of similar material, with border courses of brown, ornamenting all the corridors. A feature of the kitchen is that the sculleries, stores and other offices connected therewith can all be reached under cover. The main stores are on the north side of the administrative block, and the accommodation for this department is spacious and excellently ventilated. This is an observation, however, which applies equally well to every part of the establishment, particular care having been taken in the preparation of the plans to make the building as light and airy as possible. Before passing from the description of the workhouse blocks it should be mentioned that each building is provided with an "escape" staircase at each end in case of fire or other emergency. Between the workhouse and the infirmary buildings, which range in parallel lines, are the workshops, stables and other premises included in the labour-master's department. The laundry is of up-to-date construction, with extensive steam-drying accommodation, the disposition of the rooms in this building being so made that the clothes are received from the collectors at one end of the premises and sent out when finished at the other. The bakery is hard by, and at the present time workmen are engaged in fitting up the two large patent ovens which will bake all the bread required for consumption in the establishment. The boiler-house is the centre whence radiate the heating and electric-lighting mains throughout the whole range of buildings, the circulating pipes being conducted through a series of subterranean corridors through which one can walk to any part of the premises. There are four large Lancashire boilers, space being provided for two more should the necessity arise, and there is ample room for coal storage. In the basement of the boiler-house an elaborate system of heating and hot-water service-pipes has been installed. The chimney-shaft of the boiler-house, which is 100 feet high, has also been completed.

The infirmary buildings are in a much more forward state than the other portions of the establishment. This range is similar in its general disposition to the other main series of buildings with which it runs parallel. A central corridor, 800 feet in length, provides intercommunication between the

eight blocks which it passes through transversely, as in the case of the workhouse buildings. The main corridor of the infirmary differs, however, from the other in being closed at the sides, and in having an overhead way between the upper storeys. The infirmary is divided into eight blocks, each of which is subdivided into two pavilions, with frontages north and south, the total hospital accommodation, including that for imbeciles, being for over 500 patients. Glass-roofed verandahs are placed on the frontages facing south, day-rooms being provided instead in the pavilions with a northern aspect. In the main wards the heat of the radiators is supplemented by stoves, which conduce also to greater cheerfulness in the appearance of these rooms. The usual offices are placed at the extreme ends of the wards, from which they are separated by short corridors. In all the infirmary corridors the windows are so arranged that a pure air current can be obtained right through them whenever desired. Between the main wards in the respective pavilions of each block are small two-bed wards, ward kitchens, linen rooms, fuel stores and lifts. There is also an "escape" staircase at the south-west and north-west corner of each pavilion. Fireproof flooring of maple wood blocks upon concrete is being laid throughout the infirmary, a great part of this work being already finished. In the administrative block of the infirmary suites of rooms are provided for the medical officer in charge, the assistant medical officer, stewards, superintendent nurse and staff, together with committee-rooms. The kitchens and kindred offices are similar in plan to those in the workhouse. The dispensary is also included in this block, the serving counter being accessible from the main corridor. To the extreme east and west of the general infirmary buildings blocks of one storey have been built for the reception of cases not suitable for admission to the ordinary wards, and on the north-west corner of the site is situate the isolation ward with accommodation for the attendant nurses. The children's infirmary is to the north-east, and comprises four wards, with central office. The nurses' home, which provides comfortable accommodation for a nursing staff of fifty, is the northernmost building in the establishment, and has a southern frontage. The imbecile wards, on the rising ground to the extreme east, constitute a practically self-contained asylum, with provision for 250 patients. This department has its own dining-hall and administrative building, together with a set of workshops. The chapel is being built upon a knoll on the west side of the ground, whence a capital view can be obtained of the whole, of

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the establishment, as well as of the surrounding country. When completed this edifice will present a very pleasing appearance. The structure is based on Bulwell stone, the remainder of the building being carried up with red Babbington bricks, faced with stone. The interior is built in Sileby sand-stock bricks, and the south corner of the frontage which faces west will be surmounted by a square turret. Just inside the entrance from Hucknall Road are the porter's lodge and vagrants' wards. The latter are being arranged upon the cell system, and the workmen are hurrying to bring them as speedily as possible to completion. There are still many months of work before the contractors, and after the place is out of the hands of the builders the laying-out of the grounds will occupy a considerable time.

THE "GARDEN CITY" SCHEME.

THERE could surely be no more fitting place in which to discuss the merits of such a scheme as that of the Garden City Association than the village of Bournville. It is there, says the *Birmingham Post*, that Mr. George Cadbury has so successfully carried out a splendid experiment in the housing of the workers, on lines almost identical with those which the enthusiastic followers of Mr. Howard desire to follow. The hundreds of delegates who opened their conference in Birmingham on Sept. 20, and who resumed it on Sept. 21 at Bournville, must have gained inspiration and encouragement from such surroundings. They spent the morning in a delightful ramble around the pretty village, gathering knowledge as they went as to the system upon which the undertaking is conducted, and admiring the provisions which are made for the recreation and education of the inhabitants. Shortly after noon they gathered in the spacious dining-hall which is set apart for the clerks employed in the great cocoa factory of Cadbury Brothers, and here they were entertained to luncheon by Mr. George Cadbury.

The following letter written on August 31 on behalf of the Right Hon. A. J. Balfour served to show that the leader of the Unionist party in the House of Commons is in hearty sympathy with the objects which the Association desires to achieve:—

"Mr. Balfour desires me to express his regret that he will not be able to be present at the conference to be held at Bournville next month by the Garden City Association. Without expressing any opinion as to the details of the scheme put

forward by the Association, or as to the degree to which it may be expected to provide a solution of the housing problem, Mr. Balfour desires to express his agreement with those who think that much is gained by the emigration of industries from overcrowded centres to rural or comparatively rural districts."

The first business of the conference was the consideration of a paper upon "Co-operation and Garden Cities," submitted by Mr. Ralph Neville, K.C. Mr. Neville maintained that the conditions of life in great towns had been proved to be conducive to degeneration, disease and death. When it was remembered that in England the agricultural population already bore to the town population a smaller proportion than in any other great country, while this proportion was continually decreasing, the gravity of the position would at once be appreciated. The problem with which the Garden City Association sought to grapple was how to save the people from the consequences of a movement which they were powerless to prevent; if men must live in towns, how was town life to be rendered consistent with healthy development? In the case of existing towns, where the land in and about the town was in the hands of private owners, who were, from the nature of the case, monopolists, the ground value was already extremely high, and every improvement added to the value of the monopoly. The result was that any change radical enough to achieve the object in view was prohibited by the cost it would entail. The high value of the land was a by-product of the activities of the townspeople, but under present conditions they were constrained to make a present of it to the landowners. Townspeople could, by intelligent co-operation, make themselves the owners of the land in and about their town, and thus make available for their own purposes the entire product of their own exertions. The desire of the Garden City Association was to afford an opportunity for the practical application of this remedy. Their scheme was based upon three essential conditions:—The purchase, at agricultural prices, of land for a city; the retention, for the benefit of the community, of the increased value of the land created by the community; and the permanent restriction of the area to be covered by buildings. In such a city, while the cost of production, as far as space was concerned, was reduced to a minimum, every man would have at his door the opportunity of a healthy existence, and the enjoyment of the gifts of nature would not be divorced from the stimulating intercourse with his fellows. The most obvious objection was that

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the scheme would take a great deal of money to start. They believed that the money provided would prove to be safely invested at 4 per cent. or 5 per cent. interest, while the experiment, if it proved successful and led to a gradual distribution of the population over the land, would have rendered an incalculable service to the Empire, the future of which depended far more upon the capacity of our people than upon the extent of our dominions. They heard of the over-population of England, but upon the lines laid down for the garden city, which allowed five persons to the acre, the south-eastern district alone, comprising the counties of Surrey, Kent, Sussex, Hampshire and Berkshire, would absorb the population of London nearly four times over, in addition to its existing population.

Mr. Neville maintained that the supreme merit of Mr. Howard's scheme, the economic basis upon which it was, he thought, surely and securely founded, was not that it would give to the residents in the garden city all those advantages which it was desirable that they should enjoy, but that the money with which these advantages could be given would be secured by the automatic rise in the value of the land, which would take place as soon as people were attracted to the city. The "unearned increment" which went to the landlords throughout England would make a total so enormous that if it could be calculated it would perfectly stagger them. If they could point to one city like that they would have made a great advance towards solving great social questions, and would have paved the way for municipal councils and local bodies to follow in their footsteps. The lines upon which they proposed to proceed were first to get an option over a tract of land, then float a company, buy the site, and start erecting the city. The company in the first place would have the management of the scheme, with a view to giving local government into the hands of the inhabitants as soon as the scheme had sufficiently developed.

In a discussion which followed the paper Mr. Aneurin Williams advocated the introduction of co-operative principles at the outset, suggesting that the building should be done by co-operative societies, and that all the necessities of life should be supplied through co-operative producing and distributing agencies.

A hearty round of applause went up as Mr. George Cadbury, to whose splendid altruism the model village of Bournville is entirely due, rose to address the delegates. Mr. Cadbury gave some interesting particulars of his first conception of the

scheme. For forty years, he said, he had had a class for men in Birmingham, very many of whom had been drunken and profligate. Many years ago he was struck by the fact that when these men were reformed they had no occupation for their spare time and thought after the day's work in the factory was done. He came to the conclusion when he was quite a young fellow that the only practical way of raising them up from the degradation of their surroundings was to bring the factory worker out on to the land, and give him a piece of garden in which he could enjoy that most delightful of all recreations—the coming in touch with nature on the soil. A serious feature of our modern industrial life was the deterioration in physique of the workers. How was it possible to have a healthy race while the men were spending their days in factories and their evenings in clubs and institutes, or, a thousand times worse, in public-houses? A man must have fresh air and come in contact with nature if he were to have a really fine physique. They had a little object lesson at Bournville in their home for poor children out of the slums of Birmingham. He had had these children carefully weighed, and he found that on the average they gained 1 lb a week while they were at Bournville. Some had gained as much as three or four. What, asked Mr. Cadbury, would those children be if they were always living that life instead of the life of the slums? The audience saw the unconscious humour of the question, and laughed vociferously. Mr. Cadbury saw it too, and added, "Of course we could not hope that they would put flesh on at that rate always." The speaker maintained that a garden for the worker was most important from the point of view of economy. When he found his recreation there, not only was he saving money which he might otherwise spend in amusements, but he was making money besides. The question had been asked, "How could the poor afford to pay 5s 6d a week for a cottage with a garden?" Those who asked it forgot that 2s 6d might be knocked off that figure for the value of the garden produce, bringing the rent down to 3s., while it also resulted in the further advantage of an increased consumption of vegetable food and a decreased consumption of animal. Another question was, how far the removal into the country helped the manufacturer? The great difficulty which confronted manufacturers in a town was the securing of land when it became necessary to extend. In their own case they found an untold advantage in being out in the country. When they came out they employed 300 hands. Now they employed 3,400, and they had plenty of room to double or treble that number.

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He believed the time would come when manufacturers would see that it was the best thing in the world for them to get out of the towns. It was a great undertaking at first, no doubt, but he had been recompensed a thousandfold.

The Town Clerk of Shoreditch asked what proportion of interest and repayment was charged upon the dwellings in the Bournville Trust, and Mr. Cadbury replied that the freehold of the trust was handed over to the trustees, and the whole income would go towards developing the idea. It was like a rolling snowball, gathering as it went. The income that year would probably be 6,000*l.*, of which he supposed 5,000*l.* would go towards building new cottages and improvements. Every twenty years they hoped that it would double itself, so that in forty years it would be 20,000*l.*, in 100 years 160,000*l.*, and in 150 years 1,000,000*l.* In reply to another question Mr. Cadbury said that the first 150 houses built were practically sold out and out. They were sold to the tenants on 999 years' leases, of course with certain conditions to prevent the character of the village being destroyed. It was found, however, that the tenants were selling at a profit of sometimes as much as 25 and 30 per cent., and were thus securing for themselves the "unearned increment." It was felt that this money ought to go to the trust and be utilised for extending the scheme, and providing more residences. Therefore, the selling of the houses was discontinued. His son was now building houses which would only be let to men earning 18*s.* or 20*s.* a week. This would cut off all their own workmen and provide for the poor of the surrounding district.

Mr. Brooks, of Birmingham, who represented the Gas-workers and General Labourers' Union, thought it was the constitutional conservatism of Englishmen, and especially English working men, which would prove the greatest difficulty in the way of the realisation of the garden city scheme.

Mr. Mansfield Robinson, the town clerk of Shoreditch, was very enthusiastic on the subject of Bournville. There, he said, they had got a successful experiment of a garden city. They wanted no more experimenting. They wanted to get to business. He pointed out that Shoreditch was about to spend 250,000*l.* in improving one of the worst parts of their district. That sum would have been sufficient to have bought a garden city right out from top to bottom. He declared that there were places in England where agricultural land could be bought as low as 5*l.* an acre, and he then drew a vivid picture of the degradation and immorality which resulted in great measure from the overcrowding in London and other

great cities. He thought that a scheme such as was proposed, in order to be successful, ought to be put, if possible, upon municipal lines.

A number of papers upon various aspects of the scheme had been prepared, but in order to save the time of the conference they were handed round as printed pamphlets, and were taken as read, discussion being at once invited upon them. The initiator of the scheme, Mr. Ebenezer Howard, set out a number of sound and convincing reasons why manufacturers and co-operators should unite with others in building a garden city, and why those interested in improving the condition of the working classes and the general well-being of the community should take an active part in assisting such an enterprise.

Dr. Winslow Hall gave details of the sanitary arrangements which would be essential to achieving the ideal garden city, and Mr. H. Clapham Lander, A.R.I.B.A., dealt with the bearing of co-operation upon the scheme, with especial reference to co-operative housing. From the pen of Mr. Raymond Unwin, M.S.A., there was an illuminating article upon the arrangement and building of such a city as was proposed.

An interesting discussion ensued upon these papers.

Mr. Rowntree, of York, laid stress upon the difficulties which confronted manufacturers in removing their works into a new and especially a rural district, but Mr. Mainwaring claimed that these difficulties had already been answered by Mr. Cadbury.

Mr. Howard, replying on the discussion, also laid stress upon Mr. Cadbury's success. When they saw, he said, that Mr. Cadbury as a single individual had built Bournville and given 300 acres of land to the English people, they could not believe without slandering the race that the people of this country, if they believed in the project, would fail to find the money to carry it out. He did not care whether the scheme was carried out by a municipal or any other authority, but he did contend that no municipality had anything like power to carry it out. He did not doubt that it was very difficult to produce the concerted action among manufacturers which was necessary to the success of the scheme, but if they never attempted anything that was difficult they would never achieve anything that was worth doing. He felt very strongly the importance of the question as it affected the morale and physique of the people.

The Mayor of Camberwell (Mr. Matthew Wallace), then proposed a resolution thanking Mr. Cadbury for his hospitality, and expressing the delegates' deep sense of the value of Bournville as a step in housing reform, and their

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earnest resolve to do what lay in their power to follow so splendid an example.

This was seconded by Sir M. M. Bohnaggee, M.P. In the great and burning question of housing reform, he remarked, Mr. Cadbury had indicated a direction of activity which would not only engross the attention of manufacturers and private citizens, but which would, he believed, set the Government and municipalities thinking whether it was not in their power to solve the great problem which had presented so much difficulty, and which lay at the root of the happiness of the working classes, and therefore of the prosperity of the country at large.

The resolution was carried with enthusiasm, and Mr. Cadbury, after acknowledging the compliment, proposed a vote of thanks to their chairmen, Earl Grey and Mr. Neville.

Earl Grey assured the delegates that he considered it an honour to have been asked to preside over that conference. He did not pretend to be able to say whether the scheme of which he had heard so much that day was practical or not. He read with a great deal of sympathy Mr. Howard's book when it was published, and he did see certain difficulties at that time in the way of the adoption of the scheme, some of which he thought he saw still. He had come there because he believed that Mr. Cadbury had set England an example which ought to be followed, and if his work could only be sufficiently known by other employers, if they could only realise what he had told them that day, that it was good business for the employer of labour to plant his works in the fields outside the cities, there would be a greater desire on their part to follow the noble and splendid example which he had set them. Never in his life had he (the speaker) experienced a happier feeling of relief, or a more full and confident hope as to the future of his country, than one day last year, when, having to spend a night at Birmingham, and not knowing what on earth to do, it occurred to him that he could spend the night at Bournville. He went there haunted, as many of them who thought seriously about the future of the country must have been haunted, by three ghastly and awful phantoms, which he could not banish from his mind. The first was the dismal fact that the third generation of Londoners did not have children, or, if they did, those children were narrow-chested guttersnipes, very different from the happy breed of Englishmen which had been the glory of this country. And when one reflected that big London was steadily growing and that the population nurtured in the country was steadily diminishing, one could not but reflect

that the day was not very far off when the invigorating stream from the country, which imparted stamina and nerve into the town-bred, used-up population of the cities, would cease to flow, and there would be nothing left but a miserable and stunted race. The second horrid thought he had was that, owing to the relations of capital to labour, and to our present industrial system in which all industry was based upon the fact that the worker was a hireling and not a partner, they had a system which encouraged the worker to regard himself as a cog in the machine, and which was responsible for the very prevalent belief that there was only a limited amount of labour to be performed by the nation every year, and that therefore it was the duty and interest of the worker to make his work as little efficient as possible in order that the labour might be spread over the largest possible number of hands. What did that mean? An industrial system founded upon such a basis must tend to prevent the development of individual excellence, must be ruinous to the development of character and fatal to the national and individual prosperity. The third dismal thought which he had was that there were thousands of his fellow countrymen who had no place to go to to escape from the deadly monotony of their lives other than the public-house. His haphazard visit to Bournville blew away all these nightmares. He saw light upon the mountain tops. He saw a place where men could enjoy God's fresh air, with the social intercourse and attractions of the town, a place where workers were partners with the employers in the industry which gave them employment, not individually, perhaps, but collectively, by sharing in the prosperity which came out of the profits from Mr. Cadbury's works. He found also that at Bournville there were so many attractions to occupy the leisure hours of the workers that there was no necessity for a public-house at all. Whether they could persuade different businesses to combine together and plant their enterprises at the same time on open spaces away from a city he had his doubts, but he had no doubt that it was open to-day to manufacturers, and would be more and more open to them and to their advantage, as electrical development made locomotion and the transmission of power easier, to establish the head centre and the workshops of the industries in the open fields. And when that day arrived he thought the great fears which had weighed like nightmares upon their minds, as to what the future of the race was to be if the people of England were to be purely town bred, would be removed, and that they might look forward to a new lease of strength and prosperity and greatness.

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The Architect.

THE WEEK.

THE Winchester committee who had charge of the ALFRED Celebration are to be congratulated on having passed through the Millenary without incurring any debts. There is even a balance remaining, the amount of which cannot be large. The local mayor has proposed that the money should be utilised in raising and conveying to Winchester the so-called "Viking Ship" which is embedded in the river Hamble. An operation of that kind must be necessarily expensive; in the end it might cost as much as the Celebration. The barge is about 130 feet long, and its depth remains unascertained. It is firmly bedded on mud and peat, and so ancient a structure would require to be handled with tenderness or it must collapse. The removal could only be attempted when the tide in the creek is at its lowest, and under those circumstances the expense of raising would be increased. At present the character of the "ship" is suggested by the wreck, but once taken from its damp enclosure the sides are not unlikely to become slush. If it could be transported to Winchester shed would have to be erected for it in which special atmospheric conditions would have to be provided, for it is common experience that wood which can remain in water loses its character in dry air or air that is alternately dry and damp.

THERE is no opposition between the Lord Chamberlain and the London County Council in regard to regulations for the safety of the public in theatres. Fire-resisting curtains are to be introduced in the proscenium openings of the Lyceum, the Criterion, the Vaudeville, the Strand, the Britannia and the Elephant and Castle Theatres. In the Standard the seats of the pit have to be rearranged. Other requirements are also to be carried out, and licenses will not be granted unless the Council's suggestions are realised. The effect of the unanimity between the two departments will not be confined to London, and we may expect that throughout the country the local authorities will be no less decided in their efforts to make theatres safe.

MUCH was anticipated from the superintendence by DON ALVAREZ of the Prado Gallery in Madrid. Since his appointment he has shown himself to be an active director. He was eager to make the famous collection of pictures more effective in the education of the Spanish artists of the future, and he was enabled to make arrangements which would conduce to that end. It was also his ambition to render the gallery secure against fire, for he had not that immunity from danger which was an inheritance of his office. As a representative of the modern Spanish school he had gained distinction. It has been calculated that he produced 350 paintings, and his drawings and studies are numberless. Like most masters of the present school of Spain he loved costume pieces, and many of his works are representations of incidents in the eighteenth century. For his *Carnival* in 1800 he is said to have received about 6,000*l.*, and his *Marriage of a Roman* brought him 3,500*l.* ALVAREZ studied in Rome and resided there for a great part of his life, and when he died on the 4th inst. he was in his sixty-fifth year.

WHENEVER a candidate aspires to have a share in local government his first step is to pose as an economist, whose one ambition is the reduction of taxation. Should he gain a seat, he either contrives that his memory should be so far from being improved that he is taught the lesson that taxation is more likely to be increased instead of being diminished. As there is a great risk if the rates are increased, an effort is often made to extend the basis of taxation. An ingenious, if not an attempt of that kind was heard before Judge J. H. STINEAU at the East Sussex Sessions on Tuesday. It was an appeal brought by Messrs. HOWE & Co. and the Granolithic Stone Company against the Hailsham Assessment Committee. The appellants had entered into a contract with the East Sussex County Council for one of those immense lunatic asylums which

unhappily have to be erected throughout the country. The assessment committee took advantage of the works as if they were lines of streets, and assessed them item by item.—workmen's sheds, workmen's canteen, workmen's sleeping houses, engine-house, and whatever else of a temporary character could be discovered, were all assessed separately. Even the rails were treated as if they formed part of a successful railway. Now it could not be shown that profit was derived from any of the items, and with as much reason all the plant belonging to the contractors could be rated. The Judge, however, at once, in spite of the arguments of Mr. MACMORRAN, K.C., decided in favour of the appellants. Their occupation, his Honour said, could not be considered a ratable occupation. There was no exclusive occupation, and the Court thought that such occupation as was necessary for the construction of the works was not an occupation in respect of which a rate could be made. The Court was also of opinion that the rate was not legal, and the entries in the rate book would have to be struck out. Rating authorities are generally endowed with imagination, but a more preposterous claim could not be raised by any of the unfortunate people for whom the asylum is being prepared, and we hope its failure will be taken as a warning by other public authorities who show a disposition to meddle with contractors and delay the completion of important undertakings. In such cases assessment committees should be compelled to pay all the expenses of the litigation out of their own pockets.

FROM time to time panics arise about "rings" in building and other contractors' works. Just now the people of Manchester are suffering from the epidemic. One of the cases which has given rise to the commotion has been the acceptance of tenders by the electricity committee of the City Council for the construction of two chimneys and the foundations of engine-beds at the Stuart Street generating station. In the beginning of last month three tenders were received, and it was decided to accept one from Messrs. NORMANTON, although there was another 1,300*l.* less and a second 1,100*l.* less. Some difficulties arose about the time in which the work was to be completed, and it was decided that fresh tenders should be obtained. The tender of Messrs. NORMANTON was again approved, although one by Messrs. HEALEY was 126*l.* lower. A member of the committee proposed that the latter should be accepted, and he asserted that a "ring" existed among builders, and it was not an uncommon thing for certain firms to arrange their prices accordingly. The chairman of the committee affirmed that there was no evidence of the existence of a ring, but in any case the committee could not contend with it, especially at a time when work had to be done as speedily as possible. It does not follow, in any case, that because the highest tender is 7,840*l.* and the lowest 5,750*l.* there is a conspiracy in favour of a particular contractor. If work is to be done in a hurry it costs the contractor more than work that can be carried out under ordinary conditions, and a corporation or a private building owner must expect to pay for the peculiar circumstances of the case. It is easy to get up a cry of rings and illicit commissions, but the majority of people should have had sufficient experience to convince them that combinations to accomplish roguery do not arise every day.

THE financial difficulties of Paris have caused some consternation, among those especially whose property consists of "obligations" of the city. One effect has been the breaking off of the negotiations for the purchase of the fortifications as a whole. It is now understood that the French Government, recognising the condition of affairs, have agreed to allow the land to be purchased in lots. It will not therefore be necessary to impose at once the heavy burden of interest on the total outlay upon Paris, nor to undertake the no less costly work of laying out a new district with roads, drainage, &c. When the ground is let in portions the revenue from each of them will become part of the municipal wealth, and in course of time the whole of the site of the long line of fortifications will be merged in the city without any extraordinary sacrifice of the present inhabitants.

THE BORGHESE VASE.

ALTHOUGH it is not of a severe type, the Borghese Vase is one of the most admired examples which antiquity has bequeathed to us. It is devoted to BACCHUS, and suggests the exhilaration of spirit which was associated with the god. It was found on the site of SALLUST's garden at Rome, and we may therefore assume it was one of the ornaments of the famous grounds or of the villa they surrounded. Although CAIUS SALLUSTIUS CRISPUS belonged to a plebeian family he possessed the most costly tastes. He was an opponent of the aristocratic party, and in his writings endeavoured to exaggerate the evils which arose from POMPEY, their leader, and all who followed him. But there was no trace of the ancient Republican simplicity in SALLUST's life, or in the superb palace which he erected in Rome, and which was afterwards used for many years as an Imperial residence, until the building was destroyed and the gardens devastated by ATTILA.

The traditional pedant, who went about with a brick in his hand in order to convince people of the character of the house in Athens which he wished to sell, was not such a fool as was supposed, and, indeed, in ancient and modern times houses have been purchased on the faith of evidence which was less convincing. We believe there is reason for concluding that the vase we illustrate was in keeping with the decoration with which SALLUST surrounded himself, and which would be therefore of a free and joyous character. The ivy-crowned god, who was ever fair and ever young, was an appropriate deity to preside over a seclusion which was believed to contain all that art could furnish for the enjoyment of luxurious people.

The vase, which is nearly 6 feet in height, is a crater, the vessel in which the wine used to be mixed with water. From the time of HOMER the crater was a favourite object on which Greek artists exercised their skill. A great many are mentioned in poems, legends and histories, and care is taken to describe the decoration. A crater was

an usual gift to a temple, where many were employed as utensils in the service, for the sacrificial libations were mixed in them. Among the charges made against VERRE was the removal of the most beautiful craters which were found in Syracuse, and which were probably derived from the temples. It is impossible now to say whether the Borghese Vase was simply a sculptured decoration in the form of a crater, or whether it had been used for mixing

wine or water, for which it would serve. The handles below the decoration may have formed the termination of the handles. But whatever its purpose the relief upon it was admirably adapted for the adornment of a vessel which contained an intoxicating drink, although it would be out of place if the contents consisted of fresh milk and sweet oil, for which a crater serves in one of the idyls. The figures of BACCHUS, SILENUS, the fauns and the Bacchantes are appropriate, and there is a spirit of wild revelry which is not, however, carried to an excess that would be repelling, and therefore warning against the use of wine. SILENUS is overcome by his potations and is unable to reach the carchesium, but a SILENUS that did not need support would appear to be untrue. There is a contrast between his helplessness and the activity of the faun near him, who is seen to be executing the athletic dance known as sikinnis. It should be noted that in some of the Bacchic dances the most illustrious men in a State were prepared to join,



THE BORGHESE VASE.

when they were allowed to accompany their steps by clashing their swords against their shields the excitement became almost ungovernable. One Bacchante, it will be noticed, uses crotala, or castanets, while another shakes a tambourine or tympanum. Near to BACCHUS is his panther. The vase was a favourite accompaniment in the festivities.

The composition in a limited space expresses a Dionysian or Bacchic spirit. In our sober times the festivities may seem to be adapted only for boors, but we should remember that the dithyramb or song of the god, which was chanted on such occasions was adapted to



RELIEF ON VASE.

wards to the Doric chorus, and in that way was the origin of the sublime Greek drama. The song of the Satyrs or tragoi developed into the great tragedies. It was a distinction for the chief archon to supply such a chorus as would be able to render the alternations which were demanded by the nature of the composition. THESPIUS was the leader at some festivals, and his name has become immortal. ÆSCHYLUS did not disdain the introduction of the Bacchic chorus in his tragedies. The delight of the people to take the humblest part in the representations has been explained by MÜLLER, who says:—

The intense desire felt by every worshipper of Dionysus to fight, to conquer, to suffer in common with him, made them regard the subordinate beings (satyrs, panes and nymphs, by whom the god himself was surrounded, and through whom life seemed to pass from him into vegetation, and branch off into a variety of beautiful or grotesque forms), who were ever present to the fancy of the Greeks, as a convenient step by which they could approach more nearly to the presence of their divinity. The custom so prevalent at the festivals of Dionysus of taking the disguise of satyrs doubtless originated in this feeling, and not in the mere desire of concealing excesses under the disguise of a mask, otherwise so serious and pathetic a spectacle as tragedy could never have originated in the choruses of these satyrs. The desire of escaping from self into something new and strange, of living in an imaginary world, breaks forth in a thousand instances in these festivals of Dionysus. It is seen in the colouring the body with plaster, red, vermilion and different sorts of green and red juices of plants, wearing goats' and deer skins round the loins, covering the face with large leaves of different plants; and, lastly, in the wearing masks of wood, bark and other materials, and of a complete costume belonging to the character.

With the Romans the Bacchic festivals degenerated, and they were marked by horrors which would amaze one of the Greeks. The excesses were carried to such extremes, that it was found necessary to suppress all Bacchanalia, or if there were devotees who believed they were a religious function, they could obtain permission for five persons to assist at them from a senate consisting of not less than a hundred members. The Romans, unfortunately, had no sense of measure, while with the Greeks it was supreme.

THE INVISIBLE IN ARCHITECTURE.

In modern times, when realism is in so much favour, people seem to think that everything can be made plain to the understanding. What is the worth of a picture that does not exceed the reality of a photographic representation by displaying colour as well as form? Architectural qualities are also supposed to be all-manifest, and such qualities as greatness, majesty, beauty, sublimity and so on are generally fancied to be no more than expressions, of which equivalents could be found in feet and inches. The Orders used to be studied in that way alone. There is still, however, truth in what CARLYLE said, "The eyes see all that it brings the power to see," and thus behind outward and visible material it can perceive, it may be called, the force, the "je ne sais quoi," which makes a building impressive. The difference therefore between the opinions which are uttered about the qualities of a building could be ascribed to varying degrees of knowledge, or to a want of insight, as well as susceptibility, and what to some appears extraordinarily grand may be to others only a pretence of power and majesty which can be tested by the laws of the dimensions.

It is this peculiar vision which explains the varieties of criticism on Mediæval structures which have been pronounced since the style ceased to find favour. It cannot be denied that in the eighteenth and nineteenth centuries men who were remarkable for taste and who were skilled in the exercise of judgment condemned all Gothic forms as barbarous. The English ADDISON can be taken as a type of the class of those critics. He was brought up as it were in the Classic atmosphere as was to be found in this country, and to admit the worth of anything which was outside his Oxford curriculum would be a derangement of his entire mental system. But there was much more in the history of humanity than was comprised in his philosophy, and with a wider education we find a more generous

appreciation of the principles of which Gothic columns and arches are material exponents. Against ADDISON as the representative of one way of looking at things we can set HEINE. He, too, came under religious and academical influences, but he had studied nature as became a poet, while ADDISON, who was no more than a versifier, was blind to all that is contained in that most eloquent and inexhaustible volume. ADDISON was of a cold disposition, but HEINE was infinitely more sensitive, and appeared to be destined for a victim, who was to suffer all the sorrows that can befall man. When, therefore, he undertook a work on the history of religion and philosophy in Germany, he treated a Mediæval church as a representative of both, or as if it were a microcosm in which not only the art of several centuries was to be found, but the mental soarings of men who had been trained in subtleties which were believed to be competent to deal with theological mysteries as well as with everyday life. The Church was then an omnipotent power, and its spirit was exemplified in architectural forms as well as in the manuscripts of cloistered mystics. At a later time RENAN discussed the Gothic which immediately preceded the Renaissance in a similar style, and demonstrated its correspondence with contemporary speculation in various fields. Critics will incline towards ADDISON or HEINE in proportion as they can realise the character of the style, and can turn their thoughts to the beliefs of which the greater part of a cathedral or a church formed the symbols.

What is perhaps most noticeable in Pointed architecture is that while so much is intended to have a relation with what is beyond the world, there is so much recognition of nature. It might be concluded from compositions which were familiar to people of the Mediæval period that the world they inhabited was assumed to be a dreary place which was a constant trial to the virtuous, who accordingly kept longing for another state of existence. But the ornament, which must have been most attractive to the men who executed it and to the men who looked upon it, was either closely copied from natural forms or was a simple conventionalism of them which could be easily understood. Compared with the ornament of Greek temples the difference is remarkable. Indeed, many who have looked on Gothic buildings without knowing anything of the derivation of the forms, have assumed that not only the ornament but the most important parts were inspired by nature. Naves and aisles were said to be copies of alleys or groves of pines. The tracery and coloured glass of windows recalled the branches of trees with the sun shining through them. An architect cannot accept that view, but he is unable to deny that the carvers went to the fields for the models of their ornament. HEINE sees in all this evidence of a survival of the old nature worship which existed in Northern Europe from mythic times, and which his co-religionist, BARUCH SPINOZA, afterwards systematised. If so, Mediæval architecture would then express thoughts like those which now excite alarm in pious souls. It is more likely, however, that the ornament, being much less common than it is in these days, when it can be produced in myriad forms by the aid of machinery, was regarded with delight, both for the skill shown in its creation and in the associations which it recalled.

We cannot possess a complete collection of the songs and other poetry with which the ordinary people of the Middle Ages had some slight acquaintance. But we know that the minstrels, like later poets, endeavoured to make use of birds and flowers in order to impart beauty, clearness and emphasis to their verses. We might even assume there was a floral language which was more common than that employed in wit-combats and other contests of the bards. We should also bear in mind that flowers had a spiritual acceptance of which the key is now lost. Thus a lily which is found in a relief at Amiens is interpreted by one learned investigator as signifying candour, and the authority of St. BERNARD of Clairvaux, who was a prominent representative of Mediævalism, is cited as testifying to the resemblance. Enough of such examples are known to convince us that a Gothic church conveyed meanings to the people whose spirits were in unison with it, and which can only be inferred in our times.

The effect produced on the minds of worshippers was

evidently recognised as something which was not entirely satisfactory. This is seen in the determination of the founders to have a different type of building for the Cistercians, and of which the principal characteristic was to be the absence of ornament. To the modern mind it seems astonishing that any harm could arise from the employment of plant forms around the top of a column. But the founders were evidently better informed, and it will be admitted that the impression made by a Cistercian monastery on a modern spectator is unlike in some respects that made by a building of a less severe style. As the monks sought for sites amidst pleasing landscapes, they could not be haters of nature, but they distinguished flowers from representations of flowers, and although the dissimilarity may appear slight, there can be no doubt that the change gave satisfaction to at least one class of minds.

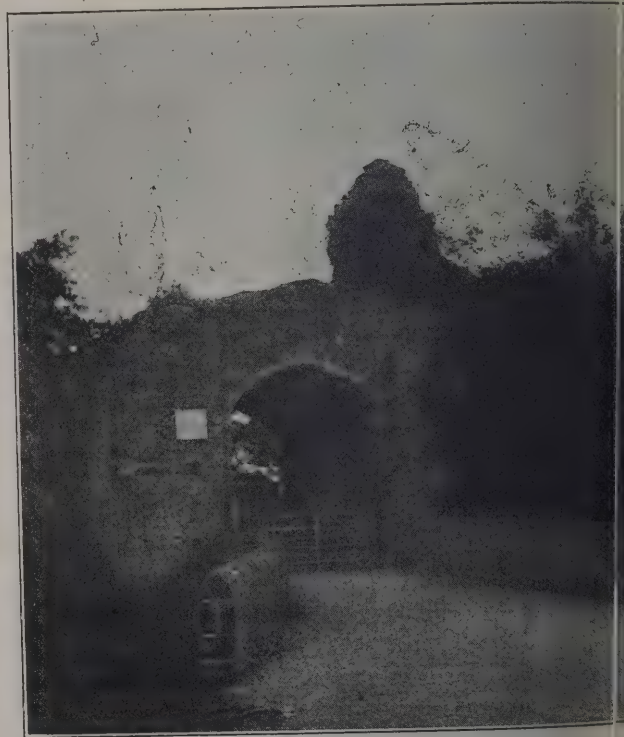
The difference between plainly-moulded capitals and those adorned with foliage corresponded with the manner of employing windows. The dim religious light in many cases approached the "darkness visible" of the poet. Buildings of the kind would be in unison with gloomy minds, and the effect of them is not always to be overcome by delicacy in the details of the masonry. We cannot, however, imagine the architect of the apse of Beauvais Cathedral having any fear of light, and from the difference it is allowable to conclude that a less stern view of human life was recognised. The influence which the two classes of buildings can exert on visitors in our time may or may not be in accordance with the feelings of an earlier period; but in both it is easy to realise that an idea inspired the character of the two varieties of works which is nowhere announced, and which is only to be ascertained by reflection.

SALTWOOD CASTLE.

KENT was from an early time found to possess peculiar attractions for invaders from the Continent of Europe. Those who succeeded in obtaining a landing and gaining possession of the country were careful to raise impediments against other strangers who aspired to be imitators. CÆSAR in his second invasion was taught that a fortified entrenchment was barely sufficient to resist the attacks of natives. His experience was advantageous to the Roman armies of an after time, and as a consequence several solidly constructed Roman stations were planned. Among them may be named Regulbium, or the Reculvers; Richborough, or Rutupia; Dover, or Dubra; Lymne, or Lemana; Canterbury, or Durovernum; Rochester, or Durobrivæ, &c. The Saxons made themselves more at home in Kent, which was wise, for they were not such military engineers as the Romans. But several invasions were evidence of the need of fortifications. The Normans were forced to endure the delays which a fortification could offer to the march of an army, and from time to time we hear of the scant mercy which was shown to a besieged party whenever entrance was forced into a castle. In their turn the Normans utilised Roman buildings as far as they could and erected others.

Among the ruins which have survived are those of Saltwood Castle, which is about a mile from Hythe. The town which it helped to protect, and it may be to intimidate, was one of the Cinque ports, and therefore of much importance. It is hard to say when a castle was first founded at Saltwood. There is a tradition that ESEUS or OISE, a son of HENGIST, erected a strong place on the site about 488. In 1036 a grant was made of Saltwood with Hethe or Hythe to Christchurch, Canterbury, the abbey to which the cathedral was attached. CANUTE, it is said, witnessed the transfer, but in that year he died at Shaftesbury and was buried at Winchester. There is no doubt that Saltwood from an early period was the property of the Abbey of Christchurch. We meet several references to it in the historical manuscripts published by the Royal Commission. The castle was evidently used as a prison by the ecclesiastical authorities. The Greyfriars, for example, in 1341 sent a petition in favour of W. DE SAUNDFORD, who was incarcerated in Castro de Saltwode, and which says, "Nous vous prioms quil ne soit si durement tenuz en prison, et qil puisse oyer sa messe, et aler sus; . . . kar sil soit

tenuz . . . en le manere com il est il ne purrast, a ceo qil dist, longement endurer." In 1440 ROBERTO CHICHELE was appointed constable of the park of Saltwood. It was a possession of the see of Canterbury. Saltwood was entered in Domesday. It was said to be held of the Archbishop by knight service, which was a common tenure of ecclesiastical property. The standard of value, however, for such an office is rather indefinite. It was expected that the land should be of sufficient area and value to support the dignity of a knight, and is generally taken at 800 acres, while the value varied from 15% to 20% a year. The Archbishop's knight was, according to Domesday, HUGO DE MONTFORT, and it is recorded that he carried out various works at the castle, which meant, of course, that it was brought as near as possible to the class of fortification which was approved in the eleventh century. His grandson took part in the contests between ROBERT and HENRY, the second and fourth sons of WILLIAM THE CONQUEROR; he was in favour of ROBERT, but when HENRY was established on the throne ROBERT DE MONTFORT exiled himself from England, and as a consequence all his estates were confiscated to the Crown. HENRY DE ESSEX, the standard-bearer to the king, obtained possession of Saltwood and rebuilt the castle. It was necessary, however, to have another rebuilding in



WEST ENTRANCE GATE TO SALTWOOD CASTLE, FROM MEA

the reign of RICHARD II. The duty devolved upon Archbishop COURTENAY, who was engaged also in the rebuilding of the western transept of Canterbury Cathedral after the fall of Archbishop SUDBURY in an insurrection. In 1580 the castle to a great extent succumbed to an earthquake, and apparently the cathedral authorities were unable or unwilling to undertake the rebuilding of a stronghold which was not adapted to peaceful age.

The scattered ruins (the illustrations are from photographs by Mr. NORMAN CAREW-DUNDAS) indicate the extent of the enclosure, which was somewhat elliptical in plan and contained about three acres. All the parts must have been of massive construction. The keep or gatehouse, which was flanked by circular towers, has still an imposing appearance. Over the moat was a drawbridge, and the hollows through which the portcullis used to be lowered are still visible, but there is no record that the building sustained attacks, and its worst enemies were time and the atmosphere, assisted by an earthquake. It is possible also the castle shared the fortunes of Hythe, which in the time of HENRY IV. was about to be abandoned by its inhabitants.



ENTRANCE GATE TO SALTWOOD CASTLE, FROM PRIVATE GROUNDS.



PART OF RUINS, SALTWOOD CASTLE.



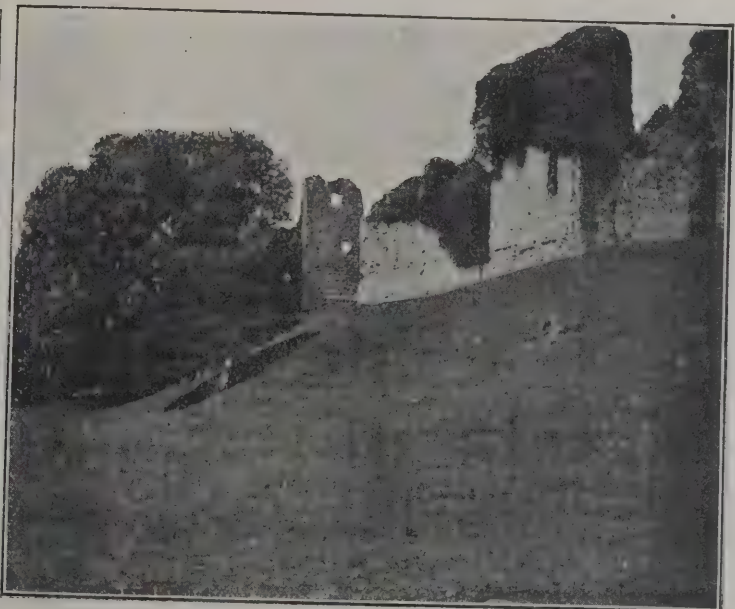
FRONT, INHABITED PORTION OF SALTWOOD CASTLE.



PART OF OLD WALLS, SALTWOOD CASTLE.



TOWERS OF SALTWOOD CASTLE, AND PART OF RUINED WALLS, EAST SIDE.



PART OF RUINED WALLS OF SALTWOOD CASTLE.

MANCHESTER SOCIETY OF ARCHITECTS.

THE opening meeting of the session of the Manchester Society of Architects was held on the 10th inst., when the president (Mr. Alfred Darbyshire) delivered his address. He reviewed the condition of the art of the architect and its practice at this the beginning of the twentieth century, and contrasted it with that in the early part of the Victorian era. He spoke of the difficulties that presented themselves to the man who elected to become an architect forty or fifty years ago. It was an age of Classicism at war with the Gothic revival. The men then practising architecture in Manchester were few in number, and, he thought, all of them under the Classic influence. They were turned on to the "five orders" which formed the basis of all the private and public architecture of this district; there were no technical schools, and no methods of teaching beyond the curriculum of the office. A time arrived, however, when this limited means of study ceased. The school of design became the school of art; the Academy of Fine Arts was established. In addition to these extra means of study the Gothic revival set in, and captivated them with its fascinating influence. They soon realised the fact that there was more in the development of architecture than could be got out of the "five orders." He next considered what had brought about its present state of prosperity and the conditions under which it was practised. There appeared to be two marked and important causes for the change in architectural practice. The first of these causes was the determination on the part of architects to throw off the shackles of severe Classicism and the tyranny of the "five orders." The second cause might be found in the increased opportunities for study outside the office walls. Schools of art were established, and the architect learned to become an artist. There were, too, public libraries, and the student became a scholar, and made himself acquainted with the various phases of development in the history of architecture; and, to crown all, a man arose who was to exhibit the beauties of Italian Renaissance in the streets of the city. Edward Walters struck the death-blow to the old school, which attempted to adapt Greek temples to town halls, Quaker meeting-houses, concert halls and infirmaries. He supposed there was scarcely to be found such an example in modern civic architecture where the whole character of a town had been so completely changed for the better by the genius of one man. It was true that Ambrose Poynter had built his National and Provincial Bank in Mosley Street, with its beautiful Italian façade (now the property and home of the Brasenose Club), and Grogan his exquisite example at the corner of St. Ann's Square; but he thought he was within reasonable bounds when he said that Walters inaugurated a new era in the civic architecture of Manchester. Mr. Darbyshire afterwards pointed out some of the defects which had arisen, perhaps as natural consequences, in the practice of present-day architecture. Increased numbers, he said, generated competition, and with a larger market of architectural practitioners the general public was apt to treat its relationship with the profession from a commercial point of view. Any sympathy with sentimental conditions which might have existed in bygone years entirely disappeared. For example, if a building had to be altered or enlarged, although recognised as a satisfactory work, and its author still living, the work was given to a stranger. Again, it was the custom in times past, when any work of consequence requiring special knowledge had to be realised, to consult the architect who by accident or inclination might have shown a capability for such work. Nowadays a general competition must be instituted, and hundreds of men must throw away their brains and money in a hopeless effort to win the prize and to achieve renown. It seemed almost a waste of time to write or talk about this system of competition. Until very recent days the methods employed were disgraceful, and unworthy of those who used the system to take advantage of professional talent. It was, however, satisfactory to admit that there had been an improvement in the conduct of architectural competitions, but until competition was limited, each competitor remunerated, and the result adjudicated by a thoroughly competent and honourable architect, the system would remain incomplete and a scandal. Although he entertained fixed and strong convictions on this matter, he would so far modify what he had said as to add that if it were possible by the means he had mentioned to secure genuine and honest results, then any dormant talent might be developed and reputations made through the medium of competition. Turning to other matters connected with architecture, he spoke of the decision of the Corporation of Manchester to establish a municipal office of architecture, to be presided over by an official to be styled "the city architect." What sort of a man, he asked, was to hold the office, and with what powers was he to be invested? Would the city architect decide the future artistic development of architecture in the city in addition to the technical points which might arise in the future? If the answer was in the affirmative it would be evident even to the non-professional mind that the acceptance of such a responsibility involved the

appointment of a man of high culture and great artistic knowledge. Or did the contemplated appointment involve the designing of all public buildings and edifices under the control of the Corporation? If such should be the case the profession would suffer materially. He ventured, however, to think that a result of this kind was not contemplated. He appreciated the desire of the Corporation to appoint a city architect, and would have him invested with power to condemn all ugliness and purely commercial street architecture, but it would be undesirable to place the future architecture of the city entirely in his hands. Mr. Darbyshire spoke of the resolution passed by the Council of the Society, in which the suggestion was made that the appointment should not prevent the Corporation from giving to practising architects all works of architectural importance which they may in the future contemplate as a means of securing more varied architectural treatment than would be possible if all designs emanated from one source. In reply to this resolution communications had been received from the Town Clerk and the Lord Mayor to the effect that it had been placed before the committee with whom the appointment of city architect would rest, and that no decision had yet been arrived at. There was another matter of great importance to the local profession. It required careful consideration. He alluded to the establishment of a chair of architecture at Owens College. The idea of a professor of architecture in connection with the University was not a new one. It had occupied the attention of some of the elder members of the Society for several years past, but it was only recently that the matter had assumed a practical form. It might be within the knowledge of members that a joint committee of the Society and the College had been appointed to take this matter into full consideration. A set of resolutions had been drawn up by the committee which explained the object of this important movement. In them it was pointed out that it is desirable to establish in Manchester a school of architecture on the same general line as those of the Liverpool School of Architecture and Applied Art; that to give effect to this object there should be a chair of architecture in the Owens College, with arrangements under which adequate preparation could be given for the existing Honours School of Architecture in the faculty of arts of the Victoria University; that in order to provide for a complete school of architecture it was essential that there should be co-operation between the city, the profession and the college. In particular, it would not only avoid useless expense and overlapping, but would also tend to efficiency if a large portion of the instruction on drawing and building construction were taken in the Municipal School of Art and the Municipal Technical School, and that these objects could be best attained by the appointment of a representative committee and of a single director who should also be professor of architecture at the college. Those resolutions were signed by the chairman of the college and by himself, and forwarded to the authorities of the Municipal Technical School and the Municipal School of Art. He regretted to say that after several interviews with the committee representing these institutions their efforts had so far proved unsuccessful. He could not think that the matter would be allowed to rest where it was, it certainly would not be abandoned. They must fix upon the man best fitted to fill the chair of architecture and then discuss a method of raising the funds to secure his services for a time at least, or till such time as a permanent fund could be raised for the endowment of the chair at the Owens College. Mr. Darbyshire afterwards spoke of the collaboration of the architect, sculptor and painter whose works were carried out in which an artistic ideal had to be realised, and gave some advice to the students of the Society.

A vote of thanks was passed to him at the close.

STONEHENGE.

IN a letter to the *Times* apropos of the article on the enclosure of Stonehenge, Professor Flinders Petrie writes:—

Permit me to thank your correspondent for the clear and judicial summary on the question of public rights in Stonehenge which appeared on the 8th. It seems that some public right of access must exist where there has been not only possible access at all times, but where also there has been in all memory actual daily use of the site by the public. Until this matter has been settled by law, it seems perilous for the landlord to be in the position of obtaining large amounts of money under false pretences if the charge is proved to be illegal.

It is greatly to be wished that some decent treatment of the first of our national monuments may be assured without the unhappy resort of enforcing legal rights, but yet no mere complaisance in an illegal encroachment should hinder public action if it prove necessary. The plea of obtaining money to improve the safety of the monument is groundless so long as the public are not asked to help. For my own part I would

rather give a thousand shillings to preserve Stonehenge than be fleeced of one shilling illegally.

In one point too wide an accusation has been made in saying that the present barbarous enclosure was agreed to by learned societies. This was by no means the case; the only persons who condoned this very dubious transaction were, I believe, all members of a single society, and certainly others with as good a right to be heard were curtly refused any voice in the matter. The affair has been kept covered by a vague statement about societies; but certainly the societies who represent scientific opinion have not been heard, and they would probably follow the president of one institute, who has already protested against any such unworthy course. The less the name of public bodies is brought into questions of legal rights the better for all parties.

The public should in every way support the official bodies of the locality in maintaining their rights, and be prepared to help any society which will defend our great monument from base uses.

LIVERPOOL CATHEDRAL.

A LETTER from Mr. Reginald Blomfield appears in the *Times*, in which he says:—Sir,—In your account of the proceedings of the executive committee of the proposed cathedral at Liverpool Mr. R. Gladstone is reported as having given it as his opinion that "there could be no question whatever in the minds of thinking people that Gothic architecture produced a more devotional effect on the mind than any other which human skill had yet invented." Mr. Gladstone was good enough to supply the dates of the precise period of Gothic (1220-1320) which commended itself to the judgment of himself and the committee, and the committee unanimously resolved that the style of their new cathedral is to be Gothic and nothing else. They also resolved on a method of procedure exactly calculated to prevent any architect of standing and experience from competing.

Their method of procedure is an affair for the committee, but their assumption of authority on a point of architecture can hardly pass unchallenged.

In the first place, the result of their decision will be that the architects who do submit designs will have no voice in the question of treatment. The committee have taken on themselves this special and essential function of architecture, and the architects are merely to prepare designs to a selected set of details, for we know by painful experience that by "Gothic" is understood a more or less exact reproduction of some mediæval building. Under the circumstances the committee are hardly likely to get a tolerable building, more especially as the method proposed for obtaining designs has been condemned by competent opinion for the last thirty years.

This, however, concerns the committee and the architects who compete. The amazing thing about the whole proceeding is to hear in 1901 a dogma as to the sacrosanctity of Gothic architecture (and even of a certain period of it) solemnly propounded and assented to by a committee of influential laymen and others responsible for a very important building enterprise. We seem to be back in the fifties, when this sort of view was taken as an article of faith by ardent young amateurs with High Church propensities. Were it not for the probable consequences there would be a pleasing interest in this quaint revival, sixty years out of date, of the views of the Cambridge Camden Society. Mr. R. Gladstone finds his devotions quickened by the Pointed arch, but surely this is rather a slender foundation on which to raise a law that is and no other is to be the only possible type of building under which future generations may devoutly worship. He appears to have forgotten that the Roman basilica was the original of the Christian church, and that for some eleven centuries Christians had to content themselves with the spiritual encouragement of the round arch or the lintel. Yet it is probable that these Christians had a capacity for devotion inferior to that of the Liverpool executive committee, and the growth of Christianity does not appear to have been retarded by the absence of the Pointed arch. It is surely the *ductio ad absurdum* of religious devotion to make it conditional on cusps and crockets.

No one would for a moment dream of reviving the futile old controversy of Gothic and Classic, a controversy based on a misconception of the nature of architecture; but what every intelligent person contends for is that in these matters there should be a fair field and no favour. Professor Thompson, as the president of the Liverpool Society of Architects, has put the matter clearly to the executive committee, and the committee rises superior to expert opinion with some rounding results to the logical mind. Either the spiritual thought and feeling of modern Liverpool are the same as those of the cathedral builders of the thirteenth century or they are not. If they are the same, no doubt the language of the leaders of Salisbury will precisely express the aspirations of

the Liverpool merchant and mechanic of this century; if they are not the same that language becomes meaningless as an expression of modern thought, and to insist on its use is to reduce the art of architecture to a masquerade and a sham. No doubt the sapience of the committee will find its way out of the dilemma and give the mere expert another necessary lesson.

GLENCORSE CHAPEL.

IN a letter to the *Scotsman* Mr. C. S. Aitken writes:—Will you kindly allow me a few more words on Glencorse Chapel ere the much-longed-for waters submerge the ruins of it again.

In a short paper contained in the *S. A. S. Transactions* for 1878-79 Mr. Andrew Kerr says that he visited the Glencorse Valley in 1828, when it was being turned into a reservoir. At that time there was very little of the chapel left; the walls were about 4 feet at the most above the ground. He refers to the tombstone, and gives the date as 1623, and also the dimensions of the chapel as about 40 feet by 20 feet. Within the last few days the south-west corner has been disclosed; measurements taken from this in connection with the built masonry in the north wall and the loose stones in the east end appear to establish the accuracy of these dimensions. Withdrawing, therefore, my former comparison with Dalmeny Church, I would substitute as the parallel that of Duddingston, with which it agrees in length, but is 5 feet less in width. Laying down the plan to these dimensions, and allowing the existing 2'6" as the thickness of the north wall, and the same for the south, and as would naturally be the case a little more—say 2'9" for the ends—we find that the area left is such that we can inscribe within it two equilateral triangles and a semi-circle, the radius of which is equal to half the width of the chapel.

This is so remarkable that we must conclude that the chapel was carefully planned on the lines of the best architecture of the period. The masonry of the south-west corner is of excellent workmanship, and as much like Norman as Early English.

Mr. Kerr restored the plan with the assistance of Mr. Ramsay, the then manager of the Edinburgh Water Company. Mr. Kerr was an enthusiastic antiquarian, and if he could do no more than what is seen in his "Transactions" sketch of the chapel, we may take it that no further information will be recovered of its architectural appearance. He mentions that the churchyard occupied at that time the space of fully a quarter of an acre, and that the boundary wall was visible about 12 inches above the ground, the Logan Burn running 20 yards south of the south boundary wall (remains of this wall may still be seen about 20 yards south of the chapel), and the March Burn 20 yards east.

It has been supposed that the chapel was erected by the St. Clair who accompanied Sir James Douglas in his journey to Palestine with the heart of Robert the Bruce, in gratitude for his success in killing the legendary stag; but whatever may be said as to the credibility of the legend, St. Clair cannot have been the erector of the chapel, for as was shown in a former letter, it existed in the year 1230, and probably even dated back to the previous century.

I find that I was mistaken in stating that the grave slab was covered by a cairn; but it should be understood that the stones which enclose it on the east, south and west are no part of the original building. They were not there in 1898, and very likely have been taken from the chapel walls since that time.

The chapel, I may add, is oriented, and I would venture to suggest, in view of the discovery of the fair hewn stones of the south-west corner, that some antiquarian of means might find it worth while, with the consent of the authorities, to excavate, so long as the present opportunity lasts, within the area and round about the chapel. I regret to say that the grave slab has been broken across within the last few days. It is pitiful to see so little respect paid to a memorial of the dead. The ground is surely worthy of all reverence as the place of burial of many of those who fell at historic Rullion Green.

The site of the ruin is at present more interesting than pleasing to look upon, but it is not difficult to imagine the appearance of the little sanctuary and "God's acre" in ancient times with surrounding ash and elm trees, the Logan Burn flowing on the south, with its little tributary, the March Burn, on the east, the valley overshadowed by Castle Law and Carnethy Hill.

The Institution of Junior Engineers will meet on Friday, October 25, at 8 P.M., at the Westminster Palace Hotel, for annual general meeting, presentation of the report of the Council, election of officers of twenty-first session and other business.

NOTES AND COMMENTS.

THE question asked by the love-lorn Verona girl, "What's in a name?" has been the subject of many comments, but the people of Crowborough would answer that a name is of the utmost importance in respect of drainage, especially in a town where people go for holidays. It had been arranged that a drainage system was to be carried out at a cost of from 30,000*l.* to 40,000*l.* from the plans of the District Council surveyor. That official had been considering the subject for at least ten years, and he had assisted Mr. BALDWIN LATHAM in the preparation of a scheme. He had also carried out drainage works, although not to the extent required in Crowborough. But at a meeting which was held on Monday it was proposed "that the electors of Rotherfield at this parish meeting assembled desire that the Crowborough drainage scheme be entrusted to some eminent sanitary engineer and not to Mr. JOHN TAYLOR, the District Council's surveyor." It was objected that fifteen years ago Mr. TAYLOR was in a different line of business, and although he had done his work as a surveyor efficiently, yet as he had not gained a name as one of the foremost engineers of the day it was unsafe to employ him. As one speaker argued:—"Crowborough lived upon its reputation as a health resort, and if it was set about that there was a system of drainage against which a single word could be said, it would do the place a deal of harm. If they were able to say, 'This place has been drained by the most eminent engineer that can possibly be got hold of,' it would do Crowborough good, simply as an advertisement. Every house in Crowborough helped to pay the rates of Rotherfield parish." The proposal, in spite of its manifest unkindness, was adopted almost unanimously. The subject does not concern Crowborough alone, for wherever surveyors are employed they can be made to suffer in the same way. After ten or fifteen years' experience as a district surveyor a man must be lacking in intelligence if he cannot prepare plans for a drainage scheme that will cost 30,000*l.* Moreover, the Local Government Board would not pass plans or allow the money to be raised unless it was found that the proposed works would be sufficient. At the present time surveyors carry out duties on most economical terms, because they anticipate that their experience will enable them to obtain higher posts. But men cannot be expected to put all their force into work if they are certain that for anything outside ordinary routine a specialist must be called in.

THERE are no men who are more opposed to the wild and whirling schemes of anarchists than architects. Cynics may say it is to their advantage to have buildings destroyed, but in such revolutions as are proposed there is little chance of reconstruction. Moreover, if people are afraid that buildings will not be allowed to endure, they will not invest money in them. An architect's interest is secured by the upholding of a stable society. Every architect in England must therefore regret that M. FRANTZ JOURDAIN should have appeared as a witness in favour of LAURENT TAILHADE, who was charged with inciting to murder before a Tribunal de Police Correctionnelle in Paris. M. JOURDAIN is as distinguished in journalism as in architecture, and certainly no one who admires his charming phantasies in expression could for a moment believe that he was capable of any of the brutalities of anarchism. It was characteristic of him that he should say that TAILHADE's writings were beyond the crowd, and were only intended for a very restricted number of enlightened gentlemen. The prosecuting counsel asked the witness would he have signed such an article, and M. JOURDAIN replied, "I am an architect and not a writer, and I could not permit myself to sign so beautiful an article." That was, no doubt, considered a witty explanation, but it was too frivolous to come from an architect. It had, of course, no effect upon the Court, for TAILHADE was condemned to a year's imprisonment and a fine of 1,000 frs. If his judges were English architects, the punishment would have been much more severe.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: EAST END OF RETRO-CHOIR, THE LADY CHAPEL, CLOISTERS AND SOUTH-WEST TOWER.

LONDON AND SOUTH-WESTERN BANK, LIMITED, WEST BAILING. FRONT VIEW OF BANK, LOOKING TO ENTRANCE.

THIS bank is a one-storey building erected on the fore-courts of a pair of small semi-detached houses, with a "lock-up" shop adjoining. The bank occupies the whole of the ground floor of one house, and the lock-up shop of the other, the upper parts of the two houses being converted into a flat as the manager's residence. The bank is built of Bath stone and Kentish rag, the columns being polished light grey granite. The windows and doors and all the internal fittings are in mahogany. The builders were Messrs. J. H. ADAMSON & SONS, of Putney; the carving was done by Mr. HITCH, of Harleyford Road, Vauxhall, and the architect was Mr. EUGENE C. BEAUMONT, of 78 Fleet Street, E.C.

BROAD STREET PLACE, E.C.

THIS building, now in course of erection on the site on which St. Mary's Catholic Chapel, Moorfields formerly stood, is from the second set of plans and elevations prepared for this site, as it was found necessary to abandon the first on account of a notice served by the City authorities that they required a portion of the site for widening Blomfield Street, so as to make the same 50 feet wide, with a bold circular corner at the junction of East Street and Blomfield Street. The property fronts these two streets and Finsbury Circus. The building is designed chiefly for offices, which are so arranged that they can be let to firms requiring space or subdivided into smaller suites. At the corner of East Street connecting with Blomfield Street an extensive space is proposed to be devoted to the purposes of a bank. There will also be good shops facing Blomfield Street.

The three façades will be constructed principally of Portland stone; marble will be freely used for the entrance halls and staircases, of which latter there are three, and in the well of each will be provided electric elevators. The floors of the halls and corridors will be laid with mosaic paving. The whole of the construction will be fire-resisting as far as is possible, and easy and convenient means of escape will be provided on the upper floors in case of fire. The front slope of the Mansard will be covered with green Westmoreland slates, and the flat roof with asphalt. The large offices will be heated by radiator and electricity will be used for lighting purposes. The difficulty in imparting architectural interest to a building of this type containing so many rooms is obvious to the initiated, and eighteenth-century English Renaissance was found to give the greater scope and harmonise best with the surroundings. The estimated cost of the building 140,000*l.* The contractors are Messrs. PERRY & Co., and the architect is Mr. G. D. MARTIN.

The site is of undoubted interest, as there are records to show that as far back as 1740 the Catholic community had two churches at Moorfields, but in process of time these were united, and at least one of the Fathers was sentenced to penal servitude for life for complicity in the Chapel services, so that Moorfields can lay claim to having priests who were the last in England to be tried for their lives and liberties.

In 1780, during the Gordon riots, the chapel was plundered by the mob and everything removed and burned, nothing but the bare walls remaining, and it is recorded that Father RICHARD DILLON was so maltreated that he died on August 20 of that year. The congregation, after the destruction of their church, gathered in a large hall near by until 1816, when an appeal was made by the Rev. JOSEPH HUNT, and this was so generously responded to that sufficient money was realised to purchase from the Fishmongers' Company the plot of land on which the church schools and presbytery of St. Mary's, Moorfields were built by PAYNTER & HAYNES, contractors, in 1817 at a cost of 26,000*l.*, after JOHN NEWMAN's design.

On the apse of this chapel was painted a remarkable picture, 55 feet by 33 feet, by AGLIO, of Cremona. Great efforts were made to remove this picture intact, but it was found impossible to do so. Portions, however, were cut out and removed, with the marble reredos, to the new chapel in Ropemaker Street.

THE ARCHITECTURAL ASSOCIATION.

THE opening meeting for the session 1901-2 was held on Friday evening last in the rooms of the Royal Institute of British Architects, Conduit Street, W., Mr. W. H. Seth-Smith, president, in the chair.

Votes of thanks were passed with acclamation to the Royal Institute of British Architects for its tenth annual grant of 100*l.* towards the educational work of the Association, and to Mr. Cates for presenting to the library books bequeathed by the late Mr. Arthur Cates.

A vote of condolence was passed to the relations of the late Mr. James Brooks.

Messrs. F. R. Herring and T. H. Swinyard were elected members.

The committee's report and balance-sheet for the past session was formally moved and adopted. The financial position of the Association is the best on record. The balance-sheet shows a surplus of 500*l.* on the year's work.

The President distributed the medals and awards (a list of the prize-winners has already appeared in *The Architect*), of which the following were the most important:—

A.A. Travelling Studentship, value 25*l.*, and silver medal, J. E. Forbes; second prize, value 5*l.*, L. G. Detmar.

A.A. Medal, value 10*l.* 10*s.*, G. Drysdale.

Banister Fletcher Bursary, value 25 guineas, and medal, T. F. Green; hon. mention, A. C. Bossom.

Andrew Oliver Prize, value 5*l.* 5*s.*, D. Anderson and R. E. Stewardson, æq. (prize divided).

Architectural Union Company's Prize, not awarded.

Essay Prize, G. H. Lovegrove.

The following address was delivered by Mr. Seth-Smith:—

The President's Address.

In doing me the honour of calling me to preside over your interests for a second year, you have imposed upon me the difficult duty of having to address you a second time.

To prepare a statement of general principles and of one's own views on various points connected with our art and our profession is a task easy of accomplishment, as compared with that of choosing a subject sufficiently interesting to form the keynote of another essay. Not that ours is so prosaic a calling as to be lacking in questions of importance; on the contrary, I suppose there is no other profession which gives birth to so many interesting controversies. But as we are an eminently businesslike society, I propose this year to be more directly practical, reviewing our recent work and sketching what I conceive to be the policy of the A.A. in the immediate future.

During the past session we have had to say farewell to the nineteenth century, and simultaneously to the longest reign and to the greatest and best sovereign that ever occupied the throne of this nation. One who for sixty-three years ruled us with wisdom and personal virtue. Two such events would mark any year as memorable.

As regards our own affairs, it has been a session of unparalleled prosperity, clouded only by the losses we have sustained by death, which has claimed eight of our members in the twelve months.

But some men there are whose passing leaves a great void, alters, in fact, for a time the whole complexion of things. Such men were John McKean Brydon, Arthur Cates and William Young. The first formally joined us only recently, the last was not a member, but all were warm supporters of our work. We can pay them no higher tribute than to say they possessed that admiration and trust to which their professional attainments as well as their personal goodness entitled them. Brydon was especially one of those who win all hearts. By his death many of us have lost a dear friend.

Mr. Cates became a member in 1847 and was hon. secretary in 1852 and 1853, so that his interest in this Association covers more than half a century, and that interest was as direct and influential at the end as in the beginning, for at the time of his death he was a most active member of both the education and the premises committees.

Success has attended all departments of our work. We have added 116 new names to our membership roll, besides reinstating six others, and our financial position at the close of the year has been the best on record.

The Sketch Book, which for thirty-five years has figured so largely in connection with the work of this Association, but has been hitherto run by an independent committee, with our indefatigable members, Messrs. William G. B. Lewis, William A. Pite, as editors, and Mr. Edgar H. Selby as treasurer and secretary, has, at the request of these gentlemen, been taken over by the general committee. In recording our debt of gratitude to those who have conducted it so long and so ably, and whose services we are fortunate enough to retain for the most part, I am sure you will agree that under the direct supervision of the general committee such a periodical ought to become a very valuable property. May I urge members to endorse the committee's action by supporting it, either as authors of plates or as subscribers?

The past history of this Association is a history of education. In accordance with its traditions we have, during the session just closed, tried to meet the demands of the profession and of the public for better education as far as those demands can safely be ascertained by a careful review of art feeling in the community, and the growing sense in the profession that with us lies in great measure the responsibility for raising public taste in building. This sense of the beautiful can only grow as it is nurtured by observing the objects of beauty it is our function to create. You have, after mature consideration, added to the curricula a day school, and with its opening next week we enter upon a course entailing increased responsibility upon this Association. You are probably all conversant with the general principle of which this school is the outcome, namely, that if a young man is not to waste his employer's and his own time it cannot possibly be a good thing that he should be plunged into a busy office without some preliminary training. It is difficult to imagine on what grounds such a principle can be objected to. We are happy in having secured the services of Mr. Arthur Bolton as head-master of this school. In his hands it is sure to grow and prosper as the evening studio has done under Mr. Lewis's direction. We feel satisfied it will receive the encouragement of the profession. Success depends on this. I would urge young men whose bent is towards architecture to enter this school, either directly or by agreement with the principals to whom they may wish to be articulated. I believe most principals of standing will be found willing to give such pupils as may be unable to attend the evening school facilities for attendance, if not regularly, at any rate for two or three terms at stated hours for certain courses they particularly need. Such an arrangement will be as advantageous to them as to their pupils, while those whose minds are not fully committed to this line in life will, by entering the school, have an opportunity of reconsidering their decision in the light of experience.

The *Times* in a recent article on "The Organisation of University Education in the Metropolis," made the following remark:—"Beyond one or two courses of professional lectures London has nothing in the nature of a school of architecture. It contains far more architects than any other city in the world, and annually adds a larger quota to the profession than any other centre. But it leaves them to pick up their art in the old-fashioned way and makes no organised attempt to provide modern instruction. The result is, whether on the constructive or artistic side, we lag far behind the United States, France and Germany." The last statement is true, but we may be pardoned for expressing mild surprise that the *Times* correspondent is not better informed as to the opportunities of obtaining a systematic training which this Association presents.

In no better way than by mingling socially and educationally as they do here with a body of enthusiastic fellow students and practising architects can men become emulous of the highest excellence. Nor indeed can they ascertain their own true level except by thus comparing themselves with those less or more gifted. All this gives a unique value to our Association as a training ground; and more than this, the control and direction of its educational scheme is in the hands of an executive representing, in due proportion, the enthusiasm and aspiration of the youth of the profession not less than the experience of men who have seen considerable practice. Our list of visitors to the School of Design shows that the best London architects are giving their valuable time in teaching us, while our new advisory council contains the names of nearly all the architect members of the Royal Academies of the United Kingdom.

A word here to our students in both evening and day schools. The committee too often observe a desire to go up for the R.I.B.A. examination after only a few months' direct preparation. This means cramming; cramming means working at high pressure, and high pressure, as surely as a neglected education, spells failure: not perhaps in passing the formal test, but in practical success in after life, which every student will admit is the real goal of professional education, though he may not have grasped the logical conclusion of that admission. The A.A. will, I hope, never be a party to this sort of thing. You must go elsewhere if you want it. It is not education at all. Passing the examination will make a man neither a skilled draughtsman nor a good builder; but if he masters these essentials his success is assured, and they can only be attained by a long and patient course of work, systematised as carefully as it has been by this Association. Above all things believe that no system, however complete, can teach you architecture; at its best it can but provide conditions suited to work, and teach you where and how to learn. Your education, viz. your mental development, will be the result of your effort to apply the information offered and to work it out for yourselves.

If the diploma (membership) is sought merely as the Institute's assurance to the world that you have had such a systematic training, as a guide to the subjects which it is necessary to know, and as an incentive to work at them, surely

nothing but good can come of the examination which qualifies for that diploma. Let Emerson's testimony to our national character, written fifty years ago, inspire us to-day. In England, he says, "Every man is trained to some one art or detail and aims at perfection in that; not content unless he has something in which he surpasses all other men. He would rather not do anything at all than not do it well. I suppose no other people have such thoroughness."

As our art has a technical basis, this Association, if it is to become the educational power it aims to be, must act upon the universally admitted dictum so well expressed recently by Sir John Gorst, that technical instruction cannot possibly be assimilated by a student unless a proper foundation has previously been laid by a thorough grounding of elementary and secondary instruction. Surely this is also true of art. The more thorough an artist's general education the more alert will be his mind in all directions and the more rapidly will he appropriate and assimilate the special knowledge needed to fit him for his chosen life-work. I therefore hope that the committee will before long see their way to make admission to this day school conditional upon passing the R.I.B.A. preliminary examination or its exempting qualifications. And what is true of a broad grounding in general education in youth is equally true of early professional training. You must not specialise until you have some knowledge of every subject essential to the practice of every ordinary architect. The Association has been most careful not to introduce into its curricula any subject which does not come under this category.

We might just as reasonably continue to educate our youth in the old style as attempt to convey the Metropolitan water-supply in the good old wooden pipes we have just removed from the adjoining street.

Perhaps the most striking contribution during the past year to the discussion of this great question was Professor W. R. Lethaby's paper read before the R.I.B.A., entitled "Education in Building." It is an able history of the conditions under which architecture was carried on in the Middle Ages and up to the time of the Renaissance. He exhorts us by every means within our reach to encourage a high standard of practical excellence on the part of our executants (the British workmen), and to see to it that we ourselves not only understand building construction as the A. B. C. of our profession, but that we endeavour to bring about a more co-operative spirit as between architect, builder and mechanic. I hope all will read his delightful paper.

But even supposing the buildings of those times were not under the control of a "magister" who designed and commanded, but were the creation of an "operator ipse magister," as contended by Professor Lethaby, he appears to us to under-rate the effects of the vast social and educational change the whole community has undergone since the days of which he writes, and the impossibility of adjusting the old customs to modern requirements. Then it was only the king, the clergy and the nobility who were patrons of the building art. We now have a very numerous and educated upper middle class who can afford to build. Their travelling and knowledge makes them critics in the matters of art, and anxious to imitate the ancient work they have seen.

All this has resulted in a demand that those they employ to design and direct their projects shall be of their own class, shall know more than they themselves of the history and structure of these admirable works of old, and shall build with an approximation to the same feeling, shall in fact be scientific where they are dilettante. Professionalism is the expression of this demand for a high standard of training. Professional men, including those whose function is design and draughtsmanship, have come to stay. They form a large section of the upper middle class, and they are largely employed, not only by those of their own and of higher social status, but also by the numerous bodies representative of all classes alike, who prefer to be advised (in carrying out complicated architectural problems unknown to Mediaevalists) by men who have been thoroughly trained, through long years and at great cost, in the art of planning and in the knowledge of building construction, rather than by mechanics, whose blunders, inevitable where several trades are working without a general superintendent, would not be tolerated in these days of scientific method and exactitude.

It is a fault in our training that our pupils are not on the works enough, and that we do not specialise enough. Highly-trained men, with a diploma from a guild or an institute or what not, ought really, if our building is to be of the best, to confine themselves to design and the supervision of building construction and not to meddle with surveying, valuations and dilapidations, bills, &c., work which certainly does not savour of art. When as a profession we are more thoroughly trained, and when our occupation has obtained legal protection from the competition of unqualified persons, we shall be in a position to adopt more generally this higher standard of work. And when the last of these conditions is established the first will naturally follow and the public will employ us more generally.

The absolute necessity of some protection of the title of architect and its confinement to duly trained men is being more widely felt every year. In addition to the striking unanimity of continental professional opinion which I mentioned a twelvemonth ago, we now have the weighty and closely reasoned pronouncement of the President of the Institute in favour of something of the kind. A law has just been passed in California with this purpose, and I am convinced that the majority of provincial professional opinions in this kingdom is in favour of it. The Institute's policy, moreover, since the establishment of the examinations is incomprehensible and illogical, excepting as based on this principle. After all the proposal is only that the State should give us a justly acquired right to the expensively acquired skill and knowledge which it demands in the same spirit as it did from the Mediaeval Guilds, but in the manner dictated by the political and social conditions of to-day.

Gentlemen, if this Association is not to experience a serious check in its useful career we must now apply ourselves heart and soul to settling the vexed question of new premises. This may be done without undue labour if we all put our shoulders to the wheel, but not otherwise. I need not utter a word to you as to the urgent need for extension. We have completely outgrown our accommodation, and shall go on wasting money every year in trying to fit our square needs into round spaces until we can find suitable and sufficient room elsewhere.

You will recollect that after many years' search for premises adaptable to our wants we abandoned the effort as impracticable, and for the last twelve months or more we have devoted much time and thought to finding a site suitable for erecting a building such as we want. One such came before us this last summer, but it would have involved a capital expenditure of at least 18,000*l.* (including the premium for the existing lease), and the impossibility of ascertaining how much we could collect towards this before it was necessary to close with the offer convinced the committee that there was no other course than to make an appeal for funds this autumn and thus be prepared to take up the next suitable site which may come before us.

Freehold we are unlikely to be able to get even if we could raise capital enough. Ground rent, with rates and taxes, repairs and insurance added, are all we can at present afford to pay out of annual income.

We must therefore be prepared to collect the whole cost of building and equipment, and other expenses, a sum amounting (according to the two last building schemes gone into by the premises committee) to at least 20,000*l.* This estimate allows nothing for luxury, but would provide merely a simple building well-designed to suit its purpose.

The committee believe they already see their way to something like 3,000*l.* within the next three years, including specific promises they have received.

If every member of the Association would kindly undertake to collect (not necessarily to give) at least a guinea this session, we should have made a start, without external help, to the extent of about 5,000*l.*, a satisfactory guarantee of our enthusiasm and determination to have premises worthy of the work we are doing. It is, after all, the public more than the profession who will benefit by this encouragement of architecture in London, and we need not be shy in asking the support of our friends in so good a cause. When technical education is being so well endowed by private and public liberality, art surely may claim its due share.

Supposing our anticipations are realised so far, there ought to be no great difficulty in raising another 5,000*l.* from other sources within the present session, and with 10,000*l.* we might go forward in anticipation that a scheme so well inaugurated would be the best further appeal to the liberality of the profession and lovers of our art, and we might then reasonably expect to open our building free of debt within three years from the present date.

You may recollect the anecdote relating how Sir Thomas Lawrence offered his cartoons by Raphael and Michel Angelo to the Oxford University for 7,000*l.* The offer was accepted, and the committee, after collecting 3,000*l.*, called on Lord Eldon, asking for 100*l.* He put down his name for 3,000*l.* They told him they could easily collect the remainder. "No," said he, "your men have probably collected all they can spare; I can as well give the rest," and he wrote another cheque for the whole 4,000*l.* There are Lord Eldons still in existence; let us hope they still retain enough interest in art to put this great educational effort on a broad basis, for who knows how many Michel-Angelos, and not mere individual efforts of their prototype, they may thus bestow upon their country?

One of the greatest thinkers of the nineteenth century* directs our attention to a point which should encourage and stimulate us as individual students as well as an Association of

* Martineau.

Architects, viz. that "in proportion to the excellence of any form of being is its progress tardy and its cycle vast." He says:—

"Compare the different faculties and feelings of the individual mind. You find them appear in the order of their excellence, the noblest approaching their maturity last. Sensation, which belongs to man in common with all other sentient beings, is the endowment of his earliest days. Memory which simply prevents experience from perishing, which furnishes language to the lips and preserves the materials of the past for future treatment by the mind, ripens next. The understanding which makes incursions and wins triumphs in the fields of abstract truth is of later origin; while the great inventive power which distinguishes all genius, which seems to sympathise with the devising spirit of the artificer of things, to apprehend by natural affinity the most subtle relations he has established, and from old and gross material to create the useful, the beautiful, the true, is the last as it is the rarest and most glorious of intellectual gifts." Elsewhere he shows that the same principle applies to the works created as to the mind which originated them, thus:—

"As every great sentiment of the human mind shapes itself into expression in some form of art, it is fair to infer that a passion which has left no durable memorials . . . cannot have wielded any great power. In measuring the art of any people you find the proportion of their nature, for precisely here it is that the mind transcends the rule of mere utility and works to the scale not of any outward need, but of an inward affection that must come forth, and the deeper and more durable the feeling the less perishable are the monuments it creates. What then are the remains which you can study in the land of the Cæsars or the Ptolemies? The first obvious fact is that the buildings devoted to the convenience of the body are for the most part gone; while those that represent ideas of the mind are standing yet. The provision for shelter, the places of traffic, the treasuries of wealth, the home of domestic life . . . have crumbled into the dust . . . but the temple answering to the sense of the Infinite and Holy, the rock-hewn sepulchre where love and mystery blended into a twilight of surmise, the column or the bust of civic praise, grateful for services to the commonwealth—these survive the shock of war and the waste of centuries, and testify that religion, love and honour for the good are inextinguishable. . . . Suppose the ages to have done their work on this great Metropolis and buried all but its most durable remains. . . . There are the same great monuments of our humanity repeated still . . . but in the midst of them you discover vestiges to which Greece and Rome present no parallel. . . . Here we have a new sentiment—of sympathy with defective and suffering humanity, which in heathendom has left, so far as I know, not one memorial of itself, and which now vies in the solidity of its creations with the most ancient passions of the soul. . . . Examples these of the Christian sense of the infinite worth there is in man—his sigh for what he ought to be; his grief for what he is; his faith that the meanest is but the highest in germ; his vow to clear every burden from the lot, to clear every film from the mind that makes his poor brother seem less than a Son of God."

Yet as students we chafe under the long and patient training required to educate this high faculty, and as a class of artists we sometimes allow our enthusiasm to suffer because national taste is so slow in developing. No one will deny that the art of the European Renaissance is a higher and nobler thing than that of the New Zealand Maoris, or assert that the art of Greece was produced in spite of the high intellect and civilisation of that people. Let it suffice that we are progressing, and that time must be allowed in proportion to the excellence of our art. To us belongs only the responsibility of doing our best by cherishing at all cost the highest ideals and cultivating our personal talents to their utmost capacity.

Professor Beresford Pite, who proposed a vote of thanks to the President for his address, congratulated the Association on the year of unexampled success and the exhibition of drawings shown in the room. After such a display there could be no doubt as to the good work of the classes. The school of design called for special mention and reflected great credit on the visitors, those kind friends who were the spirit of it. The treatment of design was an important symptom of the progress of the profession and reflected its tone, and here again the school of design called for support. Architecture required artistic feeling on the part of the student, and all schemes of education would fail unless that feeling was invoked. Enthusiasm for the art should be cultivated. It was an important matter, but one difficult to dogmatise about, because it came in a different manner to different men. It was also well to cultivate sketching and a genuine enthusiasm for one's own home and homeland, and an interest in the traditions held by the men engaged in building work. Students were also advised to cultivate an enthusiasm for great men by reading their lives and studying their work.

Mr. Francis Hooper seconded the vote, which was passed with acclamation.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE annual meeting of the Architectural Association of Ireland was held on the 8th inst. at the rooms of the Association, Clare Street, Dublin.

Mr. Charles MacCarthy, city architect, presided.

The report and statement of accounts, which were of a satisfactory character, were adopted.

Prizes won during the past year were distributed, and an announcement made of the arrangements for lectures, &c., during the ensuing year.

Mr. Charles MacCarthy, the president, in delivering his inaugural address, congratulated his hearers on the success of the Association, which, though only a few years started, had already gone a long way towards accomplishing the objects with which it was started. He would much rather, he might say, be the President of this Association than President of that more venerable and, in many respects, more important body, the Institute of Architects. The reason of his preference was, this Association represented the younger members of the profession, and it was the young men who appealed to the imagination. After a man was forty he had either hit the mark or failed; the future belonged to the young man. It was to the younger men that the country must look for, should he say, the revival or the inception of a school of really national architecture, if, indeed, such a school be possible in Ireland. He was there tonight to ask the question, "Is a school of national architecture possible in Ireland?" He would suggest certain points of view from which the subject might be looked at, but it was for the members to answer the question, not in words, but in deeds. He for one, however, was hopeful that the question could and would be answered in the affirmative. It was quite true that the present was an age most unfavourable to artistic development. Still, in spite of materialism, the century just closed was not, even in the most material of countries, wholly unfavourable to other arts, such as poetry and music. If such arts as these had been able to withstand the blighting influence of a philistine environment, why should they despair of architecture? Architecture, compared with some other arts, was, in some kind, a practical necessity. Granted that a school or architecture was possible and necessary, it might still be asked, Would not the attempt to make it national end in making it narrow and provincial? Was not all great art cosmopolitan? To the first of these questions the answer was an unqualified No; to the second a very qualified Yes. Nationality and provincialism were as far asunder as the poles. As to cosmopolitanism in art, there, too, a confusion of thought existed. All great art must in its origin, its growth, its making, be instinct with the spirit of the country which had produced it, and therefore, in the true meaning of the word, national. But there was a sense in which great art was cosmopolitan, for as soon as any nation had produced even one solitary work of really great art, that work belonged henceforth to mankind. If he were asked to what branch of architecture he looked as holding forth the greatest promise of becoming the foundation of an Irish school, he would unhesitatingly say to ecclesiastical architecture. It was to the Catholic Church, the Church of the majority in Ireland, rather than to the State, the municipality, or to private enterprise, that they must look for the material out of which a school of national architecture was to be created. Few of them perhaps realised what vast sums of money had been spent on the building of Catholic churches within the last 50 years. He thought it must be reckoned by millions. It was a lamentable fact, however, that, from the point of view of architecture, there had been for several years a distinct retrogression. They could not conceal from themselves that church architecture in Ireland had fallen upon evil days. However much they might be disposed to blame the leaders of the Gothic revival in Ireland for having under the influence of Pugin adopted the English parish church as their model, instead of seeking inspiration from such beautiful examples of purely Irish work as were found in Cashel, Holy Cross, Cong, and the Black Abbey, Kilkenny, still they must admit that they at all events were earnest men, and that their works were remarkable for beauty of design, honesty of intention and sound construction. Could they say as much of their church architecture of to-day? Was it not, on the contrary, too often characterised by the absence of every one of these qualities? Intricate in design, yet absolutely without interest, the majority of modern Catholic churches were nothing short of a disgrace to the country. Flimsy in construction, ill-considered in plan and arrangement, made ridiculous by ill-placed, senseless carving and pretentious, but absolutely inartistic detail, these churches had been decorated internally in a manner of which literally he could not trust himself to speak. Yet he did not despair. On the contrary, he was filled with hope, because he believed that the lowest depth had now been reached, and that when things came to this pass they usually mend. But he had another and a brighter reason for hope. They must not forget that Ireland had a sound tradition

of fine architecture, distinctly and peculiarly Irish; while, in the decorative arts, such as stone carving and metalwork, their pre-eminence in the past was almost universally admitted. He knew it had been said that outside the Early Romanesque work there was little or nothing distinctly Irish in their architecture, and that the Gothic work of, say, the thirteenth, fourteenth and fifteenth centuries was largely English. That was, however, an erroneous opinion, as was pointed out by Mr. James Fergusson, whose "History of Architecture" was still the standard work on the subject. All the Gothic work in Ireland was, in fact, marked by what Mr. Fergusson called a foreign (that was an un-English) character, while the cloisters of Muckross, Holycross and Kilconnell were, he said, more like those to be found in Sicily or Spain than anything in the British Islands. Turning now to the present, he thought he could see the beginning of an art revival in Ireland. There was a movement around them which was national in the widest sense—not in any narrow or party or political sense—a movement which had already given them that most astonishing revival of the Irish language, and a revival less marked, but very real all the same, of music and literature. That this was certain to affect the artistic life of the country he for one could not doubt. If he was reminded that all this was largely a question of money, and that one could not afford to employ artists to paint the walls and windows, or carve the capitals and string-courses of every country church, the answer was that half the country churches would be very much better without either carving or painting. If in future they left out the Carrara marble altar, with its bristling rearedos, the vulgar stained glass from Germany, and that impertinent carved-oak pulpit from Belgium, and put the money into honest masonry instead, it would have cost them nothing, and they would have done a good stroke of work for architecture and for Ireland. The objection on the score of cost must therefore fall to the ground. It was to their architectural design that they should have to devote their attention in the first instance if they honestly desired better things. As a first step on their road they must break with the evil practices of to-day, and then, turning to the past of their own country for inspiration, let them study in the first place at least the simplicity and dignity so characteristic of their earlier Gothic buildings. Thus and thus only, he thought, could they hope to lay the foundation of a really national architecture.

Mr. J. Geoghegan moved a vote of thanks to Mr. MacCarthy for his address. He said in their Gothic churches in Ireland now they saw painted Renaissance to represent relief work and artificial shadows mixed up with the Gothic, and no plain wall surfaces were left.

Mr. Butler said they had reason to congratulate themselves that Mr. MacCarthy had had the courage of his convictions to speak out as he had done, and he wished that his address was in the hands of every parish priest in Ireland, for unquestionably the Catholic priesthood had the giving away of a great amount of architectural work.

The resolution was passed unanimously.

DURBAN TOWN HALL.

AT the Durban Town Council meeting on the 5th ult. the Mayor asked the Town Clerk to read the following report which he had drawn up, with reference to the proposal to sell the present town hall and to erect a new town hall building to accommodate also library, museum, art gallery and municipal offices. The report was as follows:—

My proposal is (a) that the present town hall block and land on which it stands be sold to the Government for the sum of 100,000*l.*, payable either by instalments or upon transfer; (b) that the new town hall buildings, at the cost of at least 100,000*l.*, to include town hall, library, museum, art gallery and municipal offices be erected on the town gardens, between the fountain and the court house boundary. With your permission, I interviewed the Postmaster at Durban, and explained to him my scheme. Mr. Coleman entertained the proposal and suggested an interview with the Postmaster-General and myself for the discussion of the matter. An interview was accordingly arranged, and after a most careful examination of the buildings the Postmaster-General stated he was in favour of the scheme, and promised to officially place it before the Government. His Excellency the Governor and the Prime Minister being in Durban at the time, I mentioned the matter to them. His Excellency was greatly interested in the scheme, the Prime Minister reserving his remarks until he had interviewed the Postmaster-General. I attach hereto copy of an opinion given by the late Hon. H. Escombe, Q.C., in regard to the uses to which the town gardens might be applied. The area has not been set aside nor vested in trustees, and can, therefore, be utilised for municipal buildings. The present town hall stands upon portion of the original market square, which extended from

Gardiner Street to, and including the police-station site. If the Corporation could sell the Government the site between the baths and the police station it can also sell the present town-hall site. If the scheme suggested be carried out, I would recommend that the exchange of sites lately arranged with Government be cancelled, both parties retaining their blocks. Owing to the recent fire at Poynton's Buildings, the post office authorities are anxious to obtain temporary use of portion of the old market house. This might, perhaps, be arranged. It is very necessary that additional accommodation be provided for the town office staff and this might be supplied by the borough engineer's department vacating their present offices and taking possession of the remaining portion of the old market house not required for post office purposes. Thereupon the offices at present occupied by the borough engineer's department might be used by the town treasurer's department. This arrangement is suggested by the borough engineer, who is of opinion that the necessary standing room for cars can be arranged, and to meet the requirements until such time as the new town hall building could be erected without removing the old market house. I would remind the Council of the agreement of the trustees of the public library to transfer the land on which the existing library stands to the Corporation as soon as suitable accommodation is provided elsewhere.

The Mayor said he had omitted to mention one question bearing upon this. It had been urged that they would be taking away one of the lung spaces of the town, but this was a mistake. The old market house would shortly be demolished, and the space taken up by the new town hall in the town gardens would only be about equal to the space released there. Naturally the matter was only of a tentative character, and nothing had yet been done in it.

Mr. Pickering, without saying whether he was in favour or not of the scheme, said he regretted that his worship had laid down the price to be got for the site and buildings. He took it that the amount which had been mentioned by the Mayor did not represent more than half the value of the site. If they regarded the price asked for the Field Street block between West Street and Smith Street, which was recently submitted for sale by auction, the block on which the town hall was built was worth at least 150,000*l.*, to which they must add the cost of the building, 50,000*l.*, making the whole worth 200,000*l.* He considered they would be making great sacrifices in offering the property at the price mentioned.

The Mayor said that there was nothing binding on the Corporation or the Government. The suggestion was simply one which he had made, and it would require to come before the Council for discussion before any steps were taken in the matter.

Mr. Taylor said that the amount which had been mentioned for the town hall and site was 120,000*l.* They did not propose to sell the whole block, but only the ground on which the town hall stood. The remaining portion of the block was required for their own purposes in connection with the trams. If they retained the town hall it would be necessary to enlarge it, and the only way they could go would be in the direction of the space required for trams, and it would cost about 25,000*l.* to extend the building. If they took these circumstances into consideration they would find that the sum mentioned was somewhere about the right amount.

The report was received.

THE AUSTRALIAN FEDERAL CAPITAL.

THERE is every probability, writes Mr. John Plummer, of Sydney, that the site of the capital of the Australian Commonwealth will be selected before the close of the year, and indications point to the selection of a locality somewhere between Sydney and the Victorian border. When the site has been decided upon it is pretty certain that prizes, open to the whole world, will be offered for the best plans for laying out the new city, also for the best designs for the leading public buildings. It will prove one of the grandest chances ever offered the architectural world, and already Australasian architects and surveyors are beginning to discuss the possibilities of the future. At a recent meeting of the Royal Society of New South Wales, Mr. G. H. Knibbs, F.R.A.S., one of the honorary secretaries, and lecturer in surveying at the Sydney University, read an interesting paper on the manner in which the proposed federal capital might be designed.

"Such an office," said Mr. Knibbs, "as the creation of a capital city, practically unhampered by any conditions of existing settlement, and limited only by the topographical features of any selected site, is a unique one in the history of a country; the manner in which that office is discharged is of an importance which can hardly be overrated. A capital city, its general design, its utilitarian and æsthetic features, constitute an enduring index of the intelligence and foresight, the nobility

of the sentiment, and the dignity of the artistic idea of the people creating it.

"The first point to be decided in elaborating a design for the streets of a city is the position of what may be called its chief radial centres and its main lines of street. A concrete idea of what is meant by chief radial centres would be reached by regarding such centres as the Capitol and the White House at Washington, or the Arc de Triomphe at Paris, between the Avenue de la Grande Armée and the Avenue des Champs-Élysées. . . . The selection of the position of the chief radial centres requires therefore not only a comprehensive view of the administrative, educational, industrial, residential, military and other needs of a capital city, not only a due regard for its communication with the outer world and for all the contingencies both in times of peace and war which that communication involves; it requires also a nice appreciation of the topographical adaptabilities of the site, so that in the design the interdependence and mutual influence of every element shall be fully estimated and the general arrangement made the most convenient possible and therefore the most economical; and, further, that it shall be such as will admit without detriment of that expansion which the future will certainly require. Upon an accurate perception of the best treatment of the site the economy of the creation of the city will largely depend; and it is but proper that one should desire to have as perfect a result as possible for any given expenditure.

"The grouping of activities having many points of contact, or common features, and the locating of one or more groups round a suitable point, as round a radial-centre, is so obviously desirable as to need no advocacy; and when a city can be designed without the embarrassments created by pre-existing occupation, there can be nothing to prevent such grouping in any form conceived to be desirable. Thus the housing of Parliament and of the great departments of official administration might very properly be grouped around one centre, those having most frequent need of intercommunication being the nearest together; a university and its affiliated colleges might create another centre, technical and high schools still another, an aggregation of great commercial institutions yet another, and so on. Then, again, the industrial occupations which would develop might with advantage be relegated to one quarter of the city, the large commercial houses to another, while its environs would normally constitute the residential sites, variously disposed according to the classes of residence allowed to be erected. The study in the original design should embrace all possibilities of extension for even remote periods, so far, at any rate, as they can be foreseen; and the control of settlement should also be sufficient to insure the possibility of ultimate conformation to the first ideal, even if for any sufficient reasons it be temporarily abandoned.

"When it is considered that the importance of securing the full advantage of shortness in path of travel from point to point diminishes as the total amount of traffic in any street diminishes, it will be realised that as long as the radial system is sufficiently employed for reducing the distance from all parts to the principal centres, and for bringing into prominence such æsthetic features as great public buildings and monuments, the substantial benefits of the system will have been secured. The adoption, then, of the rectangular system for the balance of the design, modified only under the compulsion of meeting topographical difficulties, will admit of the advantages of that system being also fully exploited."

Discussing the important question of the width of streets, Mr. Knibbs said:—

"It is evident at once, not only that the streets should as a whole be somewhat narrower both in the intense business centres and in the less important parts of the city and its suburbs, but also that the general character of the city must affect the question. Therefore, in a capital city the æsthetic requirements are rightly regarded as of commanding importance, and utilitarian considerations as secondary, and properly subordinated to the last possible degree consistent with the fact that the general arrangements must of course be really practicable ones. Speaking broadly, the towns of the Commonwealth have been designed with small regard to æsthetic features, and the idea of avenues constituting an ordinary feature is practically foreign to us, though not absolutely so. The magnificent example, however, of Paris suggests the propriety of the greater radial lines from the chief centres, forming boulevards.

"Coming to actual dimensions, it may be said that lanes or streets of less width than, say, 10 metres, or 33 feet ($\frac{1}{3}$ chain), are extremely undesirable. Unimportant roads and streets, so situated that they can never become of importance, might be designed with widths of from 20 to 25 metres, or, say, from 66 to about 80 feet. Roads and streets of moderate importance, likely to require tramways, cycle paths, central footpaths, and so on, might be of still greater width, viz. of from 30 to 40 metres, or, say, of from 100 to 130 feet; while still wider streets, set out with avenues of trees, flower-beds, &c., might

have any width of from 50 to 75 metres, or, say, from 160 to 240 feet.

"With a suitable restriction as to height of buildings, such widths as have been suggested will not present any difficulties as to quantity of light, or as to suitable approach in cases of fire, while the abundant access of sunlight and the sufficiency of room for the planting of trees in the streets makes it possible to insure in the highest degree the fulfilling of the requirements of hygiene."

As to the size of blocks between streets, Mr. Knibbs suggests the following dimensions:—Public institutions, large factories and large establishments generally, 100 by 200 metres; large suburban residences with grounds, 80 by 160; larger business sites, city residences, &c., 60 by 120-160; smaller establishments, 40 by 80, 30 by 60-90, 20 by 60; workmen's dwellings, 10 by 30. If smaller areas than these last are admitted the elements of hygiene and beauty must be correspondingly sacrificed. The length of blocks may vary between, say, 100 to 200 metres, or, say, between 330 and 660 feet, and rear lanes be from 10 to 15 metres in width, say, 33 to 50 feet.

As to the height of buildings, he lays it down that, "as a maximum limit, the façade of any building abutting on the street should not be greater than the width of the street it faces. All conspicuous or prominent sites should be appropriated for great public buildings and monuments upon which a people may be expected to lavish its wealth and artistically express its national feeling.

"Outside the æsthetics of architecture proper, the designer requires moreover to consider in general the picturesque effect of masses of foliage, the perspective appearance of monumental buildings and monuments from the points of view where they will be prominently seen, the grouping of buildings and classes of buildings, the effective position for parks, gardens, &c., the special provision necessary for the proper viewing of all features of interest, and so on; for it is by attention to such elements of city design that the possibility of beauty is created, and the picturesque capabilities of a site are exploited. Thus eminences and concave surfaces, both of which should lend themselves to striking effects, should be exhaustively studied in relation to the general scheme.

"Imperfect as is the statement given of the elements to be considered in any real attempt to properly design an important city," says Mr. Knibbs in conclusion, "it will nevertheless be sufficient to indicate that a preliminary topographical and contour survey of the whole of the site is an essential. Such a plan perfectly represents the surface, and if supplemented with such geological information as to the depth at which rock is found, the nature of the rock and of the material from the surface down thereto, it would constitute the necessary prerequisite for thoroughly discussing the design. Obvious as this seems (and it must be equally evident that even in regard to the engineering details alone the cost of obtaining such information would be far more than compensated by the aid it would lend to economy of construction), it has not been the practice in the Australian States to obtain it. The time lost in so doing is gained in the end, and it is only by such systematic procedure that satisfactory results could be achieved. I am well aware that those who have not thoroughly studied this question are under the impression that what is called the common sense of well-educated people is sufficient for the task of designing. That is not the opinion of those who have seriously given the matter their professional attention. If evidence were wanted of the calamity of indifferent design, it is to be had in our own city and suburbs. The topographical features of Sydney would have permitted it to be, if not the most, at least one of the most beautiful cities of the world. No word-painting could too vividly or with too high a colour express the magnificent opportunity that once existed for the people of this land to create a city of almost unparalleled beauty; that opportunity has been hopelessly lost through the ignorance and want of appreciation of those whose duty it was to avail themselves of it, leaving at the same time a monument of the dignity of their ideas. And the reason of failure is that no great scheme for the creation of the city was ever heartily entertained. Like Topsy, it has 'grewed.' And any other city that grows by chance will equally exhibit great imperfections, and fail of its possibilities."

STEPNEY CHURCH.

FROM the first accounts which appeared of the fire at St. Dunstan's Church, Stepney, it was supposed that the building was destroyed. The Rev. A. E. Dalton, the rector, describes the extent of the damage in the following plain statement:—

So many are interested in this ancient church that I am sure you will allow me to state exactly what has happened. The church is not burnt down; the energy of Commander Wells and the efforts of our excellent Fire Brigade have saved us

from that, though the fire, the origin of which is unknown, had obtained a strong hold before it was discovered. Our loss, briefly, is that of the roof of chancel and nave, the organ, and vestries and chapter-house, with their contents. Of this, our beautiful fifteenth-century roof, the seventeenth-century organ front, and the old prints and map in the vestry are irreplaceable. But the plate and registers are intact, while the tower and the whole of the interior, *i.e.* walls, with monuments, seats, &c., are practically unhurt.

I see it stated that we are insured for 11,000*l.*, and that this will cover all damage. The first statement is true, I wish the second were, for while 11,000*l.* would more than cover all damage, much of that sum is unavailable—*e.g.* insurance on tower, seats, plate, &c.—and I am already learning that there are many expenses which insurance cannot cover. A considerable sum, possibly some 2,000*l.*, will be required over and above the insurance. Such a demand comes at a terribly awkward time. Less than two years ago 5,600*l.* was spent on the church, and only a month ago we commenced the completion of our second church, St. Faith's, for which 1,800*l.* are still required. The ordinary working expenses of such a parish as this, with its population of 24,000, in the heart of the East End, always taxes our resources to the very uttermost.

I can therefore confidently appeal to the generosity of the public not to allow this fresh and unexpected burden to weigh down those who already have their hands full and their pockets empty. The Bishops of London and Stepney authorise me to state that this appeal has their cordial support.

The church of St. Dunstan, the "mother church" of the East End, is an ancient and most interesting building. It was built in the year 960 by Archbishop Dunstan on the site of an earlier church, and was at the time dedicated, it is supposed, to All Saints. Later on, when Dunstan became canonised, the church was dedicated to its builder. In 1485 the church was rebuilt, the fine old oak roof now destroyed dating to that time. The only parts of the present church which date back to before that rebuilding are the sedilia and an old stone crucifix, but these probably were not made earlier than the twelfth century.

The church contains many interesting monuments, which have fortunately been preserved. The most famous is that of Sir Henry Colet, Lord Mayor of London in 1486 and 1491, and father of Dean Colet, founder of St. Paul's School. The monument to Sir Thomas Spert, Comptroller to the Navy of Henry VIII., and founder of the Trinity House, which is on the south wall of the chancel, was erected in 1622, eighty years after his death, and replaced in 1725 and 1806, at the expense of the Elder Brethren of the Trinity. Another famous tomb is the "Fish and Ring" monument on the west wall. It is really to a Dame Rebecca Berry, but owing to the fact that a fish and a ring occur in the arms, a tradition grew up that she was the heroine of the ballad of the "Cruel Knight and the Fortunate Farmer's Daughter." In this the knight, to defeat a prediction that he would marry a damsel of low birth, swore that he would never see her until she brought back his ring, and to prevent her doing so cast the ring into the sea. The damsel became a cook, and cutting up a fish one day found the ring. Then they married and lived happily ever after. Here, too, were buried Sir John Leake, Queen Anne's admiral, who twice relieved Gibraltar; Matthew Mead, the Puritan divine, who was ejected by the Act of Uniformity in 1662; Benjamin Kenton, who began life as a pauper and died a wealthy vintner in Aldgate; and a great company of lords and ladies, officers of the horse guards, "admirals of the Irish seas," captains of East Indiamen and mariners generally. One inscription in the churchyard is quaint:—"To the memory of Betsey Harris, who died suddenly while contemplating the beauties of the moon, April 24, 1831, in her twenty-third year."

ARCHITECT'S FEES.

A CASE was heard before the Recorder of London in which Mr. Edward Gabriel, architect, Old Broad Street, sued Mr. Elliott for the sum of 18*l.* 18*s.* for work done. The defendant had an option to build premises on a plot of land in Rosebery Avenue. He gave instructions to the plaintiff to inspect the site, and to see what building could be placed there without interfering with certain ancient lights. The land was inspected. After that had been done and information obtained from the Northampton Estate office, the defendant wished plans to be prepared and the matter pressed forward. The plans were sent to the defendant through a Mr. Tasker. Mr. Tasker said that he was acquainted with the defendant, and knew of his (defendant's) option to build on the plot of land. He advised the defendant to employ an architect, and the plaintiff was introduced through him. The defence was that no instructions were given to the plaintiff to prepare the plans. If plans were necessary it was arranged that there should be no charge until he (defendant) had actually obtained possession of the land. At the same time he (defendant) was

negotiating with a Mr. Reason for other premises, and the matter of the plot of land in Rosebery Avenue was only to be gone on with in the event of the negotiations with Reason falling through. Those negotiations did not fall through. The jury eventually returned a verdict for the plaintiff for the amount claimed.

THE INSTITUTION OF CIVIL ENGINEERS.

THE Council of the Institution of Civil Engineers have in addition to the medals and prizes given for communications discussed at the meetings of the Institution in the last session, made the following awards in respect of other papers dealt with in 1900-1:—A Telford medal and a Telford premium to Reginald Pelham Bolton (New York); a Watt medal and a Telford premium to J. Emerson Dowson (London); a George Stephenson medal and a Telford premium to W. T. C. Beckett (Calcutta); a Manby premium to E. K. Scott (London); a Trevithick premium to T. A. Hearson, R.N. (London); a Telford premium to J. A. W. Peacock (Tantah, Lower Egypt). For students' papers the awards are:—A Miller scholarship (tenable for three years) and the "James Forrest" medal to E. V. Clark, B.Sc. (London); Miller prizes to C. E. Inglis, B.A. (London), H. E. Wimperis, B.A. (Cambridge), J. L. Cridlan (London), F. K. Peach (London), G. H. Whigham (Glasgow), F. Taylor, B.A. (Manchester), A. C. Walsh (Newcastle-on-Tyne), and H. O. Jones (Manchester).

TESSERÆ.

Urbanity in Architecture.

A BUILDING devoid of architecture displeases all who see it—all whose share of heaven's light is intercepted, whose view of the fair earth is bounded by it, because they see and feel that it benefits its owner at their expense—they have not been thought of in the design—it is all for self, without appearing to care whether they are incommoded or not, or to know that there are eyes without as well as within. It is this crude, selfish rudeness which requires to be softened down by a politeness either natural or acquired, and this politeness we term architecture. It is only one portion indeed of the aim of "architecture proper," but it is the most indispensable portion, without which all attempts at the higher aims of beauty, sublimity or definite expression will be totally useless. The building that aims at being anything more than useful and strong must first be polite. This is the lowest quality in architecture as distinguished from building. Some seem to allow the term architecture only to acquired politeness in building, but it ought to be applied quite as much if not more to that which is natural; indeed, they so merge in one another that it would be impossible to draw the line between them. It must be observed that the structures of savage nations always exhibit this natural politeness. Let them be ever so rude in construction or in decoration or in both, they are never rude in expression, never do they seem made for self alone like the oyster, shut up in the narrowness of its shell, pushing forth excrescences wherever its internal purposes suggest without appearing to know that there is a world outside. On the contrary, the rudest of these huts present on their exterior some evidence of unnecessary design, some regularity or symmetry not required by their internal purposes, and this stamps them as architecture. It shows an aim beyond convenience and stability; it shows the spectator that he, even he, has been cared for as well as the owner, and the structure belongs not altogether to a man, but in some sort also to humanity. As in the models from which these children of nature learnt their art there is nothing made for itself, and from the world-sustaining sun down to the little busy world-enlarging coral-line nothing appears to belong to itself with the sole exception of the oyster above-mentioned—a marvellous anomaly which may possibly be required to complete nature's great system of symbol-teaching; her universal language, which without this would have no word of selfishness.

Isaac Fuller, the Painter.

It is said of Fuller by Graham that "he wanted the regular improvements of travel to consider the antiques, and understood the anatomic part of painting, perhaps equal to Michel Angelo; following it so close that he was very apt to make the muscleging too strong and prominent." But this writer was not aware that the very fault he objects to in Fuller did not proceed from not having seen the antiquities, but from having seen them too partially; and that he was only to be compared to Michel Angelo from a similitude of errors, flowing from a similitude of study. Each caught the robust style from ancient statuary without attaining its graces. If Graham had avoided hyperbole he had not fallen into a blunder. In his historic compositions Fuller is a wretched painter; his colouring was

raw and unnatural, and not compensated by disposition or invention. In portraits his pencil was bold, strong and masterly; men who shine in the latter and miscarry in the former want imagination. They succeed only in what they see. Graham speaks of Fuller as extravagant and burlesque in his manners, and says that they influenced the style of his works. The former character seems more true than the latter. His own portrait in the gallery at Oxford is capricious, but touched with great force and character. His altarpieces at Magdalen—which Addison praised in a Latin poem—and All Souls Colleges in Oxford were despicable. At Wadham College was an altar-cloth in a singular manner, and of merit; it was just brushed over for the lights and shades, and the colours melted in with a hot iron. He painted the inside of St. Mary Abchurch in Cannon Street. While Fuller was at Oxford he drew several portraits, and copied Dobson's *Decollation of St. John*, but varying the faces from real persons. For Herodias, who held the charger, he painted his own mistress, her mother for the old woman receiving the head in a bag, and the ruffian who cut it off was a noted bruiser of that age. There was besides a little boy with a torch, which illuminated the whole picture. Fuller received 60 pieces for it. In King James's catalogue is mentioned a picture by him, representing Fame and Honour treading down Envy. Colonel Seymour had a head of Pierce, the carver, by Fuller. He was much employed to paint the great taverns in London, particularly the Mitre in Fenchurch Street, where he adorned all the sides of a great room in panels, as was then the fashion. The figures were as large as life; a Venus, Satyr and sleeping Cupid, a boy riding a goat and another falling down over the chimney; this was the best part of the performance, says Vertue. Saturn devouring a child, Mercury, Minerva, Diana, Apollo; and Bacchus, Venus and Ceres embracing; a young Silenus falling down and holding a goblet, into which a boy was pouring wine; the Seasons between the windows, and on the ceiling two angels supporting a mitre, in a large circle; this part was very bad, and the colouring of the Saturn too raw, and his figure too muscular. He painted five very large pictures, the history of the king's escape after the Battle of Worcester; they cost a great sum, but were little esteemed. Vertue had seen two books with etchings by Fuller; the first, Caesar Ripa's "Emblems," some of the plates by Fuller, others by Henry Cooke and Tempesta. The second was called "Libro da Disegnare"; eight or ten of the plates by the painter. He died in Bloomsbury Square, July 17, 1672.

Aphorisms on Art.

Spirit alone gives life; but spirit becomes unsubstantial when it does not submit to laws and rules. Everything great and beautiful rests on the harmonious co-operation of three agents: knowledge, will and power. The brilliancy of our modern works of art generally serves only to light up their inward emptiness. A man that stands on a giant's shoulders is very apt to think himself the taller of the two. Never perhaps was genuine art so much needed as in our overworked and pretentious times. But art must penetrate all the elements of life and not seek to be valued as a separate thing. In the Middle Ages the ideal ruled, and under her influence the sensible as the highest and lowest authority. At present intellect has denied the existence of the former because she could neither be weighed, counted nor handled, and pronounced the sensible tributary to himself. As the Creator has clothed man with beauty, so should man also impress the stamp of his higher nature on what he produces, for that which is merely useful cannot satisfy it.

Domenico del Ghirlandaio.

Ghirlandaio, born in 1449, was the son of Tommaso de' Bigordi, a broker of Florence. Domenico was apprenticed to a goldsmith, as were also his younger brothers, David and Benedetto. Hence the appellation "del Ghirlandaio" (in the Florentine dialect Grillandaio), which became common to the brothers after they adopted painting, and was perpetuated in their descendants. In Florence in the fourteenth and fifteenth centuries a goldsmith—*orafo*, or *orefice*—was often more familiarly termed *ghirlandaio*, as one of his chief occupations was the manufacture of those rich coronals (*ghirlande*) then in favour with the unmarried and newly-wedded ladies of that city. Vasari, accepting the quasi patronymic form of the term in a sense too direct, supposed that Tommaso Bigordi was himself the goldsmith from whom the sons derived it. This error of the biographer has been exposed by the discovery of documents in the Florentine archives. After a time Domenico abandoned the pursuit for which he had been destined and studied painting under the direction, as is said, of Alesso Baldovinetti. However he may have learnt that art, he rose amidst the great influences around him to be one of its most eminent representatives. The Renaissance movement was then in full swing in Florence, and one of its signs was the gradual development of a healthy realism in art. Even in the preceding century portraiture had made its way into religious

art, though at first timidly and in humble guise. Proud rulers, spiritual or temporal, appeared only as devout suppliants (often of pigmy size) before the divine and sainted personages whose grace or intercession they invoked. But as the scope of art widened, perhaps too as devotional awe awakened, the donors and their families gradually assumed a part in the scene, either as reverent spectators or as subordinate actors. This innovation, to which Masaccio greatly helped to pave the way, was further developed by Ghirlandaio, who thus, at the instance of his patrons and of his own good-will, filled out many of his great fresco compositions with portraits of eminent men and beautiful women of Florence, enframed his groups in the graceful domestic architecture of the time, and so in subjects taken from sacred story has left us an exalted picture of life as it presented itself to him in his day.

Oddities of Feudal Homage.

Some of the antique forms of paying homage to a feudal superior were very comic. In one of the lordships of France the peasants were obliged to bring a canary bird to the château, placed on the top of a carriage drawn by four horses. In Austria a noble vassal was to present every St. Martin's Day to his superior two pots of flies. Another nobleman in Franconia offered to his lord as a mark of homage a grass-hopper. When the Abbot of Figeac made his entrance into the city of his abbacy, the Lord of Montbrun and Larogue received him dressed as an harlequin, with one leg bare. When the abbot descended from his horse the same person held his stirrup, and when he sat down to table waited behind his chair to fill his cup with wine. The Lord of Pacé had a right to summon all the pretty women of Saumur and its suburbs every Trinity Day before him, and they were to pay him each four farthings and a chaplet of roses. Those who refused to dance with his officers were to have the family arms marked on their bodies with the point of a needle. In Provence buffoons, dancers, mimics and minstrels were to perform their tricks and show their skill before the lady of the château. A troubadour was obliged to sing his romance to a new air to be entitled to pass a night in the manor house. Any pedestrian, with or without shoes, might claim a lodging by making four somersaults; a Moor might enjoy the same privilege by throwing his turban in the air, and counting 6 sous whilst he stumbled and fell down to the gate porter; and a Jew had free entrance and hospitality by putting his shoes on his head and repeating, *bon gré mal gré*, the pater in the patois of the country. A horseman was obliged to watch his arms half the night for the service of the châtelaine, and the conductor of animals to a fair was in duty bound to stop before the château and make his monkeys play their tricks and his bear dance to his flute before he could proceed any further. By a law of St. Louis, jugglers and bear-wards and ape-leaders were exempted from paying any custom duties on entering cities, on the condition that they amused the gate porters by the performances of their animals or sleights-of-hand. The jugglers, however, might be quit with a song.

GLASGOW ARCHITECTURAL ASSOCIATION.

A MEETING of the Glasgow Architectural Association was held at Glasgow on Oct. 15. The president (Mr. Chas. E. Whitelaw) occupied the chair, the lecture for the evening being "Scottish Domestic Architecture of the Seventeenth Century," by Mr. Alex. N. Paterson, M.A., A.R.I.B.A., the lantern slides being from the collection of Mr. John Fleming. Mr. Paterson in his opening remarks said great credit was due to Mr. Fleming, who, although not a member of the profession, took a great interest in the Scottish architecture of this period and had during his travels made an excellent collection of photographs. Before going over the slides Mr. Paterson gave a synopsis of the growth of Scottish architecture. He then went on making copious comments on each of the slides, examples of work about that period from parts of Scotland being illustrated. At the close of the lecture Mr. Wm. J. Blain moved a vote of thanks, expressing the appreciation of the Association for their (Messrs. Paterson and Fleming) combined efforts in producing such an interesting and educational lecture. In seconding, Mr. James Lochhead said the Association had made, from an education in Scottish architecture point of view, a bright start for the session, opening with a paper on "Ecclesiastical Scottish Work" and following it with Mr. Paterson's paper. The President, in officially tendering the thanks of the Association to Messrs. Paterson and Fleming, drew the attention of the members to the election of house committees. Mr. Thomas Ramsay was appointed in place of Mr. Hugh Dale, who retires. The house committee for session are Messrs. Chas. E. Whitelaw, Wm. J. Blain and Thos. Ramsay. In closing the meeting, the President made some remarks upon the prize scheme for November and the annual exhibition.

BARNARD CASTLE.

UNDER the direction of Lord Barnard, a number of masons are engaged in repairing Baliol's Tower, the dungeon of Brackenbury, and other ruins of the fortress built at Barnard Castle in 1112-32 by Bernard Baliol. The work of restoration now going on is supplementary to repairs directed by the lord of the manor a year or two ago, which have been the means of rescuing some portions of the ancient fabric from utter demolition. Once amongst the most important and extensive fortresses in the North of England, it originally commanded one of the principal highways between Durham and Yorkshire. In 1569 the castle underwent its memorable siege, and in 1629 it was sold to Sir Henry Vane, from whom it descended to Lord Barnard. A small oriel window overlooking the Tees bears the "boar" of Richard III, and corroborates the tradition of his residence here as Duke of Gloucester, to overawe the Lancastrians. Baliol's Tower, which is 150 feet above the ruin, is receiving careful attention.



The Sad Case of Sir Simon Leach—His Monument.

SIR,—The remote village of Cadeleigh, not far from Tiverton, in Devon, possesses an interesting village church, the crowning glory of which is a magnificent Jacobean monument with life-size sculptured figures, surmounted by a heavy canopy, a most complete and handsome example of the gorgeous Renaissance period. The monument was erected by Sir Simon Leach, a quondam sheriff of the county, to commemorate himself and his descendants, and in order to keep his memory green he left also a sum of money to keep the monument in repair. Ill fortune, however, attended the family, and it is now, I believe, quite extinct in the direct line. The family mansion is a humble farmhouse, and the money that was left to keep the tomb in repair, although invested in land, has been allowed to lapse for the incredible reason that no trouble was taken to collect the rent in the sleepy meridian of the last century.

When I saw the tomb a few weeks ago it was doomed to destruction. The canopy was falling backwards and was endangering the fabric of the church, and in a fortnight for safety's sake was to have been removed. For the time being the parish authorities are holding their hands, while I am doing my best to arouse interest in what is the finest example of the period in Devonshire. The tomb commemorates a Devon worthy, and it will be a standing reproach if it be destroyed, or allowed to be removed from the church in which he worshipped, and in which he desired to rest with his wife and children.

The cost of underpinning and preserving the monument will be only 80*l*, of which about 25*l*. has been promised. The parish is very poor and the population small. May I appeal through you to the many lovers of the ancient and picturesque relics of our country for help in the work of preservation.

It is not desired to restore, only preserve. Many Devonians in London will, I am sure, send a small subscription for the sake of the old county. The most trifling sum will be gratefully received by Miss Chichester, Calverleigh Court, Tiverton, or by yours very obediently,

PRESCOTT ROW.

The Offices of the Homeland Association,
St. Bride's House, 24 Bride Lane,
Fleet Street, E.C. 4.
October 16, 1901.

GENERAL.

The King has given permission to Mr. Augustus Zarb that he may accept and wear the insignia of the Fifth Class of the Imperial Order of the Medjidieh, conferred upon him by His Highness the Khedive of Egypt, authorised by His Imperial Majesty the Sultan of Turkey, in recognition of valuable services rendered to His Highness by Mr. Zarb as assistant to the architect of the Khedivial palaces.

His Majesty the King has been graciously pleased to accept artist's proofs of Mr. Axel Hermann Haig's new etchings of Windsor Castle and Buckingham Palace.

Mr. William Scott, architect, has received authority from the King that he may wear the Cross of Knight of the Crown of Italy, conferred upon him by His Majesty the King of Italy in recognition of services rendered by him to Italian history and art.

At the Last Meeting of the London County Council it was stated that the contract for the granite for the pedestal of the

Boadicea group was made many months ago with the Bude quarries, but owing to a strike there the stone was sent to Aberdeen to be worked. It was placed in position, and was then condemned by the Council's architect. More stone was obtained and sent north, and that again was condemned by the architect. The works committee then procured some stone in London, which was now being fixed.

The Amended Plans of a new variety theatre to be erected in Newcastle have been approved by the licensing magistrates. The designs are the work of Messrs. Wylson & Long, London.

The London County Council are to hold a conference with Mr. Akers Douglas, in order to obtain his consent that the widening of Piccadilly to be proceeded with.

M. Eugène Berthelon's painting, *Bords de la Seine à l'Île de Saint-Denis*, has been cut from its frame in the Paris Hôtel de Ville and stolen. Owing apparently to the haste with which the canvas was cut out, the thief omitted to include the painter's signature, which remains in the corner of the frame.

The Royal Society of British Artists on Monday last elected the following members:—Messrs. Beale Adams, J. Paul Brinson, W. Houson Byles, Moulton Fowleraker, A. Henderson, Hely Smith, Miller Smith and W. H. Spittle.

The Housing Committee of the Bermondsey Borough Council are considering a proposal to purchase 7,260 square yards of land adjoining Southwark Park Road for about 20,000*l*. as a site for municipal dwellings for artisans. The site is about to be vacated by a firm of engineers, and the surveyor has planned accommodation for 400 rooms, being forty sets of three rooms and 140 sets of two rooms.

A Course of Six Lectures on the Renaissance in Italy has been commenced in Horsham in connection with the Oxford University Extension. The lecturer is Mr. E. L. S. Horsburgh, M.A., ex-president of the Oxford Union and staff lecturer in history and literature.

The City Council of St. Petersburg have arranged a competition for two bridges over the Great Neva and their approaches.

Mr. W. Emden is preparing the designs for the large terminus at Brighton for the proposed electric railway between that town and London. The terminus will have a frontage on Furze Hill. The whole scheme is estimated to cost between six and seven millions. The consulting engineers are Mr. B. Leslie and Mr. A. J. Barry, late partners with Sir John Wolfe Barry.

A Memorial of Heine, the poet, has been completed in Vienna. The sculptor is Herr Hasselries, and the work is executed in Carrara marble.

Mr. J. P. Briggs is the architect of the new opera house and business premises which are to be erected at Tunbridge Wells, at a cost of 30,000*l*.

The Australian Commonwealth Government recently offered a prize for the best design for a federal or national Australian flag. No fewer than 30,000 designs were sent in. The Exhibition Building in Melbourne was used by the judges to examine and display the flags. The prize of 150*l*. was divided among five competitors, who designed almost identical flags.

Professor W. H. Wagstaff delivered on Tuesday at Gresham College the first of a course of four lectures on "Trigonometrical Surveying."

A New Organ Case and Screen of carved oak, executed by Messrs. Thompson Bros., of Peterborough, from designs by the late Sir Arthur Blomfield, has been erected in Kingston Church, Hants, at a cost of 1,000*l*.

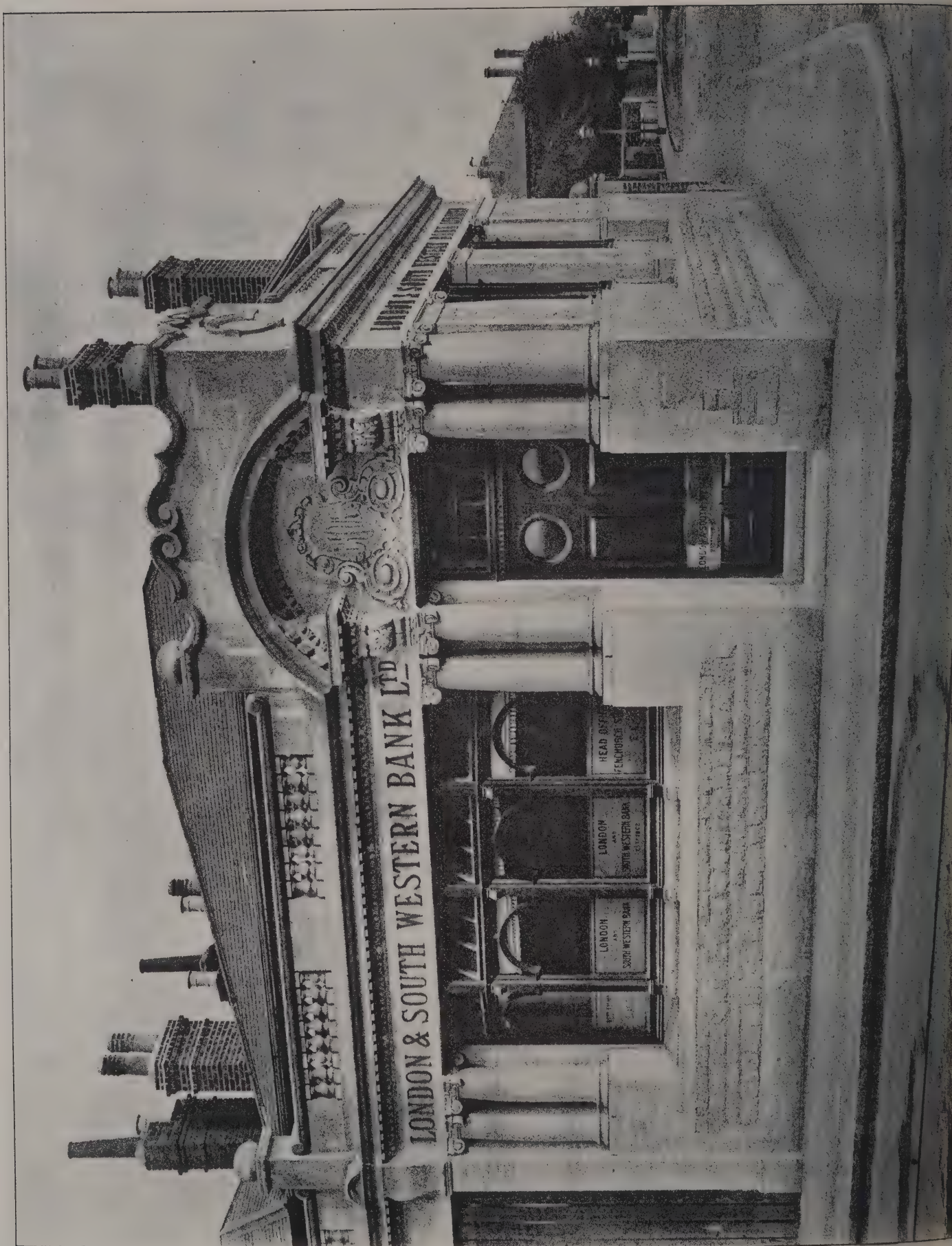
The First Ordinary Meeting of the Liverpool Architectural Society will be held at 6 P.M. on Monday next, the 21st inst., in the Society's rooms, 41 Castle Street, Liverpool, when a paper will be read by Mr. Fletcher T. Turton on "Cheap Dwellings."

The Committee of Management of the North London Hospital for Consumption having asked five well-known hospital architects to compete for the erection of their proposed country branch and convalescent home at Northwood, Middlesex, have selected the design submitted by Mr. Frederick Wheeler, F.R.I.B.A., of 6 Staple Inn, W.C.

Mr. A. H. Ryan-Tenison, A.R.I.B.A., has removed his offices to 12 Little College Street, Westminster, S.W.

Messrs. Briggs & Wolstenholme (F. B. Hobbs & Arnold Thornely) announce that they have removed from 14 Castle Street to May Buildings, 51 North John Street, Liverpool.

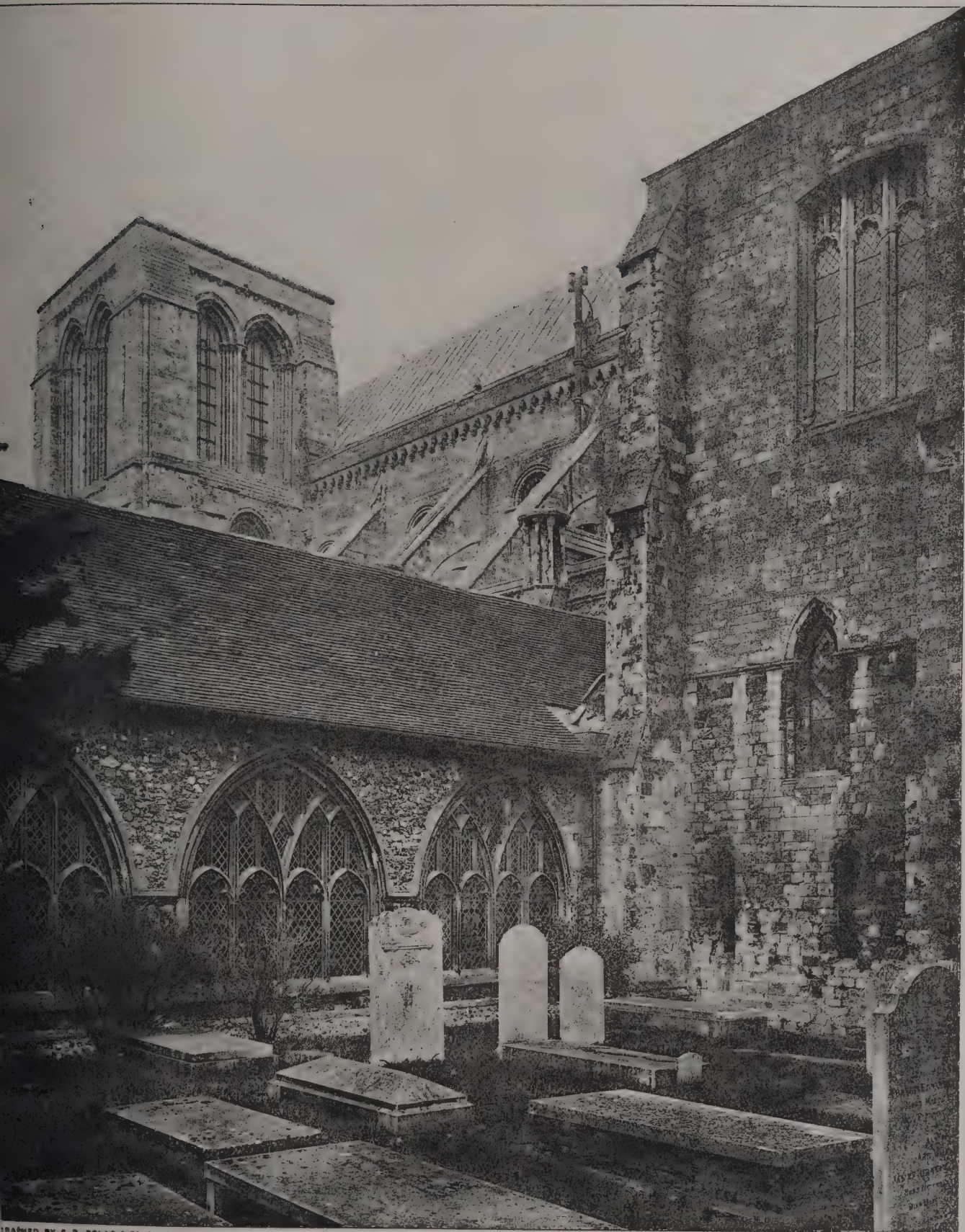
The Dedication of a new Presbyterian church, which has been erected in Henry Street, Limerick, took place on the 3rd inst. The new church, which is one of the handsomest in the city, has been erected by Messrs. John Ryan & Sons, builders, from the plans of the architect, Mr. G. C. Ashlin, Dublin. The cost is estimated at about 6,000*l*.





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CATHEDRAL SERIES, No. 360.—CHICHESTER: CLOISTERS AND SOUTH-WEST TOWER.



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The Architect, Oct 18th 1901.





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CATHEDRAL SERIES, No. 358.—CHICHESTER: EAST END OF RETRO-CHOIR.





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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 5*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

CAMBERWELL—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

TADCASTER—Oct. 26.—Competitive schemes are invited for extending sewage works from the present sewage beds of the Garforth sewage works to a site already selected. Premium 50*l.* Messrs. Bromet & Son, 16 Park Row, Leeds.

CONTRACTS OPEN.

ABBOTSKERSWELL—Oct. 23.—For erection of a school-master's dwelling-house, Abbotskerswell, Devon. Mr. Samuel Segar, architect, Union Street, Newton Abbot.

ALNMOUTH—Oct. 24.—For alteration to cottages. Mr. George Reavell, jun., architect, Alnwick.

ARGENTINE REPUBLIC—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., or personal application.

ARMLEY—Oct. 21.—For erection of board-room and offices at Hill Top, Armley, near Leeds. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

ASTON MANOR—Oct. 24.—For construction of a public urinal to accommodate fourteen persons, Aston Park. Mr. G. H. Jack, Council House, Albert Road, Aston Manor.

BETHNAL GREEN—Oct. 29.—For supply and erection of one Allott & Paton's improved Washington Lyons steam disinfectant, with all the necessary buildings, fittings, &c., at the infirmary, Cambridge Heath, N.E. Mr. D. Thomas, clerk to Guardians, Bishop's Road, Bethnal Green, N.E.

BLACKBURN—Oct. 26.—For providing and fixing two triple-expansion pumping engines, with a 6-ton traveller, iron flooring and appurtenant works, at the Throstle Street destructor site. Mr. William Stubbs, borough engineer, Municipal Offices, Blackburn.

BLACKPOOL—Oct. 26.—For supply and delivery of plant in connection with the promenade widening scheme. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BLACKPOOL—Oct. 30.—For erection of a portion of the new church of St. George, Stony Hill, Blackpool. Mr. H. Goldsmith, architect, 63 Faulkner Street, Manchester.

BOOTLE—Oct. 31.—For enlargement of the Bedford Road Board school, Bootle. Mr. Thomas Cox, architect, 11 Dale Street, Liverpool.

BRENTFORD—Nov. 6.—For erection of an isolation hospital, with administrative buildings, &c., at Clayponds Lane, Brentford. Mr. Arthur Ramsden, surveyor, Town Hall, Chiswick.

BRENTWOOD—Oct. 22.—For drainage works and erection of a wall at the cemetery, London Road. Mr. J. E. Fothergill, surveyor, Council Offices, Town Hall, Brentwood.

BROOMHILL—Oct. 21.—For erection of forty to fifty houses for the Broomhill Collieries, Ltd, Broomhill, Acklington, where plans and specification may be seen.

BURY—Oct. 21.—For alterations at the hat and cap department, Market Street, for the Bury District Co-operative Provision Society, Ltd. Mr. D. Hardman, architect, Agur Street, Bury.

CAMBRIDGE—Oct. 24.—For erection of an additional wing on the female side to accommodate about eighty-eight patients and their eight attendants, at the Cambridgeshire, &c., Asylum, Fulbourn, near Cambridge. Mr. A. P. MacAlister, architect, 20 St. Andrews Street, Cambridge.

CAMBRIDGE HEATH—Oct. 29.—For erection of an Allott & Paton's improved "Washington Lyons" steam disinfectant, with all the necessary buildings, fittings, &c., in connection therewith, at the infirmary. Mr. D. Thomas, clerk to Guardians, Bishop's Road, Bethnal Green, N.E.

CANTERBURY—Oct. 21.—For repairs and renewals to the laundry and washhouse. Mr. G. Smith, architect, Station Road, St. Dunstan's, Canterbury.

CHALFORD—Oct. 28.—For erection of an infants' school at Chalford Hill, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

CHELTENHAM—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

Fig. 5 is an Illustration of "VERITY'S PATENT"

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Fig. 5.

CORNWALL—Oct. 21.—For erection of an infants' school, additions to girls' school, boundary walls, &c., at Newquay. Mr. James Pearce, clerk to School Board, 1 Lehenver Villas Newquay.

CRANLEIGH—For erection of a cottage at the new sewage-disposal works, Cranleigh. Mr. Edward L. Lunn, surveyor, 36 High Street, Guildford.

DARLINGTON—Oct. 21.—For construction of two public urinals in Hopetown Lane and North Road. Mr. Hy. G. Steavenson, town clerk, Houndgate, Darlington.

DARLINGTON—Oct. 28.—For construction of a ladies' lavatory in the covered market. The Borough Surveyor, Town Hall, Darlington.

DARTFORD—Nov. 12.—For the supply and erection at the sewage pumping station at Dartford of two sets of steam-engines and vertical three-throw piston pumps, and the removal of the present engines and pumps. Mr. W. Harston, surveyor, High Street, Dartford.

DERBY—Oct. 25.—For enlargement of the head post office, Derby. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

DONCASTER—Nov. 2.—For erection of a classroom at the Stainforth schools. Mr. H. B. Thorpe, architect, Goole.

DURHAM—For erection of eight tenement houses at South Moor Lane, Stanley, R.S.O. Mr. T. E. Crossing, architect, Front Street, Stanley.

EASTBOURNE—Oct. 21.—For erection of boundary walls (with gate piers) enclosing land near the fishing station off Sidley Road. Mr. R. M. Gloyne, borough engineer, Town Hall, Eastbourne.

EASTBOURNE—Oct. 21.—For additions and alterations to the air-compressing station at Roselands. Mr. R. M. Gloyne, borough engineer, Town Hall, Eastbourne.

EASTBOURNE—Oct. 21.—For erection of branch public library and baths, Seaside. Mr. William Chapman Field, borough architect, Town Hall, Eastbourne.

EASTBOURNE—Oct. 28.—For construction of two public conveniences and alterations to existing shelters on the Grand Parade. Mr. R. M. Gloyne, borough engineer, Town Hall, Eastbourne.

FROME—Oct. 21.—For the supply of a 30 ft. by 8 ft. steel Lancashire boiler, with fittings, &c. Mr. Philip Edinger, engineer, Public Offices, Frome, Somerset.

FULBOURN—Oct. 24.—For erection of an additional wing on the female side to accommodate about eighty-eight patients and their eight attendants at the Cambridgeshire, &c., Asylum, Fulbourn, near Cambridge. Mr. A. P. MacAlister, architect, 20 St. Andrews Street, Cambridge.

GREAT YARMOUTH—Oct. 29.—For construction of carshed and boundary wall, Caister Road. Mr. J. Wm. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

HACKNEY—Oct. 28.—For erection of three workshops and outbuildings at Cassland House, Cassland Road, N.E. Mr. A. W. S. Cross, architect, 58 Conduit Street, Regent Street, W.

HALWELL—Oct. 21.—For laying 1,200 ft. of 1 in. and 330 ft. of $\frac{3}{4}$ in. (or thereabouts) of galvanised iron piping and other work at Halwell, near Totnes, Devon. Mr. W. F. Tollit, architect, 10 High Street, Totnes.

HAMMERSMITH—Oct. 23.—For erection of an open shed, and supplying and fixing rolled-steel joists, and constructing concrete roof at the electricity works. Mr. H. Thompson, town clerk, Town Hall, Broadway, Hammersmith.

HEBBURN AND SOUTHWICK-ON-WEAR—Oct. 25.—For erection of a police court at Hebburn and a police station at Southwick-on-Wear. Mr. William Crozier, county architect, Town Hall, Durham.

HIGH NIBTHWAITE—Oct. 24.—For alterations and additions to a house at High Nibthwaite, foot of Coniston Lake. Mr. John Stalker, architect, Kendal.

HORBURY—Oct. 28.—For erection of Council offices, stable buildings, cart-sheds, fence walling, &c., Horbury, Yorks. Messrs. Walter Hanstock & Son, architects, Branch Road, Batley.

ILFORD—Oct. 29.—For supply and erection of a water-tube boiler, with fittings, pipework, &c.; a 550-kw. steam dynamo (vertical enclosed high-speed engine), and a main switchboard and connections. Mr. John W. Benton, clerk, Council Offices, Ilford.

IRELAND—Oct. 21.—For supply and erection of heating and ventilating apparatus at the Youghal lunatic asylum, Cork. Mr. Henry A. Cutler, Municipal Buildings, Cork.

IRELAND—Oct. 23.—For alteration to the central premises of the Londonderry Co-operative Society. Particulars will be supplied at the Society's Office, 59 Strand Road.

IRELAND—Oct. 24.—For alterations and improvements to South Abbey National schools, Youghal. Messrs. Robert Walker & Son, architects, 17 Southmall, Cork.

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IRELAND.—Oct. 24.—For erection of a culvert at the entrance to labourer's cottage at Damma, Kilkenny. Mr. Kieran Comerford, clerk to Rural District Council.

IRELAND.—Oct. 28.—For supply and erection of electrical plant and apparatus for the town of Limerick. Mr. William M. Nolan, Town Hall, Limerick.

IRELAND.—Oct. 28.—For works for the Great Northern Railway Company (Ireland), viz. stationmaster's house at Moira; cottage at Broomhedge, near Belfast; coal store at Cookstown. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Oct. 28.—For renewal of portion of the roof over the Belfast passenger station, for the Great Northern Railway Company (Ireland) Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Nov. 2.—For erection of mortuary chapels, caretaker's house, boundary walls, pillars, gates and railings, and for drainage, forming walks and grave spaces, &c., at the new cemetery at Ballycraig, Larne. Mr. W. G. Young, clerk, Town Hall, Larne.

ISLEWORTH.—Oct. 29.—For additions to the nurses' house at the Brentford union infirmary at Isleworth. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

KEIGHLEY.—Oct. 31.—For erection of a public free library, North Street, Keighley. Messrs McKewan & Swan, architects, 3 Newhall Street, Birmingham.

KING'S LYNN.—Oct. 30.—For erection of a screw pile light beacon on the west bank of the Vinegar Middle Cut, King's Lynn Channel. Mr. W. D. Ward, clerk, Tuesday Market Place, King's Lynn.

LANCASTER.—Nov. 4.—For erection of an isolation hospital, for the Lancashire Asylums Board. Messrs. Willink & Thicknesse, architects, 14 Castle Street, Liverpool.

LANGPORT.—Oct. 26.—For a preliminary borehole and test pumping in connection with the Kingsbury waterworks. Mr. Edward Q. Louch, clerk to the Rural District Council, Langport, Somerset.

LEAMINGTON.—Oct. 22.—For erection of a goods shed, with offices, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

LEEDS.—Oct. 21.—For erection of board-room and offices at Hill Top, Armley. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

LEEDS.—For erection of a weaving shed at Holbeck. Messrs. Walter A. Hobson & Co., architects, 82 Albion Street, Leeds.

LEIGH.—Oct. 22.—For deepening the well at the waterworks, Leigh-on-Sea. Mr. F. E. Smee, surveyor, 12 West Smithfield, E.C.

LEVESHULME.—Nov. 2.—For refuse destructor installation. Mr. James Jepson, surveyor, Levenshulme.

LEYTON.—Oct. 26.—For supply of a multipolar dynamo of about 450 kw capacity and a balancer. Mr. F. Harman Lewis, engineer and manager, Electric Light Works, Cathall Road, Leytonstone, Essex.

LINCOLN.—Oct. 21.—For erection of a pair of cottages at Skegness, near the county police station. Mr. James Thropp, county surveyor, 29 Broadgate, Lincoln.

MALLOW.—Nov. 6.—For erection of labourers' cottages, out-offices, with piers and gates, in various electoral divisions in the district. Mr. Maurice Regan, clerk to Rural District Council.

MANCHESTER.—Oct. 25.—For erection of stone-breaking sheds, &c., in Tame Street, Ancoats. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Nov. 6.—For supply of electric plant at the Stuart Street generating station and sub-stations. Mr. G. F. Metzger, engineer, Electricity Works, Dickinson Street, Manchester.

MIDDLETON.—Oct. 21.—For erection of a car-shed and workshops at Middleton, Lancs. Mr. A. L. Barber, secretary, Donington House, Norfolk Street, Strand, W.C.

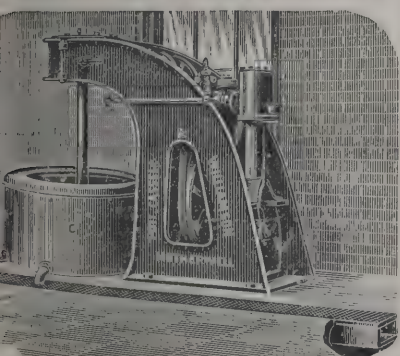
NORTHFLEET.—Oct. 28.—For erection of a car-shed, workshops and offices, &c., at Northfleet, Kent. The Secretary, British Electric Traction Co., Ltd., Donington House, Norfolk Street, London, W.C.

NOTTINGHAM.—For improvement and extension of the High Pavement higher elementary school, Stanley Road. Mr. A. N. Bromley, architect, Prudential Buildings, Queen Street.

OTLEY.—Oct. 29.—For construction of a reservoir, &c., in the parish of Middleton, about 2½ miles from Ilkley station. Mr. John Waugh, engineer, Sunbridge Chambers, Bradford.

PLAISTOW.—Oct. 22.—For erection of forty double tenement houses for the working classes at Eve Street. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

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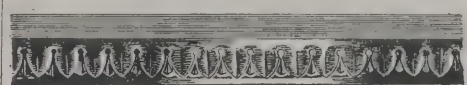
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PRESTON.—Oct. 24.—For erection of Primitive Methodist schools, Fylde Road, Preston, Lancs. Mr. W. H. Dinsley, architect, Cleveland Street, Chorley.

RADCLIFFE.—Oct. 21.—For construction of a stone retaining wall to the river on the Market Place, alteration and renovation of the exterior of the market hall and erection of lock-up shops on the northerly side of the Market Place. Mr. W. L. Rothwell, surveyor, Council Offices, Radcliffe.

ROCHFORD.—Oct. 28.—For erection of women's wards at the workhouse infirmary, Rochford, Essex. Messrs. Greenhalgh & Brockbank, architects, Bank Chambers, Southend-on-Sea.

SALFORD.—Oct. 25.—For supplying and fixing two galvanised roofings to the sheds adjoining the union infirmary, Hope, near Eccles. Mr. F. Townson, clerk, Union Offices, Eccles New Road, Salford.

SCOTLAND.—Oct. 23.—For additions and alterations on the offices (8 to 16 St. Giles Street) of the Edinburgh and District Water Trustees. Messrs. D. & J. Bryce, architects, 131 George Street, Edinburgh.

SCOTLAND.—Oct. 23.—For erection of new Gordon Arms hotel at Inverurie. Mr. George Gray, architect, 133 High Street, Inverurie.

SCOTLAND.—Oct. 24.—For erection of semi-detached villas at Nairn. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—Oct. 25.—For additions to Golfview private hotel, Nairn. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—Oct. 26.—For construction of roof and erection of boundary wall at Coplawhill dépôt. Mr. John Young, general manager, 88 Renfield Street, Glasgow.

SCOTLAND.—Oct. 28.—For erection of eastern district hospital in Duke Street, Glasgow. Mr. John Baxter, 243 St. Vincent Street.

SCOTLAND.—Nov. 1.—For construction of service reservoir, filters, pure-water tank, &c., at Fairmilehead, Edinburgh, about 2 miles south from the Morningside Road station on the suburban railway. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

STOCKTON-ON-TEES.—Oct. 23.—For raising roof and structural alterations to warehouse on Corporation Wharf. Mr. A. B. Crosby, town clerk, Borough Hall, Stockton-on-Tees.

SWINDON.—Nov. 2.—For erection of a chimney-shaft, 60 feet high above ground line, at the isolation hospital, Gorse

Hill, Swindon. Messrs. Halliday & Rodger, architects, 14 High Street, Cardiff.

SWINDON.—Nov. 12.—For supply of electric machinery and plant as follows:—Contract No. 2, comprising three Lancashire boilers and economiser, two jet condensers, feed pumps, pipework and accessories; (3) water-cooling tower; (4) 10-ton overhead travelling crane. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

THORPE-LE-SOKEN.—Oct. 26.—For alterations and erection of an infants' room at the Rolph schools, Thorpe-le-Soken, Essex. Mr. Chas. E. Butcher, architect, 3 Queen Street, Colchester.

TOTTINGTUN.—Oct. 30.—For erection of a building for caretaker at the Council's sewage works at Woolfold, Tottington, Lancs. Mr. L. Kenyon, surveyor, 33 Chapel Street, Tottington.

TRIMDON GRANGE.—For slating and furnishing of Trimdon Grange Literary (new) Institute, Durham. Mr. J. Edmonds, 20 Plantation, Trimdon Grange.

WALES.—For completion of the Catholic church, Merthyr Tydfil. Mr. Joseph S. Hansom, architect, 27 Alfred Place West, South Kensington, S.W.

WALES.—For alterations to Cory's Corner, Bute Street, Cardiff, and rebuilding 99 Bute Street adjoining. Messrs. Jones, Richards & Bugden, architects, 95 St. Mary Street, Cardiff.

WALES.—For restoration (including steelwork and fire-proof floors and roof) of grain warehouse in Working Street. Messrs. Jones, Richards & Bugden, architects, 95 St. Mary Street, Cardiff.

WALES.—Oct. 22.—For deepening a shaft at Garth, Cardiff. Apply to Elders Navigation Collieries, Ltd., Merchants' Exchange, Bute Docks, Cardiff.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysymedw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Oct. 22.—For erection of a clergy house, Fitzhamon Embankment, Cardiff. Messrs. Veall & Sant, architects, Cardiff.

WALES.—Oct. 24.—For laying and jointing of about 2,000 yards of 6-inch, 4-inch and 3-inch gas mains at Treherbert and Porth. Mr. Octavius Thomas, engineer and manager, Gas and Water Offices, Pentre, R.S.O., Glam.

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WALES.—Oct. 24.—For strengthening the walls of the Carnarvon Guildhall with channel irons, &c., and the erecting thereon of a framed steel girder foundation and clock tower. Mr. Edward Hall, borough surveyor and engineer, Guildhall, Carnarvon.

WALES.—Oct. 25.—For alterations to Carmel Methodist chapel, Aberavon. Mr. G. P. Davies, architect, Station Road, Port Talbot.

WALES.—Oct. 28.—For erection of a farmhouse near Stalling Downs, Cowbridge. Mr. Daniel Evans, architect, Eastbourne House, Cowbridge.

WALES.—Oct. 28.—For erection of schools at Brynteg, near Wrexham, and also for alterations and additions to existing schools. Mr. R. J. Kendrick, clerk to Broughton School Board, 1 Henblas Street, Wrexham.

WALES.—Oct. 29.—For taking-down and rebuilding chimney-stacks on old infirmary, Griffithstown, Pontypool. Mr. T. Watkins, clerk, Union Offices, Pontypool.

WALES.—Nov. 1.—For erection of laboratory and fittings at the county school, Cardigan. Mr. James Stephens, clerk, 3 Green Street, Cardigan.

WARRINGTON.—Oct. 24.—For reconstruction of an existing filter-bed, the conversion of the existing service reservoir into two filter-beds, and the construction of a covered service reservoir, approach roadway and culvert, stream diversion, drains, waterman's cottage and boundary walls, an outfall sewer from the village of Hatton, &c. Mr. James Deas, engineer, Municipal Offices, Warrington.

WEST KENSINGTON.—Oct. 29.—For erection of a sub-district post office. Copy of the conditions and form of contract may be seen on application to Mr. Henry Tanner, H.M. Office of Works.

WESTMINSTER, S.W.—Nov. 12.—For erection of public offices at Westminster, for the Commissioners of H.M. Works and Public Buildings. Conditions and form of contract may be seen on application at H.M. Office of Works, &c, Storey's Gate, S.W.

WHITLEY.—Oct. 26.—For erection of business premises, Whitley, Northumberland, for the North Shields Industrial Society, Ltd. Messrs. Hope & Maxwell, architects, Saville Street, North Shields.

WILLENHALL.—Oct. 28.—For erection of a disinfecting station at the sewage outfall works, Willenhall, Staffs. Mr. T. Edgar Fellows, surveyor, Town Hall, Willenhall.

WILLESDEN.—Oct. 22.—For additions to hospital for infectious diseases. Mr. O. Claude Robson, engineer, Public Offices, Dyne Road, Kilburn, N.W.

WIMBLEDON.—Nov. 20.—For construction of new concrete sewage precipitation, sludge and storm-water tanks, sludge pumps, cast-iron mains, valves, floating arms, penstocks, &c., at the sewage works, Durnsford Road. Particulars may be obtained at the Council Offices, Broadway, Wimbledon.

WOLVERHAMPTON.—Oct. 22.—For stripping and reroofing of the art gallery in Lichfield Street. Particulars may be obtained on application at the borough engineer's office.

YORK.—Oct. 25.—For enlargement of the head post office, York. Conditions and form of contract may be seen on application to the Postmaster at York.

THE NATIONAL REGISTRATION OF PLUMBERS.

THE Mayor of Derby in presenting certificates of registration to several master and operative plumbers at the Guild Hall, Derby, on Saturday last, said that the objects of the National Registration of Plumbers were such as to commend themselves to every thoughtful person. For some years the organisation had been seeking powers in Parliament to legalise the present voluntary system of registration to enable those employing plumbers to be satisfied that they were employing thoroughly efficient workmen. These objects appeared to him to be thoroughly laudable, and he sincerely hoped that they would be achieved. As the health of the people depended so much upon the plumbers, it was obviously necessary that the work should be carried out by competent and practical men.

Alderman Richard Hind, mayor of Stockton-on-Tees and renter warden of the Plumbers' Company, referred to the work of the organisation, particularly with regard to the technical education of young plumbers. The object was to get more carefully educated and well-trained workmen through the medium of the technical classes.

Sir Thomas Rowe, M.P., in expressing his sympathy with the objects stated that he had been closely connected with the building trade all his life, and was fully alive to the importance of plumbingwork as affecting public health. He was entirely in sympathy with the Plumbers' Registration Bill, and would support the measure on all occasions.

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M. Bridgman 2,583 18 10
Dart & Pollard 2,607 13 7
E. ELLIS & SON, Bideford (*accepted*) 2,318 13 6

BLYTH.

For sewerage works at Newsham, Blyth, Northumberland.
Mr. ROBERT GRIEVES, surveyor.
G. Thornton & Co. £168 15 0
W. Carr 145 15 6
J. McLaren 132 2 0
J. ROBSON, 2 Tankerville Place, Newcastle-on-Tyne (*accepted*) 124 3 9

BRIDLINGTON.

For erection of Central schools and caretaker's residence in Oxford Street. Mr. J. EARNSHAW, architect, Bridlington.
J. Rennard £16,533 19 0
Palframan 15,451 6 9
J. B. Allatt 15,043 11 0
Taylor, Ltd. 14,566 16 0
E. Corner 14,397 0 0
A. Lyon 14,298 0 0
Blackburn & Son 14,095 0 0
Smallwood & Shaw 13,978 2 0
A. Gardam 13,780 2 0
J. H. Hudson 13,496 5 8
J. Sawdon 13,495 0 0
T. Spink 12,930 1 5
SAMPSON & SIDDALL, Bridlington (*accepted*) 12,590 11 11

For heating the Central schools with hot water (low pressure).
Mr. J. EARNSHAW, architect, Bridlington.
G. Tankard £640 3 6
Green & Son 587 10 0
A. Dougill & Co. 559 0 0
E. Marsh 550 0 0
Taylor & Co. 547 0 0
Nettleship 545 0 0
G. Newsum & Co. 536 4 8
Newton, Chambers & Co. 518 0 0
Atkinson 500 0 0
J. Craven 488 0 0
T. & F. EVERINGHAM, Bridlington (*accepted*) 463 0 0
Harrison & Co. 438 12 10

DARTFORD.

For repair of dolphins in connection with pier at Long Reach.
W. C. Reeder & Co. £256 0 0
J. Shelbourne & Co. 180 0 0
Chafen & Newman 152 0 0

DOVER.

For sewerage works in Bridge Street and Granville Street.
Mr. HENRY E. STILGOE, borough engineer.
D. & G. Keeler £433 6 8
Austin & Lewis 427 16 9
G. Munro 414 18 5
G. LEWIS & SONS, Widred Road (*accepted*) 385 0 0

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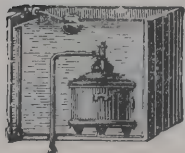
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For street works, Seventh Avenue, Bush Hill Park; Fotheringham Road, Enfield. Mr. COLLINS, surveyor.

Fotheringham Road.

Griffiths & Co., Ltd.	£2,920	0	0
C. Bloomfield	2,876	0	0
E. J. Betts	2,600	0	0
ADAMS, Wood Green (accepted)	2,549	0	0

Seventh Avenue.

Griffiths & Co., Ltd.	761	0	0
C. Bloomfield	728	0	0
E. J. Betts	717	0	0
ADAMS (accepted)	699	0	0

ERITH.

For construction of a galvanised iron building to accommodate 12 patients, as an extension of the infectious diseases hospital.

C. Leather & Sons	£963	0	0
G. Finney & Son	950	10	0
Lightfoot & Ireland	893	0	0
W. T. Crosse	881	16	9
Portable Building Company, Ltd.	850	0	0
Humphreys, Ltd.	840	0	0
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T. J. Hawkins & Co.	750	0	0
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G. G. Page	711	0	0
C. B. Roberts & Co.	700	0	0
Mitson & Co.	650	0	0
McMANUS, London (accepted)	647	0	0

FARNHAM.

For street works in Sturt's Road, Beaufort Road, Thorold Road, Wykeham Road, Sumner Road, St. James's Terrace and Southview. Mr. R. W. CASS, surveyor.

BENTHAM & CO., Streatham Hill (accepted) £1,279 0 0

HARROGATE.

For sewerage works at rear of Royal Crescent. Mr. F. BAGSHAW, borough surveyor.

DICKINSON & LONG, 3 Albert Terrace (accepted) £120 11 6

GRIMSBY.

For paving the 8-foot street at the rear of 2 to 42 Wellhome Road West with tarred macadam. Mr. H. GILBERT

WHYATT, borough surveyor.

Gilbert & Kirtton	£135	1	6
T. R. Waterman	131	8	6
North of England Asphalte Co.	121	7	7
J. Medforth	96	4	0
A. BRUNTON & SON, Hull (accepted)	96	2	0

HANDSWORTH.

For sewerage works in Booth Street and Crockett's Road. Mr. H. RICHARDSON, surveyor.

F. Nicholls & Co.	£315	0	0
J. Biggs	289	16	0
G. Trentham	259	14	0
J. McKay	240	0	3
Curral, Lewis & Martin	218	8	0
J. WHITE, jun., Boulton Road, Handsworth (accepted)	207	14	6

HEWORTH.

For erection of a stone wall at Windy Nook Board school.

J. WILKINSON, Felling (accepted) £115 0 0

HINDLEY.

For sewerage works in fields at Hindley Green and Hindley Mill Lane, Lancs. Mr. A. HOLDEN, surveyor.

Accepted tenders.

H. & F. Lomax, 15-inch pipe sewer	£279	14	0
Cowburn & Sons, 12-inch sewer	124	6	0

HORBURY.

For street works in Shepstye Road and New Street, Horbury, Yorks. Mr. C. R. SPENCER, surveyor.

W. Jowett	£522	17	2
M. Hall	407	18	0
T. & R. Dews	385	2	0
G. Hampshire	367	0	0
H. Hindle	365	18	6
S. Coop & Son	350	0	0
T. WAINWRIGHT & SON, Horbury (accepted)	312	15	0

HULL.

For erection of offices and warehouse in Collier Street. Mr. ERNEST WHITLOCK, architect, 26 Scale Lane, Hull.

E. GOOD & SONS, LIMITED, Alpha Works, Main Street (accepted).

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For erection of a house for Mrs. M. T. MacGinley, Killybegs (Donegal). Mr. E. J. TOYE, architect, Strand, Londonderry.

D. McCAFFERY, co. Tyrone (*accepted*) . . . £1,907 0 0

For boring and sinking a well at Darkley, co. Armagh.
J. HILL, Airdrie (*accepted*).

For constructing sewers and settling tanks in the village of Dervock, Ballymoney.

T. O'BRYAN, Dervock (*accepted*) . . . £147 10 0

LITTLEBOROUGH.

For erection of a memorial drinking fountain.

RAWSON, Bury (*accepted*) . . . £150 0 0

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For erection of labourers' dwellings (four blocks) in Newnham Street, Kew Street and Arley Street.

W. HALL, 60 Christian Street (*accepted*) . . . £20,689 0 0

For supply of condensing plant at the Lister Drive generating station.

WHEELER CONDENSER & ENGINEERING CO.,
179 Queen Victoria Street, E.C. (*accepted*) . . . £4,457 0 0

For alterations at 32 Earle Road.

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LONG EATON.

For painting, whitewashing, &c., of a four-storey factory and a three-storey factory, two cottages, engine-house, boiler-house, out-offices, &c., in Leopold Street, Long Eaton.
Mr. JOHN SHELDON, architect, Darley House, Long Eaton

W. T. Goldsworth . . . £207 7 6

C. Flitt . . . 204 0 0

T. Gutteridge . . . 196 0 0

J. White . . . 195 0 0

H. Moore . . . 191 10 0

Rossel & Son . . . 184 10 0

W. WHITE, Bondgate, Castle Donington (*accepted*) . . . 139 10 0

MELTHAM.

For sewerage works in Golders Lane, Meltham, Yorks.
Messrs. J. R. ABBEY & SON, engineers, New Street, Huddersfield.

R. TURNER, Holmfirth (*accepted*).

MORPETH.

For construction of the Font reservoir on the river Font, nine miles from Morpeth, for the supply of water to Tynemouth and North Shields.

G. LAWSON (*accepted*) . . . £165,000 0 0

NEWHAVEN.

For removal of the old and the supply and fixing complete of a new penstock at the outfall of the sewer, Fort Road Newhaven, Sussex.

G. Waller & Co. . . . £56 0

H. Chambers . . . 49 0

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PENGE.

For street works in Tremaine Road. Mr. HERBERT W. LONGDIN, surveyor.

J. Mowlem & Co. . . . £1,596 0

Bentham & Co. . . . 1,478 0

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G. Wilson & Co. . . . 1,458 0

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Johnson & Phillips	£5,720	0 0
Brush Electric Co.	5,596	0 0
Mather & Platt	4,624	0 0
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Johnson & Phillips	3,750	0 0
For supply of condensing plant, boiler feed-pump and steam and water piping, &c.		
Maxim Electrical and Engineering Co.	£4,465	0 0
Fraser & Son	3,905	0 0
Alley & Maclellan	3,581	0 0
D. Stewart & Co.	3,566	0 0
BABCOCK & WILCOX (accepted)	3,485	3 0
or supply of multiple-core, covered lead feeder and network cable and accessories for mains extensions.		
Anchor Cable Co.	£14,265	19 2
St. Helens Cable Co.	12,910	2 1
Glover & Co.	12,068	4 5
Henley & Co.	11,872	19 2
Western Electric Co.	11,017	3 4
BRITISH INSULATED WIRE CO (accepted)	10,522	10 4

ROYSTON.

or erection of an infectious diseases hospital to contain eight beds, and an administration block and outbuildings, at Royston, Herts. Messrs. MACALISTER & TENCH, architects, Cambridge.		
W. Bell & Sons	£4,270	0 0
Oak Building Co.	4,096	0 0
F. J. Bailey	3,999	0 0
Coulson & Lofts	3,823	0 0
F. B. Thackray & Co.	3,745	0 0
T. H. Coleman	3,663	0 0
Gimson & Co.	3,577	0 0
W. H. Hinkins	3,518	0 0
Stones & Skelton	3,480	0 0
Jacklin & Co.	3,371	0 0
G. A. WARD & SONS, Melbourn, Cambs (accepted)	3,314	4 0

SCOTLAND.

For sewerage works and constructing sewage purification works for the villages of Cleland and Omoa, Lanark.		
Forest & McLeod	£3,268	4 11
Henderson & Duncan	2,813	7 2
D. & J. Stratton	2,711	3 7
R. C. Brebner & Co.	2,710	3 9
Blair & White	2,659	14 4
T. Crawford & Son	2,636	2 5
A. Duncan	2,627	6 7
W. G. Flitt	2,599	17 7
A. Frew & Co.	2,560	11 4
R. Riddugh	2,557	12 5
A. Cameron	2,500	3 3
W. Clarkson	2,499	6 4
Craik & Tuckwell	2,396	13 5
J. Johnstone	2,356	9 8
D. SCOTT, Edinburgh (accepted)	2,149	12 10

SELLY OAK.

For erection at the workhouse, Selly Oak, of receiving wards, porter's lodge and new pavilion, stores and offices, workshed, &c. Messrs. WHITWELL & SON, architects, Birmingham.		
J. Harley & Son	£21,350	0 0
W. Bishop	21,254	0 0
Barnsley & Sons	20,988	0 0
W. J. Stone	20,552	0 0
W. Robinson	20,370	0 0
Smith & Pitts	20,320	0 0
B. Whitehouse & Sons	20,269	0 0
R. M. Hughes	19,071	0 0
W. H. GIBBS, King's Heath (conditionally accepted)	18,700	0 0

SHREWSBURY.

For enlargement of premises in Castle Foregate. Messrs. A. B. & W. SCOTT DEAKIN, architects, 12A Pride Hill, Shrewsbury.		
W. Pace	£710	0 0
T. Morris & Sons	645	0 0
G. Bullock	637	0 0
G. H. Bickerton	618	0 0
E. H. Nicholas	565	17 0
T. PACE, Coton Hill (accepted)	565	0 0

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H. Morris	£133 8 0
J. T. Ball	120 10 0
F. Sleath	116 10 4
J. FREER, Barrow-on-Soar, near Loughborough (accepted).	114 10 0

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For repairs at the Clifton Arms. Messrs. CHART, SON & READING, architects, Croydon.	
Bacon	£159 0 0
Smith & Sons	150 0 0
Akers & Co.	143 0 0
G. GOULDER, Croydon (accepted)	138 15 0

SOUTHEND-ON-SEA.

For erection of a bank, West Cliff, Southend. Messrs. GREENHALGH & BROCKBANK, architects, Bank Chambers, Southend.	
Sheffield Bros.	£3,997 0 0
Howard Bros.	3,712 0 0
F. & E. Davey	3,347 0 0
DAVIS & LEANEY, Southend (accepted)	3,267 0 0
W. Stubbs	3,096 0 0

STANWAY.

For erection of a laundry at the workhouse. Mr. G. H. PAGE, architect, Trinity Chambers, Colchester.	
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E. West	847 0 0
G. Grimwood & Sons	807 0 0
T. Ward	800 0 0
W. Chambers	795 0 0
J. McKay	772 0 0
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For street works in Berkeley Street. Mr. A. R. RIDOUT surveyor.	
C. J. Nevitt	£275 7 7
G. Steele	273 11 0
J. BASSETT, Strongford Tittensor, Stoke-on-Trent (accepted)	252 0 0
A. Brown	249 15 7

WALES.

For erection of a residence at Caerau, near Cardiff. Mr. GEORGE E. HALLIDAY, architect, Cardiff. Quantities by Mr. JOHN W. RODGER, surveyor.

W. Cox	£3,350 0
S. Shepton & Son	3,086 0
D. Thomas & Son	2,895 0
E. R. Evans Bros.	2,887 7
G. Couzens & Co.	2,737 7
F. Couzens & Co.	2,698 0
Britton	2,660 0
A. W. CADWALLADER, Cardiff (accepted)	2,650 0
F. Bevan	2,431 0

For erection of chancel, vestries, organ-chamber and porch of St. Teilo's Church, Cardiff. Mr. GEORGE E. HALLIDAY, architect, Cardiff. Quantities by Mr. JOHN W. RODGER, Cardiff.

W. T. Morgan	£2,334 0
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A. Handyside & Co., Ltd.	5,545 10
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For erection of an additional classroom and cloakroom accommodation at Powell's Charity Endowed schools, Llantilio Crossenny, near Abergavenny. Mr. B. J. FRANCIS, architect, Abergavenny.

J. JONES, Llandetherme (accepted)	£255 0
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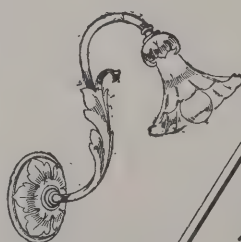
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WARE.

For erection of a house.	Messrs. R. & A. G. THOROWGOOD,		
architects, Hertford.			
Brown & Son		£1,603	0 0
E. Clark		1,397	15 0
A. Long		1,120	0 0
R. Green		1,081	10 0
J. Copsey		935	0 0
H. Shephard		925	0 0
W. LAWRENCE, Ware (accepted)		918	10 0

WEST HAM.

For widening Church Lane.			
G. Wilson		£878	0 0
Griffiths & Co.		825	0 0
A. W. Porter		806	18 9
Coxhead		746	3 9
W. Manders		730	11 3
Surveyor's estimate (accepted)		635	0 0

WOOLWICH.

For rebuilding premises on river bank.	Mr. J. ROWLAND,		
architect, Old Charlton.	Quantities supplied.		
G. Munday & Sons		£1,283	0 0
Balaam Bros.		1,210	0 0
Kirk & Randall		1,033	0 0
H. L. Holloway		1,027	0 0
S. J. Jerrard & Son		989	0 0
Thomas & Edge		967	0 0
H. Sanford & Co.		842	0 0

WIMBLEDON.

For street works, viz. (1) Ashcombe Road, Section 2; (2) Raymond Road.	Mr. C. H. COOPER, surveyor.		
	Raymond Road.		
S. Kavanagh		£922	0 0
J. Mowlem & Co.		817	0 0
T. Watson		811	0 0
W. Adamson		750	0 0
T. Adams		649	0 0
E. ILES & SON, North Wimbledon (accepted)		605	0 0

Ashcombe Road.

S. Kavanagh		1,599	0 0
W. Adamson		1,479	0 0
T. Watson		1,354	0 0
J. Mowlem & Co.		1,106	0 0
E. Iles & Son		1,023	0 0
T. ADAMS (accepted)		997	0 0

Received too late for Classification.

BARKING.

For erection of an entrance lodge, tool-house, building, and cart-shed at the recreation ground, Longbridge Road, Barking, Essex.	Mr. C. F. DAWSON, architect.		
T. Robey		£1,215	0 0
T. C. Garbett		1,194	10 0
S. Hind*		998	0 0
* Accepted subject to sanction of Local Government Board.			

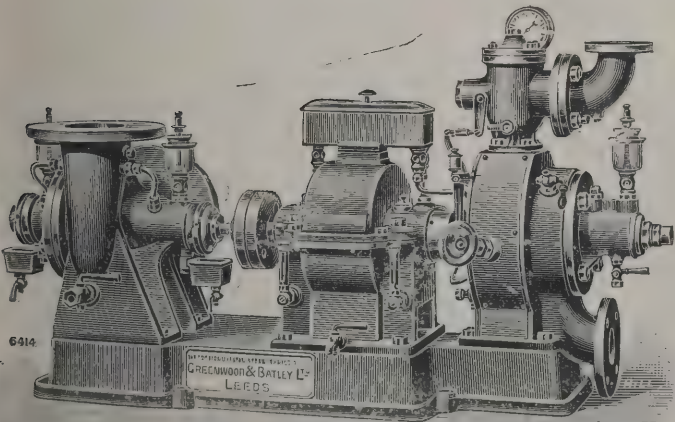
ILFORD.

For heating Downhall school, Aldborough Road, Ilford.	Mr. C. J. DAWSON, architect.		
Dargue & Griffiths		£413	10 0
W. H. Tilley		407	10 0
Jones & Attwood		369	0 0
Werner, Pfeleiderer & Perkins, Ltd.		363	10 0
E. Logsdon		358	0 0
Beaven & Sons		344	0 0
Lighting Corporation, Ltd.		326	0 0
MacIntosh & Sons		315	0 0
Christie & Sons		313	5 0
PALOWKAR & SONS, 90 Queen Street, Cheap-side, E.C. (accepted)		294	10 0

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CAMBERWELL.

For erection of stables for twenty-three horses, cartshed, stores, &c., at the Glengall Road wharf.

Castle Bros.	£4,049	0	0
L. R. Ensor (General Builders, Ltd.)	3,987	0	0
J. Barker & Co, Ltd.	3,830	0	0
Pollard & Brand	3,780	0	0
Spencer, Santo & Co.	3,744	0	0
Foster Bros.	3,742	0	0
D. Gibb & Co.	3,700	0	0
J. Smith & Sons, Ltd.	3,699	0	0
F. G. Minter	3,697	0	0
B. E. Nightingale	3,685	0	0
Edwards & Medway	3,660	0	0
W. Wallis	3,644	0	0
Balaam Bros.	3,636	0	0
G. Newton	3,612	0	0
Thomas & Edge	3,595	0	0
W. Pattinson & Sons	3,586	0	0
H. H. Hollingworth	3,583	0	0
R. & E. Evans	3,499	0	0
T. G. Sharpington	3,498	0	0
W. Smith	3,498	0	0
J. O. Richardson	3,487	0	0
Wilkinson Bros.	3,424	0	0
W. Pearce	3,400	0	0
H. L. Holloway	3,392	0	0
Hobbs Bros.	3,366	14	0
C. Ansell	3,366	0	0
G. PARKER, Peckham (accepted)	3,315	0	0

STOCKTON-ON-TEES.

For erection of business premises, No. 41 High Street, Stockton-on-Tees, for Mr. C. G. Walker, of Broadstairs. Mr. EUGENE E. CLEPHAN, architect, St. Nicholas's Chambers, Newcastle-on-Tyne. Quantities by architect.

Thomas Hanby	£1,938	18	3
R. Johnson & Son	1,914	0	0
R. Blackett & Son	1,900	0	0
A. J. Cook	1,887	0	0
Craggs & Benson	1,824	0	0
J. Davison	1,810	0	0
T. BROWN, The Square, Stockton-on-Tees (accepted)	1,698	0	0

TRADE NOTES.

WE have pleasure in announcing that Messrs. George Jennings, Ltd., of Lambeth Palace Road, have received the appointment of sanitary engineers to H.M. the King.

MR. E. E. LOGSDON, for many years manager to Messrs. J. Jones & Sons, has commenced business as a heating engineer at 34 Rosebery Avenue, London, E.C.

WE have been asked to state that the whole of the floor in connection with the new Wesleyan chapel at Wolverhampton referred to in our last issue, was laid with the patent wood block flooring supplied by Mr. Roger L. Lowe, of Farnworth.

THE Town Hall, Keswick, has lately been fitted by Messrs. John King, Ltd., engineers, Liverpool, with their well-known "Small Tube" hot-water heating apparatus, and also their patent tubular exhaust ventilators.

A LARGE clock was started at Heeley Church, Sheffield, by the Master Cutler on Saturday, October 12. The clock strikes the hours, shows time on two dials each 5 feet 6 inches across, and has been generally made to Lord Grimthorpe's designs by John Smith & Sons, Midland Clock Works, Derby.

MESSRS. DIESPEKER & CO., of 57-60 Holborn Viaduct, inform us that they laid a great quantity of their mosaic paving at the St. Pancras Baths, to the opening of which we referred last week. This paving was, we understand, chosen by the architects from among those of a great number of other competitors, and not only has it been laid in the entrances and corridors, &c., but in the bath-ponds and gangways.

MESSRS. D. BROWN AND JOHN CHALMERS, trustees of the late Mr. Thos. Chalmers, started the new clock presented to the Town Hall, Annan, Dumfries, on the 10th inst. The clock shows the time upon four external illuminated dials, 5 feet 6 inches each in diameter, and strikes the hours on a large bell. There are automatic apparatus for turning on and off the lights, Lord Grimthorpe's gravity escapement and other improvements. The clock was made and fixed by Messrs. Wm. Potts & Sons, clock manufacturers, Town Hall Buildings, Newcastle-on-Tyne, and Guildford Street, Leeds.

THE "Robertson Sunshine" lamp for electric lighting is a new bulb introduced by the General Electric Company, Ltd., which has been specially designed to meet the requirements of those consulting engineers and local authorities who are taking up the now well-recognised system of lighting streets with incandescent electric lamps. It has a detachable opal glass

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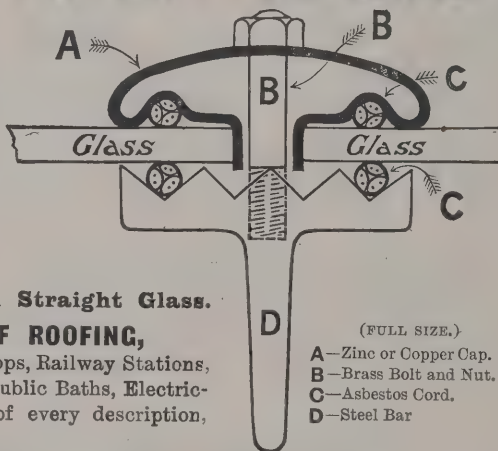
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reflector, by which a great saving is effected, and two short rigid filaments in series for 200 to 250 volt supplies. The lighting of side streets by means of incandescent lamps is becoming more and more frequent, and in the majority of cases where the authorities prefer to adapt the present gas lamp-post, something is wanted to throw the light clearly in both directions. The "Robertson" lamp seems to fulfil this purpose very effectively if two are used. The lamp is specially made to stand vibration.

THE Clamond gas radiator is a new heating apparatus now being introduced by the Kern Burner Company, Ltd. The principle of this radiator is the application of the well known Kern incandescent gas-light burner system to gas fires, which, it is claimed, solves the problem of heating by gas without vitiating the atmosphere. The proportions of air and gas have been carefully worked out so as to arrive at exactly that mixture which has been found to produce almost perfect combustion, at the same time giving a powerful radiant heat. The Clamond gas radiator is designed either to fix in the ordinary coal fire-grate or is supplied fitted in ornamental stove casings to be connected with the chimney-flue. It is supplied in a variety of sizes and patterns, and also in a form suitable for use with gas stoves of other makers.

MESSRS. OETZMANN & CO. ask us to mention that, having purchased a large furnishing stock at a discount of 47½ per cent., they are holding a special sale at their establishment at 62-79 Hampstead Road, W., including a vast assembly of charming and useful furniture, carpets, ironmongery, china,



glass, &c., of all kinds, at bargain prices. Among the more notable items of the sale are many excellent dining-room suites, including the "Torrington," in oak, walnut, or mahogany; a pleasing old-world design 4 feet 6 inches sideboard; chairs

in leather or frieze velvet; dinner waggons, &c.; the Sheraton design "Newlyn" suite in inlaid mahogany and leather; and a capital "Wilmington" suite in carved antique oak. There is also a quaint and commodious hall fitment, with cupboards, drawer, umbrella stand, &c., in fumigated oak, with copper fittings. In bedroom suites will be found the "Wargrave," in the Sheraton style in mahogany; the "Kintore" suite, in solid green-stained ash or fumigated and inlaid oak; the "Waterville," in hazelwood, &c. A host of dainty furniture, Sheraton cabinets, tables, &c., for the drawing-room, many beautiful bordered carpets, &c., of all sizes, and a great quantity of silver, electro-plate, china and glass items will be found in the special sale catalogue.

BUILDING AND BUILDERS.

ON Saturday afternoon the foundation-stone was laid of a new north transept in connection with the restoration and enlargement of Wednesbury parish church. The total cost of the new building is expected to be from 1,500*l.* to 1,600*l.*

THE foundation of the new church (St. Aidan's) for the Clonliffe district of St. George's parish, Drumcondra, was laid by His Grace the Lord Archbishop of Dublin on Saturday afternoon at 3.30 P.M. The site for the church occupies a commanding position on Drumcondra Road, at the corner of Dargle Road.

MEMORIAL-STONES of the new schools and classrooms which are being erected adjacent the Congregational church, Park Road, were laid on Friday. The schools are but a portion of a large extension scheme, which is to include the enlargement of the church, the provision of a ladies' parlour, a caretaker's house, &c., the whole to cost 4,200*l.*

IN connection with the erection of the new school by the Dalkeith Burgh School Board on the site of the old Dalkeith Ironworks, 12,000*l.* has been obtained from the Public Works Loan Board to meet the cost. The loan is to be repaid in forty years in equal half-yearly instalments. The Board have decided to give the new school the name of the Dalkeith Burgh King's Park public school.

THE foundation-stone was laid by Mr. Beerbohm Tree on the 10th inst of a new theatre which is in course of erection at Tunbridge Wells, admirably situated right in the centre of the

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picturesque town. The exterior of the Opera House (as it is to be called) will present a massive and solid appearance. It is to be carried out in red brick with Bath stone dressing, while the façade is to be in the Georgian style of architecture. Inside, everything will be effected with the idea of comfort and general convenience. There will be 120 orchestral stalls, 180 tip-up seats in the dress-circle, 170 pit stalls, 500 seats in the pit proper, and 300 seats in the upper of the two semicircular galleries. Thus the total seating accommodation of the house will be 1,200. The proscenium opening will be 28 feet by 30 feet, and the depth of the stage 38 feet by 50 feet. In addition to the private boxes, the sides of the house immediately adjacent to the stage will be occupied by rows of ornamental pipes for the proposed organ, which is to cost 200l. The decorations will be in Louis XIV. style. The new building will cost over 30,000l., and is being built to designs prepared by Mr. J. P. Briggs.

VARIETIES.

THE new church of St. Michael and All Angels erected at Northfield, Rotherham, has been consecrated.

A SPECIAL meeting of the Brierley Hill Urban Council was held on Monday evening, when Mr. Lailey, Heysham, was appointed surveyor out of thirty-two applications.

THE new Sacred Heart chapel and sacristies which have been added to the church of SS. Peter and Paul, North Street, Wolverhampton, as a memorial to the late Canon Duckett, who was the pastor of the church for forty-seven years, were dedicated yesterday. The cost of the work reaches 1,700l., towards which about 960l. has been obtained.

THE opening address of the sixth session of the Glasgow Technical College Architectural Craftsmen's Society was delivered by the president, Mr. Jas. M'Kissack, on Friday, the 11th inst. The subject of his remarks, "The Conditions and Problems of Modern Architecture," was treated in a manner well calculated to be of value to both craftsman and architect. The syllabus placed in the hands of the members should prove conducive to a most profitable session.

THE handsome buildings which have been erected in Eleanor Street, Grimsby, to form the offices of the Grimsby School Board, were formally opened on the 9th inst. On the ground floor is a large general office, clerks' private office, type-writing room, inquiry lobby entrance and staircase hall; on the

first floor a large board-room and various other apartments, whilst the top storey is utilised as the caretaker's residence. The fittings are chiefly of oak, and there is electric light throughout. The cost is about 4,000l.

THE opening meeting of the winter session of the Lancashire and Cheshire Antiquarian Society was held on Friday night at the museum, Owens College, Manchester. The president (Professor Boyd Dawkins), the Hon. Auberon Herbert, Mr. R. D. Darbishire, Mr. H. T. Willett, and others exhibited interesting specimens of palæolithic implements. The principal address upon the exhibits was given by Professor Boyd Dawkins, who particularly called attention to the large number of palæolithic implements to be found at Savernake, in Wiltshire, and pointed out that many of the exhibits were not artificial but natural flints, and were therefore of no value as evidence of the age of man. Addresses were also given by Mr. R. D. Darbishire and Mr. Mark Stirrup. There was a large attendance of members and their friends.

THE autumn council meeting of the Bristol and Gloucestershire Archaeological Society was held at the Guildhall, Bristol, under the presidency of Alderman F. F. Fox. After the minutes of the last meeting had been read, the usual reports from the treasurer, secretary and editor were given, and the editor announced that the second part of the volume of Transactions for 1900 was now completed, and would be issued in about a fortnight's time. The reports upon the spring meeting at Almondsbury and the summer meeting at Chipping Campden were most satisfactory. The question as to the districts to be visited in 1902 was then discussed, and it was finally decided to hold the spring meeting at Banwell and the summer meeting at Tewkesbury.

ON Saturday last the well-known music publishers, Messrs. J. Curwen & Sons, Limited, gave an "At home" at their new premises, 24 Berners Street, Oxford Street, W., when a large and representative company attended to inspect the establishment and to enjoy the excellent programme of music given in the Purcell Room on the first floor. The premises, which were formerly a private residence, have been altered to meet their new requirements by Mr. Harrison Townsend, architect, of 29 Great George Street, Westminster, and he appears to have successfully utilised every available inch of space, while several features of the old house have been preserved, among others the original scrolled iron and mahogany staircase rails. The whole has been rendered fireproof, radiators for heating purposes have been fitted all over the establishment, and the

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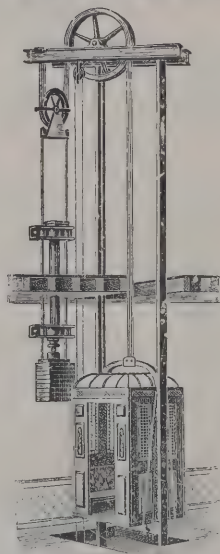
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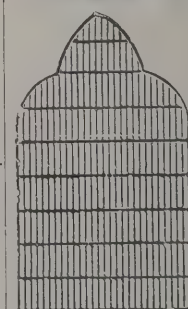
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electric light has been installed, which, with other improvements, renders the premises a thoroughly up-to-date business centre.

THE autumn general meeting of the Association of Municipal Corporations will be held in London on Wednesday next. In the agenda it is proposed to discuss an important question in the constitution of the Association, viz. "That the Council shall consist of twenty-five county boroughs, twenty-five ordinary boroughs, the City of London, and one metropolitan borough for every three such boroughs members of the Association." The town clerk of Longton will call attention to the refusal of the Board of Education to allow the non-county boroughs to have powers to carry out the Technical Instruction Acts. It is also proposed to memorialise the Government to lessen the cost of private bills by including many of their clauses in public bills, and to consolidate and amend the laws relating to public health. A representative from Harrogate will move that one uniform series of by-laws be adopted in boroughs for regulating the driving of motor-cars, and Newbury asks for the exemption of secondary and Board schools from rating.

AN ALTERNATING CURRENT DIRECT-COUPLED ELECTRIC LIFT.

THE Safety Lift and Elevator Company (M. T. Medway, 10, Rolt Street, Deptford), belongs the credit of making and erecting the first direct-coupled alternating lift. Hitherto it has been impossible with an alternating current to make a motor that could be coupled direct to a lift gear, and start with full load, or even a part of it. It has been necessary, therefore, in towns where the electrical installation is on the alternating current system, either to keep the motor running day, driving with belts or a set of pumps to work an hydraulic lift, both of which methods make the working a very expensive item. Mr. Medway can now supply reversible alternating current direct-coupled lifts with all the advantages of those worked by continuous current, taking up even less room and at a very small additional cost, a most important advantage derived from this system being that power is only used when the lift is running. They have also perfected a patent alternating magnetic brake, of which they are the patentees and sole manufacturers, and also of the patent standard electric lift controller for continuous current direct-coupled lifts.

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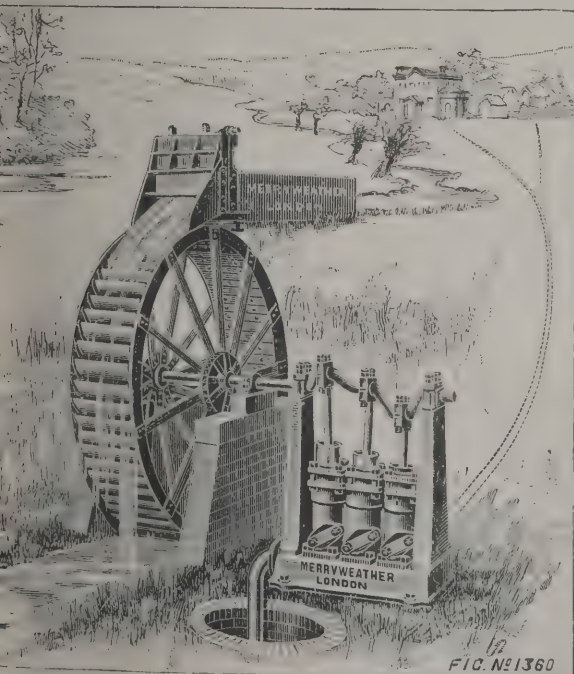
WE have much pleasure in announcing that the well-known firm of Hodkin & Jones, artificial stone and concrete paving slab manufacturers, of Sheffield, has been registered as a limited liability company with a capital of 40,000*l.* in 1*l.* shares.

Messrs. Hodkin & Jones, Ltd., are erectors of fireproof constructions and general concrete workers, manufacturers of patent plaster partitions, designers and layers of marble mosaic, importers of foreign rock asphaltes. The business has hitherto been carried on by H. Hodkin, H. H. Hodkin, W. Jones, A. Hodkin, W. Hodkin and E. Hodkin, at Havelock Bridge Works, Queen's Road, Sheffield. Qualification, 500*l.* Solicitors to the company, Messrs. Alderson, Son & Dust, Sheffield. Registered offices, Havelock Bridge Works, Queen's Road, Sheffield.

WORKMEN'S COMPENSATION ACT.

A PAPER was read on Tuesday at the annual meeting of the Law Society by Mr. Muir-Wilson, Sheffield, on "The Workmen's Compensation Acts, 1897 and 1900." He discussed the practical results of the working of the Acts as affecting the workman, suggested different views that might be taken of questions that have been disposed of on appeal, and invited discussion upon points on which the statutes might be amended and amplified. The paper was a careful review of the numerous questions which have arisen under the Acts in question, and a statement and discussion of the leading cases bearing upon them. In the matter of appeals, he said that the present conditions under which an appeal might be brought was presenting a scandal so serious as to excite the contempt of the ordinary lay mind. There were forty-nine appeals undisposed of in the list. The last day on which any appeal was heard was March 13, 1901, since which time the arrears had been accumulating. It had been whispered that the House of Lords and the Court of Appeal were a little at variance over the treatment of appeals in the Lords. One hoped otherwise. The practical point, however, was that many appeals had been standing in the list for months, and would continue to do so in view of the Long Vacation, thereby causing a denial of justice to litigants. The amendments of the statute which he suggested were as follows:—(a) In section 1 (1) omit the words "by accident," and so dispense with

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the doctrine laid down in the cases of *Hensey v. White*, *Lloyd v. Sugg*, *Timmins v. Leeds Forge* (supra), and similar decisions as to the element of fortuity; (b) section 7 (1): repeal the whole of this sub-section and extend the Act to all workmen as defined in the Employer's and Workmen's Act, 1875 (38 and 39 Vict. c. 90, s. 10), and include seamen and apprentices. Amend (2) to be in accord with this proposed alteration. (c) Schedule 1 (13): confer upon the workman a right to apply to fix a lump sum as redemption of any weekly payment. (d) Schedule 2 (8): omit all provisions dealing with registration of a "memorandum of agreement."

UNSAFE BALCONIES.

THE Manchester city coroner (Mr. S. Smelt) lately held an inquest on the body of Fanny Dewhurst, of 22 Upper Chorlton Road, Whalley Range, who was killed in Deansgate by the fall of a large stone from a balcony.

Thomas Latham, a clerk employed by Messrs. Leigh & Sillavan, 66 Deansgate, stated that his firm occupied the first floor. A small balcony opened from a window over the entrance. Three ladies occupied it in order to view the procession in connection with Lord Roberts's visit. Some paper had been put over the stonework to protect the ladies' dresses. The balcony had been used three or four times a year by people viewing processions.

After the procession had passed he went to remove the paper, which had been held in position by several metal weights, weighing in all about 25 lbs. The last of the pieces would weigh about 5 lbs. As he was lifting this up the stone slipped from under and fell into the street. So far as witness could see there was nothing to hold the stone in position, and he was astonished that it had kept in position so long.

The Coroner said the cause of the mischief was the insecurity of the stone. Owners of property frequently neglected to see whether balconies and other such places were in a safe or unsafe condition. They seemed to think that they would last for ever, and it did not occur to them that material would wear out. The accident, he said, showed how necessary it was that buildings should be regularly inspected. If the accident had happened within a short time of the stone having been fixed in position, he would not have hesitated to have advised the jury to send the responsible person for trial on a charge of manslaughter. In this case, however, the stone had

been in position for more than twenty-five years. At the same time, he added, a person ought not to be allowed to come into a court and say, "I did not know it was dangerous." If they had examined it they would have found it out. He only wished that the law was strong enough to allow him to send some one for trial. If the jury were satisfied that it was an accident, he would take their verdict to that effect.

A Juror: If there are so many unsafe places in this city there ought to be a representation to the Corporation.

The Coroner: I will make it my duty to speak to the town clerk or the Lord Mayor.

The jury then returned a verdict of accidental death.

THE WIDENING OF PICCADILLY.

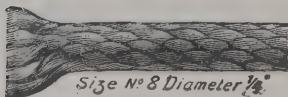
THE improvements committee of the London County Council have prepared another report on the proposed widening of Piccadilly between Hyde Park Corner and Walsingham House. It is stated that the opponents of the scheme either misapprehend the Council's proposals or are entirely ignorant of the facts. The committee therefore recapitulate the main points as to the origin of the scheme, the need for the improvement, the circumstances of the Council's approval and the action of the First Commissioner of Works. The objections to the scheme, as stated in the petition forwarded on October 1 by Mr. Basil Holmes, which bore about 350 signatures in all are referred to. The wording of the petition and the arguments used therein entirely confirm the committee's opinion as to the existence of a complete misapprehension. The committee, in their report, follow closely the case presented by their chairman, Mr. William Davies, in his letter published in the *Times* of August 17 last. The widening will, they say, affect fifty-seven trees, of which forty-two will be preserved untouched in their present position. Of the fifteen remaining, seven, which are young, will be transplanted into tree pits in the new footway, thus leaving only eight trees which will not be preserved. Some of these eight are already dying, and would have to be cut down before long, but even these will be left until it appears in the progress of the works that they must be removed. The Council have arranged to plant nearly twenty new trees on the footway near Hyde Park Corner. All the work connected with the trees will be executed under the supervision of the expert officers of the Commissioners of Works, and that department will maintain

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all the trees in the widened thoroughfare. It is contended by the committee that the improvement is part of a complete scheme, and is intimately connected with the widening of Kensington High Street between Church Street and Cumberland Place at an estimated gross cost of 405,000*l.* and an ultimate net cost of 87,500*l.* Much of the property needed for that improvement has been acquired, and the paving and other works will be put in hand at the earliest moment possible. Moreover, the Council has obtained powers for the widening of St George's Place, Knightsbridge, between William Street and Wilton Place, at an estimated net cost of 32,000*l.*, and by arrangement with the Ecclesiastical Commissioners, who are the freeholders of nearly all the property needed for the improvement, the work will be put in hand next year. In regard to the eastern portion of the thoroughfare, the committee have not yet succeeded in making an arrangement with the Commissioners of Woods and Forests, who are the freeholders of most of the property on the northern side of Piccadilly between Piccadilly Circus and Sackville Street. The committee add that negotiations have recently been opened by a syndicate for the acquisition of Walsingham House and the Bath Hotel, with a view to the erection of a new building upon the site. It may thus be possible in the near future to secure the setting back of the new frontage in order to widen this part of Piccadilly. The line already laid down by the Council for the widening westward from Walsingham House lends itself to the continuation of the widening eastwards whenever an opportunity occurs. If arrangements can be made at a future time for extending the widening as far as Arlington Street the light traffic passing eastwards along the widened portion of Piccadilly and desirous of reaching Charing Cross or the City can pass along Arlington Street and St. James's Street and into the Mall where that thoroughfare is continued into Charing Cross, with the result that the congestion of traffic in Piccadilly near the circus will no doubt be largely relieved.

The committee observe that there are several objections to Mr J. Wolfe Barry's scheme. It would inevitably destroy nineteen fine trees in the Green Park, and more than fifty trees (nearly thirty being large ones) in Hyde Park, because the top of the tunnel would be only about 3 feet from the surface of the park, and there would, therefore, not be sufficient room for the roots of the trees. The scheme would necessitate the appropriation of about 1.4 acre of the Green Park and .82 of an acre of Hyde Park, whilst the Council proposes to acquire only .63 of an acre of the Green Park. Moreover, Sir J.

Wolfe Barry proposes to deliver the traffic through his subway on to the north side of Knightsbridge and the south side of Piccadilly, which must involve a crossing of the traffic. The open approaches would be unsightly, and, with all its imperfections, the estimated cost of the subway (110,000*l.*) is nearly four times as much as that of the Council's proposal, which latter has the approval of Sir E. Bradford and other experts in regard to the relief of the congested traffic. Another scheme which has occupied the attention of the committee is that of Mr. F. W. Verney, who suggested the carrying of the north and south traffic under Piccadilly by a subway from Park Lane to Grosvenor Place. This scheme the committee regard as likely to provoke considerable opposition because of its interference with the portion of Hyde Park near Stanhope Gate and also with the western portion of the garden of Buckingham Palace. They do not see their way to advise the Council to undertake at the present time either of the suggested subway schemes, but they point out that the Council's scheme would not prevent the construction of a subway at any future time.

The committee mention that, in connection with the scheme, they have, with the approval of the First Commissioner, arranged for the construction of a gate near Walsingham House, so that fire-engines may, if occasion requires, be driven into the Green Park near the houses abutting upon the eastern side.

In conclusion, the committee state:—All arrangements have been made for obtaining the materials and for proceeding with the work, the only thing necessary being the formal consent of the First Commissioner to proceed with the scheme, which, it will be remembered, was initiated by him. The works manager has informed us that the postponement of the work by the First Commissioner during the recent recess has involved a loss to the Council of several hundreds of pounds sterling. This is partly owing to the fluctuations of the market for the various materials, and partly because arrangements were made for the work to be proceeded with at the same time as some alterations to the roads at Millbank, but instead of being able to use the hardcore from Millbank for filling at Piccadilly the Millbank scheme has had to be charged with the cost of carting away a portion of the hardcore to shoot, and there is no doubt that the Council will now have to pay for a supply of hardcore for Piccadilly when it is needed. We are advised that further postponement of the work will increase the loss to be incurred. If the formal consent of the First Commissioner for the work to be proceeded

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with be given within two or three weeks from the present time, we shall direct the manager of the works department to put the work in hand forthwith. This will insure the completion of the work within about four months from the time of commencement, and therefore at least two or three months before the Coronation. We have sought an interview with the First Commissioner with the view of obtaining his formal consent for the work to be proceeded with, and have received a letter from the secretary of H.M. Office of Works as follows:—

H.M. Office of Works: October 7, 1901.

Sir,—I have seen the First Commissioner and informed him of the wish of the improvements committee to discuss with him the present position of affairs in regard to the Piccadilly scheme. Mr. Akers-Douglas will be happy to meet the committee, but he is anxious to postpone a meeting for a fortnight or three weeks, and he trusts that to this there will be no objection.—I remain, yours faithfully,

ESHER.

As soon as we have had the interview with the First Commissioner two or three weeks hence we shall report to the Council any arrangement made, but having regard to the correspondence which has recently taken place in the newspapers, and to the petition to the Council to abandon the scheme, we have thought it right to report at once all the facts thus fully to the Council.

COUNCILLORS AND CONTRACTS.

ACCORDING to the *Leeds Mercury*, Mr. Wm. Towler, of the Globe Foundry, Leeds, has called public attention to the fact that Mr. Joseph Henry, though a member of the Leeds Corporation, now holds a sub-contract for the supply of ironwork required for the sewerage of the city, and gravely asserted that this is not in the public interest.

It may be remembered that at the close of last year Mr. Towler made a similar complaint.

We have asked Mr. Henry for his answer to Mr. Towler's strictures, and he has given it.

In an interview with one of our representatives, he said:—

For some five or six years before I became a member of the City Council I supplied ironwork used in sewerage by direct contract to the Corporation, and after I was elected I supplied similar material, which has long been a specialty of our works, to sewerage contractors. This was done quite openly, and

until the recent Manchester case I had not the least notion that, as a member of the City Council, I was not entitled to do so.

As soon as the Manchester case transpired, I went to the town clerk (Mr. Jeeves) and consulted him. I explained what I had been doing, and asked him whether I was or was not warranted by law. His answer was in the negative. That being so, I took steps the same day to release myself from the obligation I was under to continue supplying the material to the Corporation contractor. When the work in hand had been completed, the supply was stopped. Knowing that, as a member of the Corporation, I could enter into such contracts either directly or indirectly, if my works were made a limited liability company, I had them so transformed.

Subsequently new sewerage contracts were advertised and let. The successful contractor invited tenders for the supply of the required ironwork. The invitations were not confined to Leeds firms, but given to others elsewhere. My firm, among others, sent in a tender.

A short time afterwards the contractor came to see us. He said that he could not accept our tender, it being too high, but that if we would accept the lower price of a Lancashire firm he would be willing to place the order with us. His reason for doing this, he explained, was that we were on the spot and knew exactly the kind of material required.

We requested time to consider the matter and he gave us twenty-four hours. Next morning he wired saying that he must have an answer by noon, and although the price was an exceedingly low one, we accepted it. Had we not done so the work would have gone to Lancashire, and Leeds would have lost it. My answer to Mr. Towler is that in so doing I had a legal warrant.

As I have shown, this was a sub-contract, but my firm being a limited company, is entitled to accept a contract directly from the Corporation, just as some other limited companies with members in the Corporation, have supplied it with large quantities of material.

The following is Mr. Towler's reply:—

I have read the statement made in an interview with a representative of the *Leeds Mercury*. This statement is also the nature of a reply to mine of Friday last.

I wish to point out the disparity between the two versions of his reasons for converting his firm into a limited liability company. In the letter written to the *Yorkshire Post*, on the spur of the moment, he says his object was to give his son an

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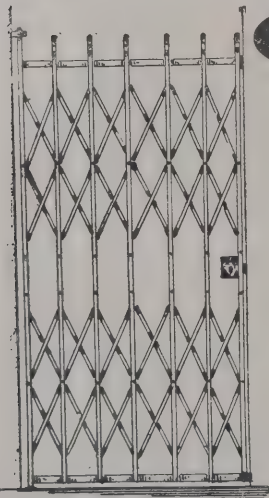
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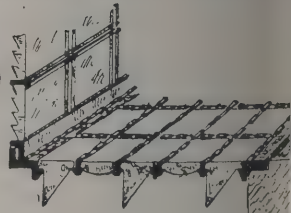
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manager an interest in the business. But evidently Councillor Henry, on further consideration, thought that the public of Leeds were, after all, too intelligent to swallow that story; that they were capable of putting two and two together; that they would compare dates and facts, namely, the refusal to supply goods to the contractor because of its illegality in December; the instructions for conversion into a limited liability company in January; the new sewerage contract to be placed in April; the registration of the new company in May; and the acceptance by Joseph Henry, Limited, of a contract with the new sewerage contractors on May 9.

And now we have the "new and revised version"—vide *Leeds Mercury* of Monday—which I take to be the true version, and which says:—"Knowing that as a member of the Corporation I could enter into such contracts, either directly or indirectly, if my works were made a limited liability company, I had them so transformed." Candour is a virtue, but it is less virtuous when one feels that the true and outspoken statement is the only one likely to be accepted.

My first statement in my letter to the *Yorkshire Post* of the 11th inst. was that in some years the amount of business done by Councillor Henry for the Corporation was about 5,000*l.*, or 500*l.* a week. In his reply he does not deny this fact, but in a postscript to his letter simply says that the amount supplied by Joseph Henry, Limited, last month was 54*l.* 2*s.* 9*d.* Does he really believe that the people of Leeds are so gullible as to suppose that he would go to the trouble and expense of converting his firm for a mere flea-bite of 54*l.* per month?

Now, to show the amount of trade that he has done, I collect that when the Hunslet Road sewers were being constructed, and when he got the contract for the cast-iron girders, total of about 600 tons, he considered the order so great that he had to take a small foundry in Elland Road on purpose to make them; and in this specially acquired foundry he turned out on an average two girders, or 48 cwt., per day, and all this in addition to the standing contract for gully grates, manholes, &c.

Everybody who knows anything at all about this matter, knows perfectly well that 54*l.* per month is anything but a true and fair representation of the average amount of trade in this contract. The statement is most misleading.

In my letter to the *Yorkshire Post* I dealt solely with the principle of this sub-contracting, and demonstrated very clearly, I think, that by this system the ratepayers are not likely to get the best value for their money.

The inside influence of the contractor would be subversive of the ratepayers' interests, as his personal interests would be likely to have the first consideration. I showed, further, that goods supplied by a councillor might be passed that would not be accepted from an outside contractor. A man ought not to put himself in the position, even a little remotely, of being both buyer and seller. I think that is most reasonable. If the interests of buyer and seller clash, human nature being what it is, we may expect where the advantage will lie.

In his reply, both in the *Mercury* and the *Post*, Councillor Henry evades my arguments altogether. He does not mention the ratepayers' interests for a moment; but the whole and sole question with him is, "Can I get my pound of flesh legally?" I do not say that he cannot. I have never argued the matter from the point of legality, but from the "taint-of-suspicion" standpoint. I think the trend of Councillor Henry's replies will convince the public that with him personal considerations are first and foremost, and the interests of the ratepayers come in a very bad second.

Mr. Henry should try to be consistent. In his letter to the *Yorkshire Post* he says that my references to the mere contractors were a tissue of misstatements. What did I say? Simply four things—

1. That he tendered for the ironwork.
2. That his price was too high.
3. That he, being a Councillor, was allowed to amend and reduce his price.
4. That he secured the contract.

How, pray, does Mr. Henry attempt to refute my statements? Why, in his statement to the *Mercury* he becomes a witness on my side. This is what he says:—

1. "My firm, amongst others, sent in a tender.
2. "He could not accept our tender, it being too high; but if we would accept the lower price of a Lancashire firm he would be willing to place the order with us.
- 3 and 4. "Although the price was an exceedingly low one, we accepted it."

Where, I ask, are any misstatements?

I may say that the order would not have gone to Lancashire, but that I have seen another quotation equally low, and I know it would have come to Leeds if Mr. Henry had missed it.

Having replied to Councillor Henry's very dissimilar statements, I should like to mention another matter, in regard to which the ratepayers ought to have an explanation. When

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the aforementioned Hunslet Road sewers were to be constructed or enlarged, 500 girders were required for the work. The first drawings and specifications showed them to be made of rolled steel. Tenders for these steel girders were got in by the city engineer from a number of iron merchants. One merchant, on calling to look after the order, was given to understand that it was his, and that the order would be sent on in a few days. Not having heard anything further, he called again and was told that an alteration had been made, and that the girders were going to be of cast-iron instead of rolled steel. On hearing of this, I asked to be allowed to give a tender, but was informed that the contractor for sewerage had them to find.

Now, I want to ask this question, Why is it, when these girders were to be in steel, which Mr. Henry does not make, the Corporation were asking for tenders direct; but when the plans were suddenly changed, and they were to be made in cast-iron, a material of which Councillor Henry is the manufacturer, applicants were then informed that they were to be supplied by the sewerage contractors?

I remember that about the time when this change was made Mr. Boyd, Councillor Henry's Liberal colleague in the representation of Holbeck, was made chairman of the streets and sewerage committee. I think all this looks very suspicious, and that undue influence is brought to bear upon these matters. Some explanation is due also to the fact that the cost of steel girders was to be about 500 at 2*l.* 10*s.* each—1,250*l.*, whilst the price for the cast-iron girders, which Mr. Henry made, was as follows approximately:—500 girders, each 24 cwt., at 4*s.* per cwt.—2,400*l.*, a difference in the cost of about 1,150*l.* This amount would have to be paid for Councillor Henry's goods more than the steel girders would have cost.

GLoucestershire Engineering Society.

THE annual general meeting of the Gloucestershire Engineering Society was held last week. Mr. Hamilton Kilgour, the president, occupied the chair.

The hon. secretary (Mr. J. C. Cooke) read his annual report, which stated that the Society had concluded a satisfactory session under the presidency of Mr. H. Kilgour. The lectures which had been delivered had afforded the members much basis for research and ample opportunities for improving themselves by obtaining a thorough knowledge of the various details of the science of engineering, and had also greatly

furthered the advancement of the Society. Inspection visits of an instructive character had been paid to various engineering works, and had been highly appreciated by the members. The Council desired to thank those gentlemen who had contributed papers during the past session, and also the various firms for permitting inspection by the members of their various works and appliances. The Council had furnished each member and associate with the question for prize paper competition, but had not met with much encouragement. The Society numbers over one hundred members, and it was considered not unreasonable to repeat the request that answers should be supplied and also short papers to last about ten minutes on the respective works under the immediate notice of the members.

The report was adopted, an opinion being expressed that a good number of papers would be sent in for the prize competitions.

Mr. Walton (treasurer) read his report, which showed that the past year, which was started with a deficit of 26*l.* 5*s.* 8*d.*, had terminated with a balance in hand of 8*s.* 9*d.* There were 19 honorary members, 43 members and 43 associates, giving a total of 105.

The report, which was considered highly satisfactory, was adopted.

The librarian (Mr. M. Rowles) presented his report, which was adopted.

One or two members complained of the difficulty of getting a review of the technical papers given by members of the Association to the Public Library, and the Chairman, on behalf of the Council, promised to try and remedy this.

The election of officers was next proceeded with. Mr. H. Kilgour was re-elected president, and all the vice-presidents with the addition of Mr. J. E. Humpidge, were re-elected. A similar compliment was paid the following officers, viz.:—Hon. secretary, Mr. J. C. Cooke; hon. treasurer, Mr. W. Walton; hon. librarian, Mr. M. Rowles. The Council was elected as follows:—Messrs. W. R. Voller, R. Turner, T. Atkinson, F. Trow, P. Grant, W. J. Bache and E. J. Cullis. Mr. W. Hobbs was re-elected hon. auditor.

Votes of thanks were passed to gentlemen who had read papers, to the various firms who had allowed the members to visit their works, and to officers of the Association.

On the proposition of Mr. W. R. Voller, seconded by Mr. W. Wells, 10*l.* was voted for the purpose of suitable literature for the members.



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THE WEEK.

There is a fatality about Christ Church Cathedral in Lincoln. In old records relating to it we commonly meet expressions which are suggestive of ruin, and the carvings and engravings made from time to time during the greater part of the nineteenth century excite surprise that the building was not treated as a dangerous structure and closed. Unfortunately ruin is again impending. What was considered at the time as "a fortune" was expended on the restoration. But the late Mr. STREET, believing that Caen stone was used by the thirteenth-century masons in the work, specified its adoption. In the small volume by WILLIAM BUTLER, "The Cathedral Church of the Holy Trinity, Dublin" (London: ELLIOT STOCK), we are informed "that the time is rapidly approaching when Christ Church Cathedral, so far as the outside is concerned, will be a sad-looking ruin, upon which some one will have, sooner or later, to expend a very large sum of money." Only a quarter of a century has elapsed since the restoration. Christ Church somehow excited more prejudice against Mr. STREET than any of his other works. It offended Irish susceptibilities by suggesting that the monuments should be broken up for concrete, and when advice was neglected he relegated them to the crypt. It is not, however, the place to discuss his treatment of the cathedral, but much information on the subject will be found in Mr. BUTLER'S guide-book, which, strange to say, is the first attempt of the kind. Dublin is not enterprising in the publication of books, and many varieties, as well as e-books, are neglected. The history will be found to be more novel than that of any of the English cathedrals. BUTLER understands architecture, and his descriptions may be trusted. He has avoided the usual cicerone's error, and does not expatiate over trifling objects. The book is interesting for many reasons.

The *Journal of the Sanitary Institute* for October is devoted to the attempt to prepare a report on cowls and terminals which was undertaken "many years ago" by a committee consisting of Sir DOUGLAS GALTON, Mr. W. E. and Mr. ROGERS FIELD; Mr. J. WALLACE PEGGS afterwards added. Experiments were made in order to establish a standard value, but it was necessary to systematise them, and it cannot be said the work is ever likely to be completed. The name of Mr. ROGERS FIELD, who led the other members, is most closely connected with the attempt, and the vast number of pages of figures always be evidence of his industry. But although W. N. SHAW, of the Meteorological Office, has endeavoured to put order into what he calls "a selection of the fragmentary attempts," it cannot be said that sanitary science is enriched by the multitude of figures. As they may have their use to the meteorologists of a later age in recording the direction of wind, but, considered from the architect's standpoint, they resemble the characters of a dead language to which there is no key. It was proposed to test cowls and terminals, every one expected that those in use would be selected and described in such a way as to prevent any error of identification. But instead we have miniature models, without any clue to the manufacturers, and as the appliances correspond in their external appearance, there is no security against error, and the observations leading to an inefficient cowl may easily be applied to one which well serves its purpose. We doubt if manufacturers in all cases be able to identify their work. An architect imagines the tables will guide him in the selection of a cowl, but is certain of disappointment. Some of the tests have gone through in 1884, and they must relate to cowls which are no longer to be found in the same form. There are improvements in ventilators as in other appliances, but in the experiments it might be supposed that the cowl was to remain inactive until the report was published. Another circumstance which must create uneasiness is that there is rarely any mention of the diameter of the cowl or of the size of the terminal. From the position occupied by the Sanitary Institute we expected a volume of

a different quality, and one in keeping with those already issued. Probably the good sense of the Council would have allowed the observations to remain in their chaotic state. The contribution of 2,000*l.* by Mr. ROGERS FIELD to defray expenses is, we surmise, the explanation of the publication which, unhappily, can have no more than a misleading result, in spite of the good intentions and the hard work of its authors.

A MEMBER of the Town Council of Leek, Mr. JAMES CORNES, has endeavoured to solve the urgent problem of providing cheap houses by erecting fifty cottage dwellings in the town which can be let at an inclusive rental of 5*s.* 6*d.* and 5*s.* 9*d.* a week. He contemplates increasing the number to 300. In each there are three bedrooms and a bathroom. The plans were prepared by Mr. J. T. BREALEY. There is a small garden in front with varnished oak palings. The walls are of red brick and the roof is covered with red tiles. Each dwelling, which is of two storeys, has a bay window to the two principal rooms. The difference between the 5*s.* 6*d.* and the 5*s.* 9*d.* houses is that the latter have a passage leading from the front to the middle room. In the former houses the front door opens directly into the main living room or parlour, which measures 13 feet in width by 14 in depth, and is 9 feet 9 inches in height. The large window area afforded by the bay gives adequate light. One of the recesses by the side of the fireplace is fitted as a cupboard. The bay is provided with a flat broad sill for window gardening. A door opens from the end of the sitting-room opposite the entrance and leads past the bedroom staircase to the kitchen. The latter has a tiled floor, and measures 9 feet by 13 feet. It is furnished with three doors, apart from the entrance, opening into the scullery, scullery-bathroom and back yard respectively. The scullery is reached by a short flight of steps; it contains a broad stone shelf, and is ventilated by a tube having an inlet from the yard and an outlet running up through the roof and acting on the way as an outlet for the smallest bedroom. The kitchen has a heating and cooking range which serves several purposes, and there is a second grate, which can also be utilised. Much ingenuity is seen in the heating arrangements. The bathroom is fitted with a full-sized iron enamelled bath, which is supplied with hot water by a pipe running from the range boiler, and with cold water through a shower-bath sprinkler fixed overhead. Owing to the proximity of the kitchen fire the bathroom is kept warm in cold weather. A portion of the scullery and bathroom walls are built in glazed brick, while the floor is of concrete, with a cement face finish. When the rents are considered, the cottages are remarkable for their convenience, and they are free from drawbacks which are common in cheap dwellings. The Leek experiment merits attention, and there is more likelihood of success by imitating Mr. CORNES'S example than by holding meetings and protesting against the indifference of the Local Government Board.

GOVERNMENT officials in England have always the power of forgetting at command, but in France the Ministers and their subordinates are also endowed in the same manner. An example of it has lately occurred. The discoveries of M. and Mme. DIEULAFOY at Susa have excited nearly as much interest as those of BOTTA at Nineveh. The frieze of enamelled tiles representing archers was as much of a surprise as the human-headed bulls when first seen in Paris a half-century ago. For a time the two explorers received the recognition which they merited, but admiration does not long endure in France. The Government sent M. DE MORGAN, who worked so well for French interests in Egypt, to continue the exploration commenced by M. and Mme. DIEULAFOY. He has lately sent a cargo weighing about eighteen tons of various objects found by him to the Louvre, and which are said to be mainly inscribed bricks. Although they are so closely connected with the discoveries of M. and Mme. DIEULAFOY, and a part, if not all, will be placed in the room adorned with the archers' frieze, it has not occurred to the official mind that any communication should be made to those who have so much interest in preserving the character of the existing Susa collection.

BATTLE ABBEY.

TENNYSON prefaced his drama "Harold" by a sonnet, which records his feelings when, on visiting Battle Abbey in 1876, he compared the beauty of the peaceful garden with the momentous struggle on the same spot:—

Here rose the dragon-banner of our realm,
Here fought, here fell, our Norman-slander'd king,
O Garden blossoming out of English blood!
O strange hate-healer Time! We stroll and stare
Where might made right eight hundred years ago.

Historical evidence is too strong to admit of any doubt about the connection of the abbey with the victory of WILLIAM THE NORMAN. TENNYSON adopts the theory that the CONQUEROR after his victory resolved to build a commemorative church.

I vow to build a church to God
Here on the hill of battle; let our high altar
Stand where their standard fell.

But the more common belief is that WILLIAM'S vow was taken prior to the battle. Each army had seen



The South Saxon battlefield on which the fate of England was determined presents no sign of war, and in that respect it corresponds with most others throughout Europe. If it were not for tradition, the title Battle Abbey would be incomprehensible. There is no sign of war, and instead of monastic ruins a large and remarkably well-preserved mansion, only partly Gothic, meets the eye of the visitor.

the summit of a small hill. The Normans were at Telham Hill, which, according to the Ordnance Survey levels, is 286 feet above the sea. The ground slopes downwards and rose again, and at the village of Peasemarch the level is 294 feet. The two leaders were, therefore, standing at almost the same height. Between them was Sen-lac or Sanguelac, the lake of blood. The English

obtained the commission to bring monks from Marmoutier. They were not satisfied when they saw the place for which they had left the banks of the Loire. WILLIAM wished to see the high altar of the abbey church on the site where the standard of HAROLD was erected, but the foreigners shivered at the thought of living on so desolate a ridge. They implored the grant of a more eligible site. WILLIAM, however, was not the man to alter a selection which had been determined by so many causes. As to objections about the absence of quarries to provide building stone, he expressed his readiness to employ his ships in importing stone from France.

The progress of the monastery was slow. The builders did not work with the heartiness which raised so many buildings amidst difficulties compared with which those at St. Martin's Abbey were only trifles. It was not until 1094, or about a quarter of a century after the commencement of the works, that the church was ready for consecration. The accommodation sufficed for only fifty monks instead of about one hundred and twenty as contemplated. WILLIAM THE CONQUEROR was not spared to see so partial a completion of his "Ecclesia Sancti Martini de Bello," but he could not have anticipated that in less than five hundred years after his victory the memorial high altar was destined to be overthrown by order of another English sovereign, and that in our time a few broken stones amidst ferns and other vegetation are all that can recall it.

The monks of St. Martin's Abbey would have been more than human if they did not esteem themselves above their English brethren. They were representatives of the monarch, and while he lived could count on his protection. After the death of the first abbot it was necessary to consecrate a successor. The abbey being in the diocese of Chichester, the bishop considered the ceremony should take place in the cathedral. The monks complained to WILLIAM, and the bishop was ordered to go to the abbey and to consecrate the abbot before St. MARTIN'S altar. Bishop STIGAND was no friend of the new rulers, and as a further proof of the king's displeasure it was decreed that the usual hospitality was not to be shown to him or his attendants.

The privileges of the abbey were unique. The abbot exercised supremacy within a limit of three miles; his tenants were exempted from tolls in other districts, and a market could be held every Sunday in the village. Once within the abbey gateway a malefactor was safe, and wherever the abbot met a criminal on the way to execution he could grant his pardon. EDWARD III. endeavoured to dispute the last mentioned right, but without avail. The abbot was also a lord of Parliament.

The Norman monastery was in course of time considered to be unsuited to a community which stood so high in royal favour. A license to castellate was granted by EDWARD III. The fine gateway was erected in 1338 by Abbot RETLYNGE, and all who have seen it must have wondered at its preservation. Well would it be for many English buildings if so little need of restoration was required as in the gateway and many other parts of Battle Abbey. The principal losses are the statues which once occupied the niches.

The history of the alterations in the abbey must be traced from the style of the work which remains. In 1538, when the suppression of monasteries was ordered, Battle Abbey possessed a revenue which has been estimated as equal to 10,000*l.* present currency. It was therefore a tempting prize to courtiers. But the commissioners were disappointed when they found there was so little portable treasure in the buildings. According to one official, "the implements off householde be the worste that ever I se in abbaye or priorye; the vestyments so old and so bayre worne, raggede and torne, as youre lordeshyppes wolde not thynke; so that very small money can be made of vestrye." Another declares that he never saw so beggarly a house, nor such filthy stuff, and he would not give 20*s.* for all the hangings. As from the abbot's accounts new vestments, plate, &c., had been purchased not long before, evidently there was timely information given of the change in King HARRY's disposition, and the valuables were removed where there was no apprehension of the visits of inquisitors. The surrender of the monastery was followed by the payment of pensions to the community. The abbot received 100*l.* a year, which was a larger amount than had hitherto

been granted. The others were allowed the following sums:—The prior, 10*l.*; eight of the monks, 6*l.* 13*s.* 4*d.* each; eight others, 4*l.* each; a novice, 2*l.* 13*s.* 3*d.*

The fortunate favourite to whom Battle Abbey and its possessions in Sussex and Kent (with the exception of the manor of Alciston) were granted was the king's Master of the Horse, Sir ANTHONY BROWNE. The lands in other counties were not apparently included in the gift. BROWNE was to pay a yearly rent of 12*l.*, besides the service of 10 knights' fees. He enjoyed the royal favour during HENRY VII. life, and EDWARD VI. also trusted him. As he was the guardian of the Princess ELIZABETH he erected the parlour known as the library wing for her residence, but he died before it was fully completed. His successor, who received a peerage from Queen MARY and became Viscount MONTAGUE, carried on the work, but it is doubtful whether the wing was then occupied. It was at least uninhabitable in 1858, when the restoration was undertaken by Mr. HENRY CLUTTON. Sir ANTHONY BROWNE was evidently well disposed towards the workmen he employed in his building operations, one of which was the conversion of the old guest-house into a manor-house. His steward advised to pay them fairly, for "if men feel no gain by the labours it were as well that they were gone." The workmen on one occasion were let to a contractor, who "dowet gyve small wages by cause hys owne gayne should be the more." The MONTAGUES suffered during the Civil War. In 1661 the great deer park had to be converted into farms. The monastic kitchen, with its five large fireplaces, was sold in 1683 to raise money by the materials. At last, in 1710, the abbey was sold to Sir THOMAS WEBSTER.

The new proprietor was a citizen and clothworker of London, and seems to have had a weakness for the purchase of ancient residences. He died in 1750, and was succeeded by another knight named WHISTLER. He was no admirer of the abbey, and demolished a large part of it. His widow imitated him, and the buildings were so neglected that the old lady was able to find enjoyment in walking along the galleries on wet nights in pattens. She lived until 1810. When her great nephew Sir GODFREY VASSALL inherited the property he endeavoured to make amends for the neglect of his predecessors. But the restoration was too costly for his resources. The timber, which was worth 100,000*l.*, was sacrificed to his necessities, and then the property was let and the owner went abroad. In 1858 Lord HARRY VANE, afterwards Duke of CLEVELAND, purchased Battle Abbey, and then a new era began.

The Duke and Duchess were able to appreciate the value of the property in its archaeological as well as in its residential conditions. It was impossible to realise what Battle Abbey was prior to the Dissolution. The church, for example, was 315 feet in length, and if one of the seals could be accepted as evidence it was surmounted by a central tower and four other towers. The site was buried in rubbish for nearly three hundred years. In 1817 a cry was discovered, but Professor LAPPENBERG was justified when he wrote:—"Crumbled and fallen are the once lofty halls of Battle Abbey, and by a few foundation-stones in the midst of a swamp are we alone able to determine the spot where it once raised its towers and pinnacles." Much has been done towards the determination of the plan of the abbey by the last owners, and it is to be fervently desired that whoever will gain the distinction of becoming possessor of an incomparable historic site will be able to realise how great a reputation can be gained by utilising the evidence which has survived, in spite of vandalism and neglect, for the investigation of the numerous archaeological problems which await solution around the Ecclesia de Labataille.

FILIPPO BRUNELLESCHI.*

AN architect alone is competent to treat of a great architect's life, for without the technical knowledge which is only to be acquired in practice, it is not possible to do justice to the works which acquired greatness through their designer. Unfortunately the ordinary reader, at least in England, will not read books by architects, and in a case where a biography of an artist like the designer of the Florentine dome is desirable for the instruction of the

* *Filippo di Ser Brunellesco.* By Leader Scott. London: George Bell & Sons.

public, it is more likely to attain its end when the author is only a *littérateur*. "LEADER SCOTT" has already shown more than ordinary acquaintanceship with the history of Italian art, and was therefore competent to investigate the data which have been discovered since VASARI's time concerning the career of one of the most versatile of the Renaissance representatives.

It may be well to summarise what was generally known about the wonderful man who not only talked upon everything that was known at the end of the fourteenth and the beginning of the fifteenth century, but whose hands were competent to design buildings, to model statues, to paint pictures, to work in precious metals, to repair clocks, and, when there was nothing important awaiting his attention, to write in imitation of Latin poetry. There was no professor in Florence who was more eligible to discourse on DANTE; he could act well if the character was suited to a performer of dwarfish stature, and there was no more fiery disputant in the academies where philosophy was supposed to reign. Like LEONARDO DA VINCI, this many-sided man was the son of a notary in Florence, where he was born in 1377. He was intended for a scholarly profession—a physician or a notary; but after a trial of both he expressed a preference for art, and was apprenticed to a goldsmith.

Florence in those days possessed several sculptors who have gained renown. FILIPPO was the friend of DONATELLO, and the rival, but not the friend of Ghiberti. He seemed to be destined to be at least their equal, but his failure in the competition for the bronze gates of the Baptistery convinced him that to excel Ghiberti he must either study from a different class of models, or gain a higher position by making architecture the main business of his life. He studied in Rome, and in his thirtieth year returned to Florence, at a time when the completion of the Duomo was contemplated.

The reconstruction of that building had been decreed by the Republican Government, and the designing was entrusted to ARNOLFO, "capò maestro del nostro comune." He found it difficult to secure a firm foundation owing to the presence of water, which was then supposed to be one of the causes of seismological movements. ARNOLFO constructed deep wells to remove the danger, and he is reported to have exclaimed to his building, "I have secured you against earthquakes, may GOD secure you from lightning." As often happened, he was not fortunate enough to see the completion of his building. After him GIOTTO, ADDEO GADDI, ORCAGNA and LORENZO FILIPPI in turn undertook the charge, but after a century and a half Santa Maria del Fiore remained incomplete.

The main difficulty was the roof. What was ARNOLFO's intention is not clear, but there was a notion in Florence that a cupola alone would answer. The domes of San Sofia, St. Mark's and the Pisan Baptistery covered a smaller area. There were debates and competitions without avail. BRUNELLESCHI was in his element in the stormy scenes, and it would seem as if he expected to be entrusted with the work from the strength of his voice rather than from his constructive skill. Astuteness was a common quality with the Florentines, and FILIPPO was evidently playing a deep game throughout the proceedings connected with the selection of a plan. Sometimes his discourse was taken to be a prelude to the description of an arrangement he had matured, but at the crucial moment he would disappear from Florence. At last, when the consuls and masters were sufficiently confused by the variety of projects, BRUNELLESCHI became more definite, and was instructed to prepare a model. It was approved, but the creator was not entrusted with its realisation. Others were joined with him, and what must have caused him most anguish, Ghiberti was made joint-architect. That was the last straw, and FILIPPO resolved to abandon Florence and its buildings. Then he changed his mind, and feigned to be ill. Ghiberti was equal to undertaking a bronze gate which St. Peter might have guarded, but to form a dome over so vast a void was beyond his powers. His weakness before the difficulty could not be concealed, and BRUNELLESCHI was allowed to enjoy the office which his genius had won.

Florence possesses among other works by BRUNELLESCHI the church of San Lorenzo and the Pitti Palace.

At Mantua the Castel San Giorgio is ascribed to him. He died in 1444, and was buried with grand ceremonies in the Duomo, of which the dome is an enduring memorial of his courage and skill in construction.

The foregoing is an imperfect but tolerably exact outline of the biography of BRUNELLESCHI as commonly related in the dictionaries. The volume of LEADER SCOTT presents to us a figure which has far more vitality, and which corresponds with the likeness of the architect which was carved in relief by his adopted son, ANDREA DA BUGGIANÒ. For the information which changes a figure that was little more than a ghost into a vigorous man, many sources have been used which were unknown to earlier writers.

In the first place, instead of as FILIPPO BRUNELLESCHI, the architect should be known as FILIPPO LAPPI, that is, by the family name of his father instead of one belonging to his mother's race. The LAPPI were connected with the noble family of LAPPI-ALDOBRANDI, and both used similar armorial bearings. The architect's father was of some note in Florence. He was a member of the Council of Ten and was employed on several missions. The family was wealthy and owned several houses. It was intended that FILIPPO should in time follow some branch of statesmanship, but with the perversity of genius he joined the Goldsmiths' Guild. According to his contemporary and biographer, MANETTI, he was soon an adept in all branches of the craft, and in a short time became "a perfect master of niello, smalto, emblazonment and relief, also in cutting and setting gems; in fact, he succeeded in everything he touched, in a manner quite wonderful for his age." Nor did he neglect other studies. His perspective drawings amazed onlookers by their realism, especially when they were seen through a small sight-hole. One of his paintings was said to be *cosa miracolosa*. His crucifix of carved wood became historic. If therefore he was considered too self-confident it is evident from contemporary witnesses he was justified by the success of his early exercises.

According to VASARI, when the contest for the gates of the Baptistery was narrowed to a choice between Ghiberti and BRUNELLESCHI, the latter advised the consuls to give his rival the commission, on account of the superiority of Ghiberti's panel. From the account of MANETTI there was no self-sacrifice displayed. The judges recognising the difficulty of deciding offered to divide the work, "but to this FILIPPO would never consent; unless the work were to be wholly his own, he would not touch it, not being inclined to share his honours with anyone else;" the consuls therefore gave the commission to Ghiberti.

Then FILIPPO sold some of his land in order that he might study architecture in Rome, his companion being DONATELLO. There they were employed by the goldsmiths, and BRUNELLESCHI "made several timepieces, and alarm clocks, and the multiplicity of springs and ingenious wheels set him thinking of larger machines which might be constructed for carrying or lifting weights, &c." Architectural detail he scrutinised closely, and he wrote his remarks in characters which he alone understood. With all his virtues he was no believer in diffusing knowledge. He did not reveal to his companion that he was giving any attention to domes, and it was not until after DONATELLO had returned to Florence that BRUNELLESCHI began his investigation of the Pantheon.

The nature of his studies in Rome somehow became known in Florence, for according to MANETTI, "whenever FILIPPO let himself be seen he was pressed into consultations about both private and public edifices." The subject which then was uppermost was the completion of the Duomo. But for thirteen years after BRUNELLESCHI'S return no step was taken of any practical value. He had again and again visited Rome during that time, and we may conclude his knowledge of vaulting was enlarged. Not until 1419, however, was his model accepted. The construction of the dome was the great event of BRUNELLESCHI'S life, and it forms the principal part of LEADER SCOTT'S biography. It would be unfair to attempt an abstract of transactions which owe much of their interest to the detail derived from laborious investigations which will be found in the pages. We can now realise all the difficulties which were before the architect, who was supposed to be about to erect a city which must crush the church, and who appears to have been as constantly watched as if he were eager to

bring disaster on Florence and its citizens. In the history of building there is no more absorbing narrative.

The works, beside the Duomo, which can be credited to BRUNELLESCHI are described at length. Every one has seen illustrations of the singing children which adorned the organ-gallery of the Duomo; but it is not generally known that the architect aided in the arrangements by which the reliefs were placed in position. The following extract is interesting:—

The sacristy contains a remarkable specimen of Brunelleschi's ingenuity—his famous *volta piana* (flat arch). This does not mean merely a depressed arch, but literally a straight and flat bridge built of long blocks of smoothly hewn stone placed slantingly on each side of a keystone and self-supporting. It is, in fact, the masonry of the arch without the curve. When between the years 1431 and 1440, while Donatello and Luca della Robbia were carving their lovely groups of singing maids and joyful children for the organ-gallery and the one for the choir, which were to be placed over the doors of the two sacristies, it was necessary to prepare the stairways that gave access to them. The only means of entrance was by carrying a passage right across the sacristy, and the crucial question was how to do this without its being a blemish to the interior of the well-proportioned sacristy. An arch would presuppose pillars or pilasters, which would spoil the square of the room and take up space. Brunelleschi came to the rescue with his inventive genius, and threw this bridge across the entrance, with a sculptured and perforated parapet, which forms a fine cornice above the arch of the door. The great stones seem supported on air, yet they have made a safe passage for nearly five centuries, by which the singers may pass to their gallery without disturbing the priests robing themselves below.

BRUNELLESCHI differed from many of the Italian architects. He was no mere designer. Accordingly there is an individuality in his works which was not always a characteristic of those who scrupulously adhered to Roman proportions and details. He was a vigorous man, but there is no clumsiness in what he did. He well deserved to be included among the great masters, and the life of him which lately appeared should extend BRUNELLESCHI'S reputation among English students.

THE BIRMINGHAM UNIVERSITY.

AT the monthly meeting of the City Council on Tuesday the Lord Mayor (Alderman S. Edwards) read the following letter:—

The University, Birmingham: October 2.

My dear Lord Mayor,—At the request of the Council of the University of Birmingham, I beg that you will kindly communicate to the next meeting of the City Council our grateful appreciation of the liberal grant voted by the Council in aid of the technical scientific work carried on by the University. The liberality of the City Council will enable us to proceed at once with the erection of a large instalment of the buildings required to give effect to our plans, and to bring at an early date within the reach of the population of the city and the Midlands the opportunity of acquiring the highest and most useful scientific training in connection with the trade and industry of the district. Encouraged by the action of the City Council, and in the expectation of further considerable grants by the local authorities of the neighbouring counties, the Council of the University have this day authorised the buildings committee to prepare plans and specifications for necessary buildings estimated to cost, without equipment and furniture, the sum of 200,000*l.*, and they firmly believe that on the completion of these buildings they will be in a position to realise the best hopes of those who have interested themselves in this great development of higher education.

I desire to take this opportunity of thanking you personally for the kind support which you have given to our application, and beg to remain, my dear Lord Mayor, yours very truly,

J. CHAMBERLAIN, Chancellor.

The Right Hon. the Lord Mayor.

Queen Victoria Memorial.—The plans and drawings of the five architects selected by the general committee to compete for the Queen's Memorial, including the scheme finally chosen, together with a photograph of the sketch for the monument itself by Mr. Thomas Brock, R.A., will be exhibited by command of the King at St. James's Palace on and after November 1. Tickets of admission to be obtained at the Lord Chamberlain's office in Colour Court. Admission from 10 to 4.

EXPLORATIONS IN EGYPT.

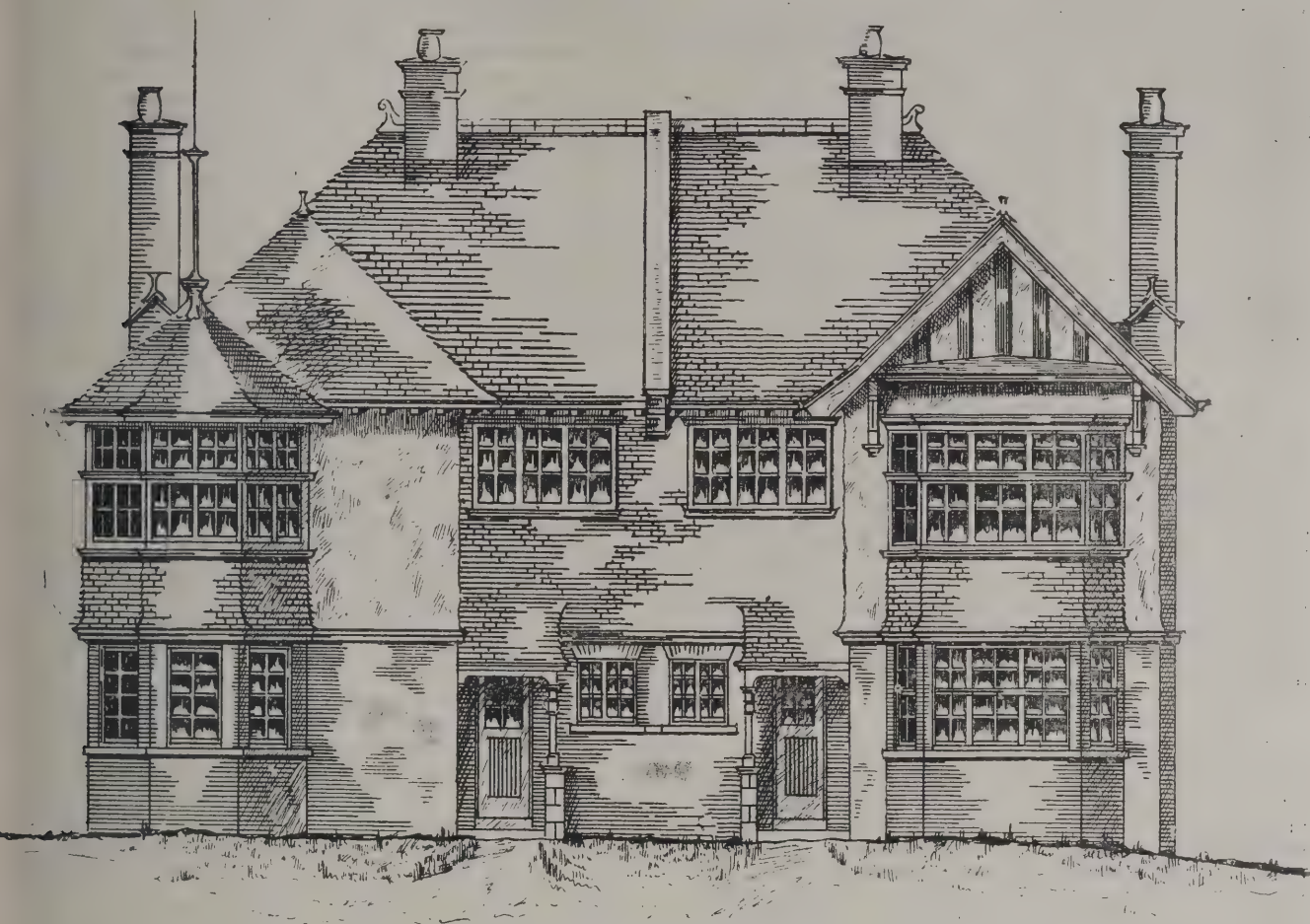
AT Owens College, Manchester, Professor W. M. Flinders Petrie gave a lecture on "The Rise of the Egyptian Monarchy." Professor Petrie, whose address consisted mainly of a description of a series of splendid photographic pictures of recent discoveries made by him, shown by the limelight, said he and his associates, in their latest work of exploration in Egypt, had been able to complete the history of the first dynasty and of a large part of the second, and, in fact, to place the facts of the early history of the Egyptian kingdom on a sure foundation as those of any other part of Egyptian history. They had been working in the royal cemetery of the kings of the first and second dynasties. In that cemetery they found the tombs of several kings. The whole had, however, been turned over three or four years ago by a foreign explorer, who, unfortunately, did not succeed in preserving any history. This year, said Professor Petrie, they had once more turned the place over, and with the aid of trained workmen, whose attention and sharpness they had encouraged, they had been enabled from an enormous amount of material to find fragments of importance in tracing the history of the early Egyptian monarchies. They found a successive series of royal tombs, and were able to trace eight kings of the first dynasty. They found writing developed into a continuous mode of expression, instead of pictures with explanatory labels. Professor Petrie exhibited photographs which illustrated the practice of sacrificing captives at the king's tomb, and said it was not at all impossible to suppose that there was an actual slaughter of captives to accompany the king to the future world. This, he said, would not be more astonishing than what we knew was done by our Norse forefathers, and what we knew was the custom of many countries. Amongst the discoveries made were flint arrow-heads, labels, ivory tablets and ornaments for personal decoration, together with vases and other articles buried with the kings and the other occupants of the tombs. All these fragments, he said, had been turned over, ruthlessly broken and scattered far and wide three or four years ago, showing the terrible way in which history had been all but destroyed. With all the difficulties and those working with him had to encounter, they had found the remains of eight consecutive kings, and they had established the strongest guarantee that the history of that dynasty, so traced, was to be taken as correct. The *onus probandi* was thrown entirely on the other side, and we were bound to believe in its accuracy till it could be disproved. Professor Flinders Petrie described other discoveries, the whole of which were illustrated by photographs. These included a tomb of the third dynasty, containing, he said, the oldest specimen of the arch yet known.

VILLAS AT WESTGATE-ON-SEA.

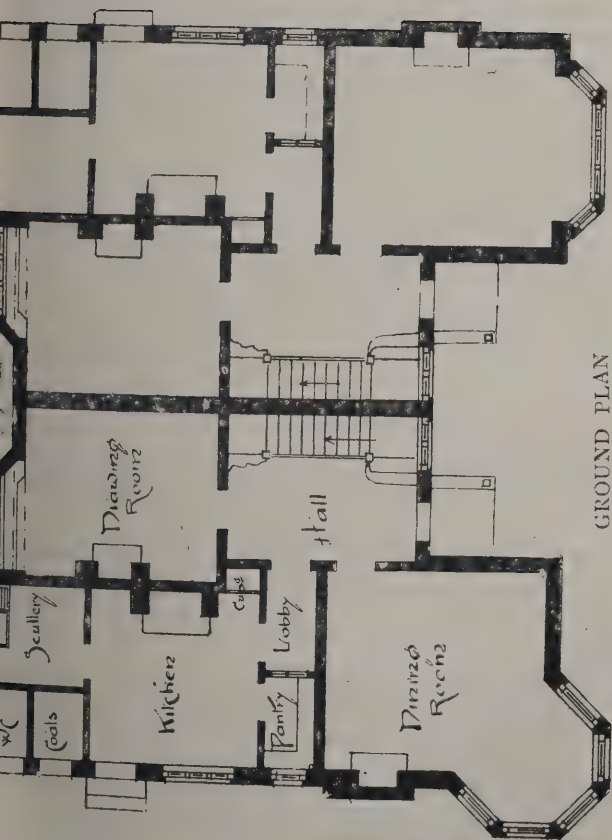
THE illustrations of proposed villas at Westgate-on-Sea for Mr. F. BOOLING, are by Mr. ALBERT C. FREEMAN, architect, London. They were intended to be built with red facing bricks to the lower elevations, and rough-cast plasterwork and vertical tile hanging to the upper part, the roofs being covered with Broseley tiles.



SIDE ELEVATION.



FRONT ELEVATION.



GROUND PLAN



FIRST FLOOR PLAN

VILLAS AT WESTGATE-ON-SEA.

NOTES AND COMMENTS.

THE late Canon ISAAC TAYLOR, who died last week, aided archæology by his books. He exemplified the law of heredity in his ability, for he belonged to the family of the TAYLORS, of Ongar, and was related to several scholarly writers. In his twenty-fifth year he edited a translation of BECKER'S "Charicles," a book in which ancient Greek life is described in an attractive manner. His book on "Words and Places" is an interesting contribution to the etymology of local names. Afterwards he attempted to solve the mysteries which surround Etruria in his "Etruscan Researches." Then he took up a subject that appeared more simple—the alphabet—which occupied his leisure during several years. His later works were "Leaves from an Egyptian Note Book" and "Names and their Histories."

THE recent visit of the CZAR of Russia to Paris will be remembered by several architects, for they have received the distinction of the Order of St. Anne of the third class. Among those selected are MM. TROPPEY BAILLY, architect of the exhibition palace of ceramics and glass; AUBERTIN and UMBDENSTOCK, architects of palace of the Army and Navy; COUSIN, architect of the Pont Alexandre III.; RAULIN, architect of the Salle des Fêtes; LUCIEN MAGNE, Government architect and professor at the Ecole des Beaux-Arts; GASTON TRÉLAT, architect and professor; MEWES, architect of the palace for congresses. The announcements were received in Paris last week.

WE hope Mr. CARTLIDGE, the inspector of the Board of Education, is not too optimistic when in his last report he says:—"To-day it is a fact that the foreign designer is practically disappearing from the field in regard to British manufactures, though, of course, the cosmopolitan character of art will always bring the foreign designer in some degree into the work of any country. But the greatest influence the schools of art have exerted upon manufactures does not lie so much in the production of designers as in the training of a vast army of draughtsmen, painters, modellers, moulders, carvers, printers, gilders, fillers, chasers, glass-workers, weavers and other art workers who are concerned in the production, as a finished article, of the designer's creation. During the processes of production the conception of the artist runs risks of being spoiled by unintelligent artisans through whose hands it must necessarily pass. And here has been the greatest work of the schools from a commercial point of view, namely, that they have raised the general intelligence and taste of the class of workers referred to. This is unquestionable, as it is fully realised by the manufacturers themselves." It would be strange if, after half a century, the Government art schools did not exercise some influence on manufactures. Foreign designs are, however, still prized in many important cases, and, unless the advertisements are lies, traders find it is profitable to obtain goods which are manufactured abroad, for their customers have a weakness for them. That is not encouraging for English designers, and in course of time a more equitable arrangement is sure to prevail. But the foreigner has his chance as long as the prejudice exists against the art schools, which is to be debited to the inefficiency of the system adopted by the officials of the Science and Art Department. Their successors under the new Board are endeavouring to promote a better system of training, and the above quotation from the report is at least evidence that a change for the better is visible.

THE restoration of the chapel on the bridge at Rotherham is so important a work, for the structure is one of the very few survivals of its class in this country, we hope no division of opinion among the local authorities will cause a delay. The Feoffees of the Common Lands have obtained a report from Mr. JOHN BILLSON, of Hull, in which that architect said that the chapel possessed the distinction of being practically untouched, in which respect it differed from the chapel on the Bridge at Wakefield which had been rebuilt. The people of Rotherham, therefore, should consider themselves fortunate in the possession of such an interesting building, and should do everything they can to preserve it. Mr. BILLSON agreed with the advice received

from the Society of Antiquaries and the Yorkshire Archaeological Society about the preservation as far as possible of so interesting a relic. It is estimated that the cost of one portion of the work would amount to 850*l.* and of the second portion 550*l.*, or in all 1,400*l.* The Feoffees are willing to subscribe 500*l.* provided 1,000*l.* can be obtained from other sources. As a further recommendation it was proposed to make the restoration become Rotherham's memorial to Queen VICTORIA. The Mayor, however, does not approve of the combination, and also maintains that the funds belonging to the Feoffees should belong to the poor, and were never intended to pay for works of restoration. The fate of the chapel now depends upon the liberality of the townspeople. If they subscribe for the preservation of so interesting a relic we suppose the law will not be invoked to bar the Feoffees from contributing.

THE diocese of Ferns mainly consists of the county of Wexford. It is stated to have been founded by St. EDAN or MOEDOC at the close of the sixth century. At first the see was the archbishopric for the province of Leinster. Of the early buildings no trace remains. The Norman settlers landed in Wexford, and they soon became so powerful that a treaty was entered into at Ferns between the native princes for their expulsion. HENRY II., however, was able to keep Wexford in his possession, and the county formed part of the territory which STRONGBOW acquired by his marriage with the daughter of the Irish king. The Normans erected a cathedral in Ferns, and in the fourteenth century, JOHN ESMOND, the bishop, although deprived of his office by the Pope, was able to retain it by force of arms. The Norman cathedral was believed to have been destroyed by fire during an attack in the sixteenth century, and a commonplace building, which is still used, was built on the site. Of late years there has been more attention given to an investigation of the old and new parts of the cathedral. The chancel walls, with some beautiful windows, were thought to be the only remains of Norman work. In the course of recent explorations the clustered pillars of the old church have been laid bare, and they show that the present building is, in reality, the centre aisle of the original Anglo-Norman cathedral, which in ELIZABETH'S reign was fitted up for the new services by building up the arches and covering all—pillars included—with plaster, a barbarous arrangement which was perpetuated in the early part of the last century, when an addition was built to the cathedral soon after it had been made into a parish church, on the old parish church falling into decay. The Anglo-Norman cathedral must have been a fine building. The distance between the east end of the chancel and the newly-discovered pillars at the west of the church is 180 feet. There are vaulted chambers beneath the aisle. Within the church there is a recumbent figure in episcopal robes, long known as a monument to St. MOEDOC. From its general character it is considered by competent authorities to be a work of as early as the ninth, and certainly not later than the eleventh century. The restoration in progress is being carried out under the direction of Mr. FULLER, architect.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER: TOWER AND EAST END OF CHOIR.—TRIFORIUM, NORTH-EAST CORNER OF RETRO-CHOIR.

ROWTON HOUSE, NEWINGTON BUTTS, S.E.
FIRST FLOOR PLAN.—GROUND FLOOR PLAN.—BASEMENT PLAN.

THE subject of our illustration was fully described in a paper on "Rowton Houses" read before the Architectural Association, and reported in our issue of March 29 last.

In consequence of the demand for accommodation such as is to be found in these "poor man's hotels," it has been decided to enlarge the present building southward on land acquired for that purpose. Plans have been prepared by the architect to the company, Mr. HARRY B. MEASURES, F.R.I.B.A., and the work is to be proceeded with forthwith. The building, when completed, will have a total accommodation of 1,016 cubicles. We hope to illustrate the completed building in an early issue.

STAINED GLASS IN ENGLAND SINCE THE GOTHIC REVIVAL.

INCLUDING SOME ACCOUNT OF ECCLESIOLOGICAL PROGRESS, FROM 1860 TO THE PRESENT TIME.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays among French Cathedrals," &c.

(Continued from page 135.)

It is strange that while all the other arts subsidiary to architecture—painting, sculpture, wood-carving and metal-work—were making such progress during the decade of the revival comprised between 1850 and 1860, that of painting on glass should have remained almost stationary, little or nothing being done to effect its emancipation from mere antiquarianism. Barnett, of York, Beer, of Exeter, Gibbs, Hardman, Hedges, O'Connor, Oliphant, Wailes, Ward & Hughes, Warrington, Willement and Wilmshurst, the works of most of whom may be traced back to the very dawn of the Gothic movement, undoubtedly earned gratitude for their well-meant, not always successful efforts to rescue the vitreous art from a slough of despond into which it had been suffered to lapse during the Georgian era, could, when under strict architectural superintendence, produce really good things, but when left to their own devices they sank for the most part either into a feeble agreeable prettiness or into the absolutely commonplace. Indeed, the wretched mawkish attempts at picture painting in which some of our noblest ecclesiastical edifices seemed destined to become loaded, and which a too large portion of the public ignorantly believed in and cried up as something very fine, were truly appalling.

To the improvement of a church interior there is no more perturbable obstacle than a bad stained-glass window, for when authorities wish to remove it they are confronted in most instances by a hundred prejudices and sentimentalities, and in some cases by the fear of doing violence to better feelings. The representatives of the person or persons commemorated in the majority of such insertions ought, however, to be above prejudice, and must, after the interval of a generation, have that sensitiveness which would suffer by the removal of a

Some very creditable works of this artist may be seen in the north-eastern transept of Lincoln Cathedral.

The lancets in the chancel of Aylesbury Church, one of Sir Robert Scott's early restorations, are commendable productions of Oliphant.

The works of Warrington, which have not as yet been treated of in this history, would have been as successful as any produced since the revival had their author emancipated himself more completely from antiquation. Among some of his most praiseworthy efforts, certain specimens dating back into the early forties, the following are deserving mention:—The windows in the apse of Norwich Cathedral and of St. Chad's, Birmingham; the east windows of two churches in Warrington, St. Thomas and St. Peter; several in the aisles of Brompton Church; the east window of the Sub-deanery Church, Chichester; a series in the south-choir chapel of Truro Cathedral, and the west window of the north-nave aisle at Ottery St. Mary, executed under the superintendence of Mr. Butterfield. Some later specimens—in emulation of it would appear, of the Morris School—may be seen in St. Andrew's, Battersea, but they are far from successful; indeed, their author would have done well had he kept to the old paths in this instance, the church itself presenting few or no features alien to the English Gothic. In 1848 Warrington put forth a really sumptuous volume entitled "The History of Stained Glass, from the Earliest Period of the Art to the Present Time, illustrated by coloured examples of entire windows in the various styles," but it was practically useless, the "coloured examples" being selected, not from ancient specimens, but from the works, accepted and rejected, of the author. Such a volume, it need hardly be remarked, met with a most hostile reception from that merciless censor, *The Ecclesiologist*.

Hardman—from the long drilling which he, or rather his artist, John Bell, had under Pugin—was of all the glass painters at this epoch the most trusted to work exempt from architectural supervision. His merit, unless interfered with, was invariably hieratic, and his use of colour almost always pleasing, evidence of this being shown in the east windows of SS. Peter and Paul, Wantage, All Saints', Boyne Church, and St. Paul's, Herne Hill, and in the western ones of St. Mary Magdalene, Munster Square, and St. Michael's Collegiate Church, Warrington. Subsequently, however, Hardman's works seemed to lose the spirit of the old Puginic spirit, an over-refinement of pose and thinness of picture becoming their leading characteristic.

Perhaps no sadder example of such treatment is that presented by the three west windows of St. Wulfram at Grantham, each of its a typical specimen of Early Middle Pointed work.

memorial; and it would be a most graceful gift to the church in which they and theirs have worshipped for years past, and hope to worship for years to come, if they would themselves propose and aid in effecting the desired change.

Before the decade above alluded to had expired the names of several artists in stained glass, who were not only destined to occupy foremost places in their profession but to completely revolutionise this branch of ecclesiology, came before public notice, conspicuous among them being Messrs. Lavers & Barraud (now Lavers & Westlake), Clayton & Bell, Powell, Heaton & Butler, and Morris & Marshall—true artists, receptive of new ideas and really eager to produce beautiful objects. Of course upon some of their early efforts it is not possible to bestow unqualified commendation—excellence being of course only attained after much painstaking practice—but in the interests of our history it will be necessary to allude to such early works, occurring as they do in some of the most remarkable churches built in this country since revived interest in matters ecclesiastical.

The recent demise of Mr. James Brooks seems to offer a suitable opportunity for dwelling in the next few chapters of this history upon some London works of one of the most talented architects whom the "inventive" phase of the movement called forth, and as certain of these churches contain early, if not the earliest, specimens of Messrs. Clayton & Bell's work, we may not inappropriately commence our survey of this new and important era in the history of revived glass painting with some studies of those artists' productions.

To inspect these imposing specimens of the late Mr. Brooks's skill it is necessary for the ecclesiologist to betake himself to such north-eastern districts of the Metropolis as Shoreditch, Haggerston, Hoxton and Plaistow—dun-coloured regions where it may be safely averred the interiors of those noble edifices planted in their midst are the only bright spots in the envioning dreariness.

Since the revival of the true principles of Gothic architecture, perhaps, no more remarkable group of churches from one hand has been raised in England.

Each shows a decided predilection on the part of its architect for Pointed of an Early Foreign type—St. Michael's, Shoreditch, and St. Saviour's, Hoxton, having a somewhat Italian cast of physiognomy, while St. Columba's, Kingsland Road, and St. Chad's, Nichols Square, Hackney Road, with which may be classed St. Andrew's, Plaistow, and the Church of the Annunciation, Chislehurst, recall as their prototypes some of the grand edifices of that cradle of the First Pointed style, the old *Domaine Royale* and *Champagne*.

Raised without exception in poor and distressingly ugly neighbourhoods, the leading features of this group of churches—true town churches, not country ones come to town—are simplicity yet dignity and grandeur of elevation and contour; absence of elaborate detail and a tendency to abnormalism in certain forms, reminding us of Butterfield, though Mr. Brooks's eye for colour was always safer and more equitable; their almost entire construction in brick; and the thoroughly work-a-day look that pervades their instrumenta of worship.

Raised on the sites of humble mission stations planted in some of the poorest and most densely-populated quarters of London, each of these churches—built with the object of presenting the services of the Church of England in their grandest and stateliest aspect—is a splendid memorial of that spirit of unselfish liberality and devotion which has been quickened within her during the last half-century.

A few words explanatory of the origin of these churches may not be irrelevant.

The name of their late accomplished architect came prominently before the ecclesiological world about 1861 in connection with the masterly manner in which he had remodelled the parish church of Haggerston, completed in 1827 from the designs of Nash, and conspicuous from far and near by its tower, which uprears itself from the closely packed streets of its vicinity.*

At the time of the erection of Haggerston Church a number

* Engravings of St. Mary's, Haggerston, made shortly after its completion, appeared in the *Gentleman's Magazine*, the *Mirror* and *Metropolitan Improvements*. In those days the situation of the church was comparatively rural.

of droll stories were current respecting this tower, one of which ran as follows:—

When the tower was just about to be commenced, the builder applied to Nash to know how high he should carry it. Nash being busy at the time, and not having completed his plans, told him to go on building until he should tell him to stop. Next day the architect of

"He finds us all brick and he leaves us all plaster"

celebrity was called away into a distant part of the country upon a job which occupied him for some time. Returning, Nash bethought himself of Haggerston Church, and went to see how it was getting on. To his amazement he found that the tower had grown to the unnatural height which we now see, and on remonstrating with the builder, the latter defended himself by saying that he had only followed the directions given him, to go on building until he was told to stop, which he had not yet been told to do. Nash, thinking with St. Augustine that "*Plurima sunt quæ fieri non debitant, facta tamen valent*," contented himself with simply putting up four pinnacles, one at each corner of his Brobdingnagian tower, stood another tower of Liliputian proportions on top of it, likewise pinnacled, and so left it as we now see it.

Scarcely less ludicrous than this above *ben trovato* story—invented to account for what at first sight seems utterly unaccountable—is the true history of this preternaturally elongated tower.

Just at the time when St. Mary's, Haggerston, was in building (1825-27), Wanstead House—the mansion where had dwelt Long. Tilney Wellesley, Long Pole (afterwards Earl of Mornington)—was pulled down and the materials sold. The contractor for building the church bought these materials, which included a quantity of fine Bath stone, at a very low figure, and being desirous of realising his bargain as soon as possible, he told the building committee that he could afford to build a magnificently high tower at a very moderate cost. The committee, having considered his proposal, gave him an order to build them a tower as high as he could for the money they had to lay out upon it, and the result is what we see—that parody on the celebrated Boston stump which, viewed at dark from the neighbouring streets or looming through a November fog, has a really imposing air.

The church to which this—in spite of its wretched detail—substantial steeple and western façade is attached, was one of the worst and feeblest of that large number which, built in George IV.'s reign under the Million Act, have been provocative of much expense in adjusting them to the requirements of the Catholic revival. Two tiers of carpenter's Gothic windows in its brick walls, and ungainly pillars whose surfaces, worked into various hollows, gave them "a distant resemblance to clusters of columns," as the critic of the *Gentleman's Magazine* of that date informs us, were the leading features of a church built at a time when all true ecclesiastical features and decency seemed lost.

Such was the church Mr. Brooks was called upon to ameliorate the artistic condition of—the mother church of an immense district, which, cut off from the old parish of Shoreditch, was at the close of the "fifties" in so grave a state of spiritual destitution as to form the subject of a debate in Parliament. However, on the appointment in 1859 of a new incumbent—Rev. John Ross, now Vicar of Cainham, Salop—both the church and its services were revolutionised.

Splendid individual generosity was forthcoming, and the addition of a chancel to, and a rearrangement of the Georgian Gothic parish church with its wretched fittings was determined upon as a necessary first step towards the amelioration of the surrounding district.

At the time of the remodelling of St. Mary's, Haggerston, Mr. Brooks was but little known in the ecclesiastical world, but when the church was reopened on All Saints Day, 1861, pæans arose from those who were quick to acknowledge the boldness and skill with which the architect had grappled with what, at first sight, appeared a hopeless task. Indeed, the artistic results were only equalled by the moral ones, for whereas the church under its old régime was all but deserted, in its restored condition its services became thronged.

Shortly after several new districts, each equipped with the necessary machinery for evangelistic work, were created out of

the hitherto unwieldy old parish, and their chapels dedicated with great appropriateness to the three great British missionaries—Augustine, Chad and Columba. Subsequently another district was mapped out at the eastern extremity of the parish, neighbouring to, Bethnal Green, its church receiving the name of the proto-Martyr, St. Stephen. But with neither St. Augustine's nor St. Stephen's has this present history to do. The former was the work of the late Henry Woodyer, and has been described in a former series of these papers. The latter was from the hand of Francis Dollman, also of late years removed from the world of architecture.

Recurring to St. Mary's, the late Mr. James Brooks's work there embraced the re-roofing of Nash's old nave and the seating it with open benches; the formation within its last two bays of a *chorus cantorum* provided with low chancel and side screens, and an imposing pulpit of stone and marble, somewhat Italian in character and circular on plan; and the remodelling of the uncouth piers and arches into the best semblance of Middle Pointed obtainable under the circumstances.

For the more dignified performance of the altar service Mr. Brooks threw out a shallow sanctuary, Geometrical Decorated in style, having a coved roof of brick ribbed with stone and lighted by a window of five compartments—rather low and broad. Towards this Messrs. Clayton & Bell contributed some of the best glass executed by them, during this period—the subject, the Te Deum; the groups clear and distinct, the tinctures brilliant without rawness, and an hieratic feeling imparted to the whole without undue archaism.

Keeping his window high up in the wall Mr. Brooks was enabled to gain ample space for a dignified reredos, which, with its central cross of white marble, has quite a Butterfieldian air.

The new sanctuary being much less wide than Nash's nave, Mr. Brooks had recourse to that very charming feature, the "canted" bay, to mask the disparity in the dimensions of the two limbs. At that time this oblique bay was a novelty in ecclesiastical design, but besides making it a useful feature, Mr. Brooks was enabled to render it a picturesque one, piercing the lower part of the wall on either side with coupled arches of Italianising Pointed caste, and surmounting them with an unglazed Geometrical Decorated window. Behind this "canted" bay one compartment of Nash's nave was left, the angular space thus created being utilised for vestry and sacristy. The two tiers of Gothic windows with which Nash's nave was lighted were retained at the time of Mr. Brooks's ameliorations for a couple of years or so, when, together with the galleries, they disappeared. The lower row of windows was blocked up, and the carpenter's Gothic tracery of the upper ones transmuted into very good Geometrical Middle Pointed several being filled with stained glass, while the emancipation of the aisles from the galleries served to impart an appearance of much grandeur and religiosity to the pile, reminding one in some degree of Boston or Hull, or that grand Middle Pointed fragment, the nave of the Austin Friars Church near Broad Street.

Prior to the alterations the services at St. Mary's, Haggerston, were, as remarked just now, almost deserted, but on its reopening they became attended by large and devout congregations, and for some time were remarkable for the excellence of their choral accompaniment.

The organ at the east end of the south aisle is interesting. It is a Father Schmidt, and was originally built for and placed in St. George's Chapel, Windsor, after the Restoration. Here it remained until 1788, when George III., on the completion of the present instrument by Green in 1799, gave it to the parish church of Windsor.

On the rebuilding of that edifice about 1825, part of the organ was sent to Haggerston,* the rest finding its way to meeting-house at Long Melford. Some of Schmidt's work remained in the Haggerston organ, notably the woodwork which is particularly good. During the remodelling of St. Mary's it was removed from the western gallery under the direction of the late Mr. Henry Willis, restored and considerably enlarged, but its external appearance presents few features of interest.

* The writer of the article on Haggerston Church in the Supplement to the *Gentleman's Magazine*, vol. xcvi. part ii. (1828), concluding his description, remarks that "the choral service (performed by amateurs) is in general very interesting and attractive. The church is lighted by gas."

LIVERPOOL CATHEDRAL.

THE following letters relating to the style of the proposed Liverpool Cathedral have appeared in the *Times* :—

From Mr. Robert Gladstone.

As Mr. Reginald Blomfield, in his letter to you to-day, makes a personal reference to myself and to what I said at a recent meeting of our cathedral committee, I hope you will allow me to reply to him through your columns that, while Classical architecture has naturally been the prevailing style in the South of Europe, Gothic in one form or another has been almost universally adopted for ecclesiastical buildings in this country. May I remind Mr. Blomfield that all our cathedrals, with the single exception of St. Paul's, are Gothic, and an overwhelming majority of our parish and other churches are in the same style? So strong is the general feeling in favour of Gothic for our churches that I have little hesitation in saying that, if the style for our cathedral had been left open, nine-tenths of the designs submitted by architects would be Gothic. In support of this opinion may I remind Mr. Blomfield that in the previous competition for a Liverpool Cathedral in 1884 the second and third premiums were gained, with the approval of our assessor, Mr. E. Christian, by Gothic designs, and the first prize, given to Mr. Emerson, was for a design specially calculated to be in harmony (so far as possible) with the adjoining Classical buildings?

As regards the effect on the eye and mind, let me quote what the late Sir Gilbert Scott said in an address to the Institute of British Architects regarding Westminster Abbey, viz. :—

"A building which does not owe its claims upon our study to its antiquarian and historical associations, intensely interesting though these must be to every man worthy of the name of an Englishman. It has claims upon us architects—I will not say of a higher, but of another character—on the ground of its intrinsic and superlative merits as a work of art of the highest and noblest order; for there are few churches in this or any other country having the same exquisite charms of proportion and artistic beauty which this church possesses; a beauty which never tires, and which impresses itself afresh upon the eye and the mind, however frequently you view it, and however glorious the edifices which, during the intervals, you may have seen."

Such, sir, is the type which we have adopted for our cathedral. Is it an inferior one? Can Mr. Blomfield suggest a nobler one? If he can, let him at once tell us what it is, and, the interest not only of Liverpool but of our country, give us an opportunity to consider it.

I have not forgotten that the early Christians converted the available basilicas into churches, nor do I forget how the apse with its railings became the chancel of later times. I have been a student of architecture for forty years, and am not ignorant of the rise and fall of Gothic architecture, of how it emerged from the clumsy grandeur of Norman, attained its most sublime beauty during the 100 years to which I referred, and then by the elaboration of pretty details it gradually deteriorated until architects in despair called in the more sturdy accessories of the Grecian and Roman orders to revivify their expiring art. After awhile this Classical resuscitation passed away, to be succeeded by a revival of Gothic, wretched enough for many years, but now better understood and exhibiting in many places much of the spirit of our old cathedral buildings.

We are told that Gothic is again passing away. It may be so; but what do our leading architects offer us in its place? At present it may be truthfully asserted that no new style of architecture has been invented, unless it be the glass and iron construction of the Crystal Palace; and in these circumstances feel that if we take the interior of Westminster Abbey as our guide in building Liverpool Cathedral we shall follow the most beautiful and most devotion-inspiring example of church architecture that this country affords. In conclusion, I say to Mr. Blomfield, "Si quid novisti rectius istis, candidus imperti; non his utere mecum."

From Mr. Reginald Blomfield.

I must apologise for trespassing on your space again, but it is due to the courtesy of Mr. Gladstone's letter that I should answer his challenge. The number of issues he raises is somewhat bewildering. He adheres to the position that Gothic is the only possible style for a cathedral. He quotes Sir Gilbert Scott on Westminster Abbey, and he asks me to supply him with a new style in architecture. The dilemma which I put before him he has not attempted to answer—perhaps it is unanswerable; but he remarks incidentally that, had the design been left open, "nine-tenths of the designs submitted by architects would be Gothic," to which I need only reply that it depends on the architects. The authority of Sir Gilbert Scott, moreover, will hardly convince contemporary architects, but Scott was a very able man. Whatever his practice he knew good work from bad, and in the quotation which Mr. Gladstone

supplies us he praises Westminster Abbey, not for its historical associations, nor for its fitness for modern necessities, but solely as a beautiful work of art in itself. So far as any relevance to modern thought is concerned Mr. Gladstone might just as well have quoted Professor Cockerell on the Parthenon.

But the points at issue between architects and the committee are more serious than this. In the first place, there is the general question of the restriction to any style at all; in the second place, the restriction to Gothic, and even Gothic of a certain specified period. Now, in restricting designs to any style at all the committee have misapprehended the work and duty of an architect. The popular conception of an architect is that he is a man who sits down and makes pretty drawings, or if he does not, employs somebody else to, that he hands these over to the builder, and that this, artistically, is an end of the matter. Of the underlying process of thought, of the careful consideration of all the bearings of the problem, of the deliberate selection of one out of many experiments of the imagination that every architect worthy of the name must go through before he puts pencil to paper, the committee seems to have had no sort of suspicion at all, for they blandly undertake the preliminary process themselves and inform architects that their designs are to be Gothic, and even English Gothic of the thirteenth century. Architects may, and probably will, form an entirely different estimate of the situation. They may think that an architectural language which has long since died a natural death is inadequate to express the teeming thought and emotion of modern life. In any case, whether they do or do not, they would probably be unanimous in agreeing that this essential function of the expert should not be taken out of his hands. Architecture is a serious art and not the mere plaything of cultivated amateurs, and I think it improbable that any architect properly so called would undertake such an enterprise as this with his hands tied. In the second place, we come back to the old question, Why "Gothic?" Mr. Gladstone reminds me that all our cathedrals are Gothic "with the single exception of St. Paul's"—truly a formidable exception. May I also remind Mr. Gladstone that at the date when those cathedrals were built no other style was possible or even dreamt of, and hence the admirable sincerity and individuality of these cathedrals—qualities which the most ardent classicist will readily admit. But what are we to say now, when the whole world of "styles" is open to a designer? Is there any sincerity of expression in reproducing a dead language?—for that is the serious intention of the committee's resolution—and even if Gothic architecture did express the thought and feeling of a number of people, it is quite certain that it does not express the feeling of everybody.

There are those, and it is possible that they are not a minority, who would find the dome of St. Paul's Cathedral at least as suggestive of religious thought as the clerestory of Westminster Abbey, for, after all, a cathedral is not a church adapted to one particular congregation, or to one particular shade of theological opinion. A cathedral, one would think, should provide for all shades of thought and opinion that may fairly meet within its walls, and one cannot protest too strongly against this narrow identification of religious worship with one particular phase of architecture.

Mr. Gladstone asks for a "style," but we are sick of styles. Nowadays every man must think for himself, and nobody reaches style unless he can carry his own individuality into the expression of his thought.

The less, therefore, we hear of styles the better for architecture; but if Mr. Gladstone really wants a model for the cathedral of the future let him look for it among the ruins of the Baths of Caracalla at Rome.

From Mr. R. Gladstone.

In the letter from Mr. Blomfield which you publish to-day I do not find any actual recommendation or suggestion of the form or kind of architecture which he thinks we should adopt for our cathedral. Mr. Blomfield says that Gothic has died a natural death, and at the same time he says that, "If I really want a model for the cathedral of the future I should look for it among the ruins of the Baths of Caracalla at Rome." But, then, why not also in the ruins of the Parthenon at Athens; or in the Temple of the Sun at Baalbec, or among the colonnades of Palmyra and Persepolis, or in the temples of ancient Egypt? All these were suited to the times and places in which they were built, but I think Mr. Blomfield would not really choose one of them as a model for an English cathedral.

The great central room in St. George's Hall, Liverpool, is said to have been designed from one of the *thermæ* at Rome, and as a place for public ceremonies and musical festivals it is magnificent, but it would not be suitable for a church. Indeed I do not hesitate to say that Italian architecture is not suited to ecclesiastical buildings in this country, for which we prefer our national Gothic. In proof of this may I point to the cathedral at Truro, the new cathedral at Edinburgh, and the splendid church lately built by Mr. Austin at Stockport, all of which are Gothic?

Mr. Blomfield says, "We are sick of styles, and every man must think for himself." This is what the committee for building Liverpool Cathedral are doing. They are bold enough to make up their minds as to what kind of a cathedral they prefer to have, and they do not wish to be dictated to. If they are really acting unwisely, why do not their critics point out the better kind of architecture which should be adopted? No one has done this yet, unless Mr. Blomfield's reference to the Baths of Caracalla is to be regarded as a serious recommendation.

It is possible, perhaps, that in some quarters a hope is entertained that in an unlimited and unrestricted competition something would turn up which might prove to be an entirely new and completely satisfactory design for a new cathedral; but what reason is there for expecting this? Is it not much wiser to adopt the kind of architecture with which our devotional feelings are so closely entwined, leaving its details and accessories to the consideration of the specially trained architect to whom this most important work will be entrusted?

From Mr. William Emerson.

My attention has been drawn to a remark in Mr. Robert Gladstone's letter, published in the *Times*, dated the 15th inst.

He stated that of the competitive designs of 1884 those placed second and third by Mr. Christian were "Gothic" designs, while the first, Mr. Emerson's, was for a design specially calculated to be in harmony (as far as possible) with the adjoining Classical buildings.

The meaning this implies is that mine was not a "Gothic" design, or at any rate that is the impression his words would convey to those who do not know.

I wish to say that my design was "Gothic" in principle, plan, construction and detail, though of an early phase, for the reasons I clearly laid down in my report (pages 9 and 10).

The introduction of the dome no more militates against its Gothic character than the dome of Sta Maria del Fiori at Florence militates against the Italian Gothic style of that church.

The fact of the Classic surroundings on the former site was not the only reason for the dome, but also the fact that it is the only logical covering for an enormous open area in front of the choir, which is demanded by modern congregational requirements.

The particular phase of Gothic selected was because the larger and broader detail would have been less in contrast to the large scale of the Classic work in proximity to it than the smaller detail of a later period, and also because sculpture and other details could be made more nearly approaching the highest class of work than could be possible without incongruity with the restrictiveness of Gothic of a late period.

Were the design translated into later detail, which could easily be done, it would still be Gothic, but of a different phase.

As I have no intention of competing a second time my only motive in writing this is fairness to myself, because I am aware that persons antagonistic to anything but fourteenth-century detail have been good enough to state that mine was not Gothic, which is untrue in every sense of the word. We have examples of it in a number of our own cathedrals, as I pointed out in my report, and notably in the best part of Canterbury.

Mr. T. G. Jackson, R.A., writes:—

To one who remembers in his student days the battle of the styles over the Law Courts and the Government offices, it is curious to hear the old war cries raised afresh in a day when purism in architecture is no longer accepted as the prime ruling motive.

Mr. Robert Gladstone's arguments are those of fifty years ago, and his opponents' views seem so novel to him that he fails to understand them. It is no reply to Mr. Reginald Blomfield, who says, "We are sick of styles; every man must think for himself," to say that Mr. Blomfield does not actually recommend or suggest the form or kind of architecture he thinks proper for the new cathedral. That is only to complain that Mr. Blomfield does not do himself what he objects to Mr. Gladstone and his committee doing. The fact is that architecture has happily begun to emancipate herself from the shackles of precedent and authority, and if the committee insist on retaining them they will not get what they should have—the best that modern architects can do for them.

I, too, say that the new cathedral must be Gothic. But the point is, What do we mean by Gothic?

To me, here in England, it means freedom of design, independence of precedent, conformity to conditions of climate, material habit, convenience and the general requirements of England and Englishmen. These are the motives with which our forefathers worked and by which they evolved the Gothic art of the past. It is only by working in the same spirit as they, not by copying the mere letter of what they did, that we may hope to rival them in the future.

This, however, I fear, is not what the Liverpool committee means by "Gothic," but rather that blind following of Mediaeval example which I should call not Gothic at all, but pseudo-Gothic.

In this I hope I may be mistaken. But, in justice to those whom they invite to compete, the committee should at least make it clear to the public what they themselves understand by Gothic. For instance, as there is no instance of a true dome in Mediaeval Gothic, would they condemn a design with a dome as violating the conditions? Or, again, must all the arches be pointed, and would a round-arched building be voted out of court? Must the plan be that of our old cathedrals, as in the case of Truro and Edinburgh, which Mr. Gladstone quotes with approval, and would any original plan stand self-condemned? With these and a hundred similar pitfalls in the field no competitor could walk safely except along the narrow path of precedent, and any original excursion would be fatal.

No good can possibly come of this narrow policy. The new Liverpool Cathedral offers an opportunity that may not recur for centuries of giving English architecture a lift upwards into new life and expression. It would be a national misfortune if those in whose hands the future of the scheme lies should fail to seize it through timidity and prejudice.

Let them simply offer the site and the opportunity, and invite English architects to do their best, and if they do not get a good design English architecture is in a worse case than I believe it to be.

Mr. Reginald Blomfield again writes:—

The Liverpool committee are in deep water and seem unable to get out of it. Mr. Gladstone, who acts as their spokesman, is simply confusing the issues in his letter to you of October 21. In answer to my suggestion that a hint for this cathedral might be found in such buildings as the Baths of Caracalla, Mr. Gladstone asks, Why not also in the Temple of Baalbec or Palmyra or Persepolis—or, for the matter of that, of Timbuktu? To Mr. Gladstone's imagination all these buildings present themselves as so many different collections of details, and he thence not unnaturally concludes that they would be quite unsuitable for the purpose in hand; but this is what comes of not seeing the wood for the trees. Probably in any one of these buildings a competent observer would find motives (not details) of design which he might translate into a totally different expression, and this is what I suggested when I referred to the Baths of Caracalla. Elmes found one motive of design here, and expressed it somewhat literally in his splendid room at St. George's Hall; but other architects might find other motives in the fragments of the tremendous vaults and arches of the ruins of Imperial Rome. It seems impossible after fifty years of Ruskinism to drive it into the head of the layman that architecture is not sculpture or painting, but architecture. It may seem a paradox to Mr. Gladstone, but I only state a fact when I say that there are architects nowadays who design in Classical architecture, and yet are inspired by the Gothic spirit as truly, so far as it goes, as any of the Mediaeval experimentalists of the thirteenth century, and these are the men with whom, as Mr. Reilly pointed out, lies the architecture of the future.

The point, as Mr. Jackson shows with admirable clearness in the *Times* of to-day, is, What is Gothic? Is it that wizened old mask of detail under which for the last fifty years the architectural ability of the country has very nearly been suffocated by the ardent amateur, or is it that free, adventurous spirit in design which declines to be tied down by formula, and seeks for its realisation in the simplest and most direct expression of the purpose in hand, subject only to the restraint of knowledge and to the condition that the result should be dignified and beautiful to the eye? It is this latter spirit, call it Gothic or by any other name, which inspires all that is best in contemporary English architecture and which is the real representative of all that has been best in the past architecture of this country; and it is against this spirit that this ill-considered resolution of the Liverpool committee is aimed. The committee have hardened their hearts in their iniquity. They made a bad start in 1884, and they seem to be making a worse one now, for there is not a single essential point in their proposals which has not been adversely criticised by all competent professional opinion. Their sensitiveness to dictation and their violent attempt to put back the clock suggest the state of mind of that humble but obstinate animal who, sooner than give way to his driver, fell over the precipice.

It is yet to be hoped that the committee may think better of it. There can be no doubt that they are sincerely anxious to obtain a cathedral worthy of one of the first commercial cities of the world. But they have gone to work in a way exactly calculated to defeat their object. As Mr. Jackson puts it, "Let them simply offer the site and the opportunity and invite English architects to do their best." It is due, not only to their subscribers, but to the interests of the art of this country, that they should not handicap their enterprise at the start.

ARCHITECTURAL ASSOCIATION CLASS OF DESIGN.

THE preliminary meeting of the Architectural Association Class of Design was held on Tuesday, the 15th inst., at 9 Conduit Street, W., Mr. W. H. Seth-Smith, president of the Association, in the chair.

The object of this school is to assist students in the study of design. The classes being under the direction of visiting architects, a practical knowledge of the work is thus gained. Students are not required to submit elaborate studies, but only tinted working drawings in pencil, showing, however, very clearly the subject specified, by plan, section and elevation.

Mr. J. Macvicar Anderson, in speaking of the importance of such a class, said they were all students of architecture, but he in one respect had the advantage of most of those present, inasmuch as he had lived a few years longer, and had therefore studied the requirements of the art with the greater facility that time afforded. They, however, possessed the distinct advantage over him in being at the outset of their career, with all the attractions of their art before them and the promise in honest work of influencing the architecture of a new century. They would perhaps find there was little interest taken in architectural design outside their own profession, because the general and wrong acceptance of the term implied the front of a house. The back of the house seldom entered into consideration, whereas the backs of houses were matters of great importance to architects. Architectural design did not consist merely in designing the front elevation, but in successfully planning all external and internal features. The most important point in architectural design undoubtedly was planning. Many men would disagree with him on this matter, but the speaker held a distinctly opposite view to their argument. Planning was artistic as well as utilitarian. It did not signify whether the projected structure was to be a palace or a country house, a municipal building or a cottage; the first consideration was to arrange the plan conveniently and so well that the requirements of the individual cases would be easily met. In country house planning it was necessary to place the dining-room in proper juxtaposition to the servants' offices, and in public buildings to afford easy access from one part to another. These essential particulars were too often totally disregarded in the planning of both public and domestic buildings. Originality in design was a source of danger to the young architect, and though the speaker did not wish to put any sort of drag upon the genius of students, caution, he said, was necessary before breaking away from established rules. It was the natural tendency of the student to do this, no matter how long such rules had been recognised. The five orders in architecture followed certain rules, and it was maintained impossible to improve upon the proportions governing them. Sometimes it was necessary to modify the proportions of columns and pilasters, but to hastily set aside long established rules was foolish. Art rested upon immovable foundations, but he was sorry to say there were students of the present day who, not content to take the ruling of past ages, designed for themselves forms both ugly and grotesque. Individuality was only legitimate when introduced without sacrifice of beauty. The charm of a pediment was its overhanging hood, but nowadays much of the effect was destroyed by setting back the pediment. The treatment of the arch was in present times often false, whereas properly employed nothing could be more beautiful. The great rule in architecture was to design in purity, and to get this quality the work must have simplicity. In important public buildings symmetry was the invariable rule. In conclusion, Mr. Anderson urged the architectural student to set before him in all work a lofty ideal. The artistic work of architects called for as lofty an ideal as that which encouraged the spiritual life, and unless the student set a really lofty ideal before him, he would not rise much above the ordinary level in his work. The architect's aim should be great, not satisfied at first sight with that which appeared good, but to be critical and severe. To be as critical of his own work as he was of the efforts of others, and with such a spirit in design there was for the young student the prospect of his improving the architecture of the age in which he worked.

Mr. H. H. Statham in commencing his address urged them not to accept the view that architecture at the present time was a dead art. It was not so, unless they chose to make it so. The position of architecture was as good now as it was at the Renaissance, or at any time since then. Those who declared that architecture was only the craft of building, and could only become real by giving up all details of former times and by architects betaking themselves to building with their own hands, were seeing imaginary difficulties and providing imaginary remedies for them. It was impossible for us by an exercise of will to free ourselves from the influence of the past, and it was equally impossible for the architect to become an actual builder; he must in any case have assistants, and would then be director of works, as he was now. So far from architecture being a mere craft spoiled by the Renaissance, it might even be argued that the Renaissance theory of

architecture was the higher one, since it made architecture an intellectual problem instead of a mere craft. On the other hand, it was a mistake to try to galvanise architecture into life (supposing it to be dead) by eccentricities and vagaries of design under the name of originality. These things would only be interesting as long as they were new; as soon as the novelty was worn off they would lose all their value, and the picturesque, in any case, was not the true object of architecture. The picturesque meant that which was imperfect, exaggerated or unbalanced. The best art was that which was a complete whole. A building, for whatever purpose designed, should be the expression of one dominant idea, pervading, first, the plan, and expressed with the same completeness in the design. With such an aim it was possible to make a building really an original conception, even if the details were not original. Indeed, anyone who set out on the design of a large building, saying to himself, "I will have all new detail designed by myself," would either find it impossible to carry this out or he would design a good deal of very bad detail merely for the sake of being different. But it was in his power to make a building a new conception in plan and design. And in this matter of unity of conception there was much to be learned from the great Renaissance architects. Their detail might be bad and conventional—much of Wren's was—but with both Inigo Jones and Wren the general conception of a building was almost always fine and consistent with itself—an architectural whole. Inigo Jones's design for the proposed Whitehall Palace was a notable example of this greatness and unity of conception—unity coupled with the effective variation introduced between the square court in one wing and the circular court in the other, which, however, were not allowed to interfere with the external symmetry of the great court. As far as we could judge by the one portion erected, the Banqueting-house, the architectural detail might seem to be cold and commonplace to be carried all over so vast a building; but that did not impair the grandeur of the plan, which no detail could kill. And it might be added, in reference to those who were always reminding them that drawing was not architecture, that it was nevertheless a means of expressing an architectural conception; and that Inigo Jones was a greater architect than he would otherwise have been thought in virtue of this plan, which had never been carried out, but which remained on paper to excite our admiration and emulation. No mere "craftsman" could ever have risen to such a conception. The same principle of striving to make each design a distinct and complete idea, instead of merely putting rooms together irregularly, might be equally carried out in small buildings such as ordinary-sized houses. Giving an example of an old house which possessed real individuality in plan, but which was carelessly and imperfectly carried out in elevation, he would urge them in studying old buildings not to be ready to admire everything in them just because it was old, but to judge of them on their merits, just as they would a modern building; this was a great deal more profitable than blind admiration, which too often became blind imitation.

GLASGOW INSTITUTE OF ARCHITECTS.

THE annual general meeting of this Institute was held on the 15th inst. in the rooms, Pitt Street, Mr. John James Burnet, A.R.S.A., F.R.I.B.A., president, in the chair. The Secretary read the thirty-third annual report, from which it appeared that during the past session there was added to the roll of honorary members Sir James D. Marwick, LL.D., from whom an acknowledgment was duly received expressing his appreciation of the honour thus conferred upon him by the Institute. On the other hand, there had been removed from the honorary roll, by his death during the year, Mr. John Burnet, F.R.I.B.A., father of the President, and himself an ex-President of the Institute. Mr. Burnet had reached the venerable age of eighty-seven years, and was held in the highest esteem by all who knew him. He was one of the original members of the Institute, was long a member of Council, and held the office of President from 1876 to 1878. The Council had also to deplore the loss to the profession caused by the death during the year of the following distinguished architects, viz. Wm. Young, J. M. Brydon, Arthur Cates and James Brooks. During the year three names had been added to the roll of ordinary members, of whom there were now seventy-two on the roll. The membership was thus keeping pace with the increase of the profession in Glasgow and the West of Scotland, and included nearly all within the district of the necessary standing and qualifications. The usual exhibition of R.I.B.A. prize drawings was held during the fortnight commencing April 1, when there were also exhibited the drawings which gained the Institute prizes in the School of Art and Technical College.

The following were the winners of the Institute prizes this year:—School of Art (first prize), Mr. James W. Hepburn; (second prize), Mr. Wm. Ferguson; Technical College, Mr. Robert Muir M'Kissock. The Council agreed to renew the prizes of five guineas to the School of Art and two guineas to the Technical College. One of the outstanding events of the year was the visit to Glasgow of the R.I.B.A., which took place on October 3 and 4, and the Council were pleased to be able to congratulate the Institute on the assurances they had received that it was regarded by the visitors as one of the most interesting episodes in the history of the Royal Institute. The executive committee of the Exhibition authorised the expenditure of a sum not exceeding 35% on the architectural photographs at present being exhibited in the Fine Art Galleries, and it was arranged to order two sets, one to remain the property of the executive and the other to belong to the Institute. It is intended that those now brought together, illustrating the architecture of Glasgow from the cathedral to buildings of very recent times, will form the nucleus of a larger collection, in which all the works of architectural importance of Glasgow and the West of Scotland will be included.

The Chairman, in moving the adoption of the report, said the year had not been without its share of responsibilities, but he believed the Institute was becoming more and more aware of the exact nature of its responsibility as one of Glasgow's corporate bodies, and was becoming recognised as capable to advise in its interests. It was with pleasure that he had to record the very kindly reception which had been given to the circular which was issued in the early part of the year soliciting from the members some financial support for the building fund of the college. Though the direct response to that circular was insignificant, he had called on several members since with the most satisfactory result. That an institution offering educational facilities not only in the practice of architecture but in all crafts—he would not say depending for their position on architecture, but largely depending for any artistic development of their practice on the profession—should not, in the constituent parts of its governing body, include architects, seemed a gross error, but he believed that this was being recognised by those in authority, and that it might ere long be put to right. In their relation with the tradesmen, or craftsmen, as he preferred to call them, they had endeavoured to hold their position as neutrals, and though they had not given that prompt response to their request to consider with them a form of contract, it was primarily because it was felt that little should be done to interfere with the liberty of each man, either on the one side or the other, to enter into such a form of contract as might seem to him most suitable in the particular circumstances, and, above all, it was particularly necessary, in a large industrial and commercial centre like Glasgow, to avoid anything that might be looked upon as purely parochial, and might militate against the freedom of tendering by those who were outside their boundaries. In skill their craftsmen had nothing to fear from outside competition, and they could best help them and their clients to a clear and concise contract by clear and concise drawings and descriptions of their designs. The Institute had again endeavoured by revising its suggestions for competitions to make them more useful to the public, and likely to result in abler men submitting designs, but it had done so only as recognising the competitions as a seemingly necessary evil, and hoping that the public would ultimately recognise that it was not the best way to get "light and leading," and that the only ultimate competition amongst those who were to be their advisers was the competition amongst men in their daily work to earn their confidence, and not by a submission of their work which, from its very nature, if it was to be of any real use to them, could only be judged under expert advice. The Institute was convinced that architecture, in the true sense of the word, could only be good when it was the result of close personal consultation between the architect and his client, between whom the structure would grow consciously fit for its purpose and unconsciously artistically effective. One of the most interesting events of this year's work had been the position which the Institute felt itself obliged to take in reference to the reconstruction of one of Glasgow's most important public and charitable institutions. It was with very great regret that the Institute felt obliged to bring the result of the Royal Infirmary competition before the public of Glasgow, and seemingly to stand in antagonism with that body of gentlemen who so freely and generously gave so much of their time to the public service connected with the management of such institutions; but surely if the Institute had any public duty whatever to perform it was that of placing before the public any matter within its technical knowledge in which it felt they were being misled. No personal regard for such gentlemen should be permitted to influence its expression of opinion. In this instance the question was a very vital one, and one in which the public were entitled to the very best technical advice that could be obtained. What the Institute pleaded for, and asked the public to demand, was that such technical advice should

be taken before they (the public) were led to support a scheme which, in its opinion, if carried out as at present proposed, could only lead to a very heavy first cost, enormous annual expenditure and gross inefficiency for the purpose in view.

The Council for the ensuing year was elected as follows:—Messrs. Alex. Petrie, John Jas. Burnet, James A. Morris, David Barclay, W. Forrest Salmon, A. N. Paterson, John Keppie, H. K. Bromhead, James Lindsay, N. Macwhannell, Campbell Douglas, T. L. Watson, J. M. Monro, Alex. M'Gibbon, A. Balfour, Jas. Miller (who has since resigned) and John A. Campbell. Mr. John Keppie was elected a representative on the joint house committee. The treasurer's accounts, which were submitted and approved of, showed that the funds were in a satisfactory position. A vote of thanks to the chairman terminated the proceedings.

AN EARTH HOUSE IN ORKNEY.

IN the course of the past summer there has been reopened on the farm of Grain, near Kirkwall, a most interesting example of the class of subterranean buildings known in Scotland as "earth houses." It is situated within half a mile of the town of Kirkwall and on the property of the Marquis of Zetland. The excavations were carried out, by permission, by Mr. James W. Cursiter, the local antiquary, who contributes the following notice of it to the *Scotsman*:—

There are no details regarding the first discovery of this building, except a remark in the late Mr. Petrie's notebook, furnished to me by Dr. Joseph Anderson, to the effect that it was about the year 1827. The probability is that about that time it was accidentally discovered by the plough coming in contact with some of the upper stones of the entrance, or in the course of some other agricultural operations. When Mr. Farrer visited Orkney in 1857, Mr. Petrie and he together reopened the building, and wrote a short descriptive account of it. The opinion formed at that time was that the cell must have been a place of concealment beneath a broch, and the walls are said by them to have been found in a ruinous condition. Scottish archaeology has made rapid strides in the last half-century, and, as I was anxious to see it for myself and preserve the memory of this almost forgotten relic, I determined to locate it, and, if possible, assign it to its proper position among our antiquities which may be seen and studied. In the search, trenches were dug from 3 to 5 feet deep, about 250 feet in length altogether having been excavated. Two small enclosures were found, constructed of flag-stones placed on edge, but with no masonry to support them. There were no traces of the remains of a broch encountered, nor anything worthy of the name of building, except the one to be described. Signs of habitation, however, were everywhere visible—remains of ruined walls, shellfish and fish bones; bones of sheep, ox, boar and whale; deers' horns, stone pestles, saddle querns and recessed stones. Some of the bones had been formed into implements, and there were a few fragments of clay pottery and charcoal discovered. About 18 inches below the surface one of the lintels to the entrance was discovered, revealing the fact that in trenching we had passed over the structure without discovering its existence owing to its depth, the entrance having been built so much higher than the rest of it. The structure extends for about 36 feet in length, from south to north, and is entirely underground; it consists of the entrance at the south, a gallery or passage in the middle, and a chamber at the north end. The entrance consists of two compartments nearly 3 feet square each, and 6 and 7 feet high, divided from each other by lintelling below and masonry above, the building of the southern one on its south side being very confused, possibly from its having been entered from that end on one of the former occasions, and roughly closed up. The northern compartment seems to have had two doorways, one on the east and one on the west, the east one being only 2 feet 9 inches high, while the lintel of the one on the west is 6 feet above the floor level.

The gallery is on the north side of this compartment, 2 feet 5 inches wide by 2 feet 6 inches high at its south end, and 2 feet 7 inches wide by 3 feet 9 inches high at the inner end, and is about 18 feet long. It has a slight curve to the right, and gentle descent throughout its length. The side walls are well built, but the stones of which it is constructed present a great diversity in size, some being very large and water-worn, the others small by comparison. The gallery is roofed by large water-worn stones laid crosswise over the walls. The chamber is of an oval shape, 13 feet in extreme length and 6 feet 6 inches in extreme width, with varying height according to the lintelling, the greatest being about 5 feet 9 inches; there is very little convergence in the walls, which are built of comparatively small broken stones, there being a remarkable absence of water-worn ones. In the south-west corner of the chamber one piece of yellow sandstone (free-stone) occurs, which is evidently the lower stone of a saddle-quern; the most remarkable feature of the

chamber is the fact that the roofing is supported by four massive pillars, each pillar consisting of a single water-worn block of stone placed on end, supplemented when required by small ones placed on the top of them. Resting on these, with their other ends built into the nearest side wall, are other stones forming cap-brackets. Over these cap-brackets are placed heavy lintels lengthwise and crosswise of the building, these lintels serving to support the roofing, which consists of heavy water-worn stones, laid chiefly crosswise, some being laid flat and others on their edge. The entire erection is founded on the original surface of the rock, which forms its floor, and has here a very considerable dip to the north-west. There is a descent of about 9 feet from the surface to the entrance floor-level. The dip of the rock continuing throughout the gallery and chamber makes the inner end of the chamber about 12 feet below the present surface of the ground, which presents no indication of the presence of such a building in the neighbourhood. The building is constructed entirely of the common sandstone of the district, and shows no signs of tooling. Its erection must have entailed a considerable amount of forethought, trouble and painstaking work. At present it seems to be encased with very hard boulder clay about 4 to 7 feet deep, with a covering of 5 feet of earth, except the entrance end, the top of which is only about 1 foot below the surface. An examination of the outside of the structure, however, was not made. The entire building is in a perfect state of preservation.

Examination of the interior revealed no trace of ventilation, drainage or fire, but showed that infiltrated mud had at one time covered the floor of the chamber to a depth of 18 or 20 inches. There was considerable accumulation of mud and stones in the gallery, which got finer and smaller towards the inner end. This also characterised the rotten rock surface of its floor, which I slightly excavated in the centre lengthwise, partly for drainage and to afford easier access to the interior. In selecting a proper niche in Scottish archaeology for this building, I am compelled to class it under the category of earth houses so faithfully described by Dr. Joseph Anderson, who says:—"They are mostly situated in arable land, and now under cultivation, having long, low, narrow galleries, always possessing a certain amount of curvature, always widening and increasing in height from the low and narrow entrance inwards, usually built with convergent walls and roofed with heavy lintels, which are always lower than the surrounding level of the ground, so that the whole structure is subterranean." Few of these earth houses have yielded relics, but in consequence of these articles which have in the course of their excavation been discovered, they have been relegated to a comparatively recent period, viz. the beginning of the period of the Roman occupation. I am loth to accept such a late date for the erection of this building; the mixture of megalithic and microlithic art displayed in its architecture is more characteristic of the age of stone than of any succeeding period in our archaeology. As little is known of the purpose for which they were constructed as of their date, it is meantime merely a matter of reasonable conjecture. Probably they have, like almost every building of antiquity, in their time played many parts. I do not entertain the ideas of hiding holes, or winter residences, which have been suggested, but am inclined to the opinion that this structure must have been erected as a tribal or family burial vault. Since it was opened I have repeatedly observed that after even moderate rainfall the water accumulated in the inner end of the chamber to a depth of from 9 to 12 inches, while in comparatively dry weather there have been but few days on which there has not been continual dripping from the roof and trickling down the walls. Walls and a roof have been constructed over the entrance and a door with lock and key provided, so that interested people may have the opportunity of examining this, the most perfect specimen of its kind known. A temporary arrangement has been made by which Mr. Twatt, the tenant of the farm, who has the key, will allow facilities for seeing it, and it is to be hoped that the proprietor may see fit to make provision for its permanent preservation and usefulness.

PUBLIC ACCESS TO STONEHENGE.

At a meeting of the Amesbury Parish Council, held at Amesbury on the 16th inst., the following resolution was passed and forwarded to the Amesbury District Council and the Wiltshire County Council:—"This Council, being strongly of opinion that an obstruction has been placed at Stonehenge, thus interfering with the free access hitherto enjoyed by the public, and this opinion being generally sustained by the public at large, as confirmed by the Press, the said Council desire to enter a strong protest against the said obstruction, and to express upon the District Council the urgent necessity for the reconsideration of their opinion communicated to the Amesbury Parish Council on March 23 last. The Council also desire to

state that a copy of this resolution, as well as a copy of that forwarded to the District Council on February 28 last, will be forwarded to the County Council as well as to the public Press." The resolution of February 28 referred to was as follows:—"This Council, having had its attention called to the obstructions which have been placed across the carriage-tracks, by which from time immemorial the public have had access to Stonehenge, desire to obtain the opinion of the District Council as to whether the owner is within his rights in having such obstructions so placed."

TESSERÆ.

Protogenes the Painter.

It is said by Pliny that Protogenes was originally in very poor circumstances, and that it was not known from whom he received instruction. He did not produce many paintings, in consequence of the long time and great labour which he devoted to each. Quintilian says that "cura" was the distinguishing characteristic of his paintings, and Apelles is said to have remarked that Protogenes did not know when to take his hand from his pictures. Of all the paintings of Protogenes the most celebrated was the one called *Talysus*, upon which he is said to have been engaged seven years. Pliny says that he lived during the time he was painting it upon moistened lupines, and also informs us that each colour was laid on four times. A dog in this painting, which was represented panting and foaming at the mouth, was greatly admired. It is related that Protogenes was for a long time unable to represent the foam in the manner which he wished, till at length, disheartened by repeated failures, he threw his sponge at the mouth of the dog, which accidentally produced the effect he had been endeavouring to obtain. The fame of this painting was so great that Demetrius Poliorcetes, when besieging Rhodes, did not set fire to that part of the city where Protogenes lived lest he should destroy the picture. Aulus Gellius, in relating the same circumstance, says that Protogenes was dead and that the painting was preserved in a public library outside the walls of the town. In the time of Pliny it was preserved in the Temple of Peace at Rome. Among the other paintings of Protogenes mentioned by Pliny was a portrait of the mother of Aristotle, who advised him to paint some of the exploits of Alexander the Great. Paintings of Alexander and of Pan were among the last of his works. Pausanias also mentions a painting of the Thesmophetæ by Protogenes, which was preserved at Athens in the senate house of the Five Hundred. Protogenes is always mentioned by the ancient writers in terms of the highest admiration.

Landscape Art.

In Italy when the churches became full, sublime or sacred historical painting was on the decline. The art reverted to mythology, to ancient fable, and ideal landscape arose—at first subordinate to a story—but it soon became not only the principal and the story, but an ornament, an adjunct. Some cold historical painters, indeed, went on with their history, the object of which was the figure; but the soul, the sentiment, was gone. The genius of Italy could not bear this, and broke out in a new school of landscape, and the works of those days are the most precious ornaments of the best collections. Landscape, however, soon declined from its higher state—composition, scenery, both the more elegant and the free pastoral, gave place to effects, to more accurate studies of the more minute parts of nature, till these minute parts became the whole, and at length character, excepting of individuality of bits of nature, was abandoned. The earth, as it was made, was neglected for the earth as man made it—the lowest subjects, skirts of villages, banks of canals, cattle and man in all the servile offices of toil became the desiderata of painters and admiration of connoisseurs. These often exhibited, it is true, great talent, wonderful skill in the management of colours and execution, the fascination of which, if it did not cover the vulgarity of the subjects, excused it; yet were there intermediate painters who, not abandoning themselves to the low nor aiming at the high, chose neutral or perhaps pleasing scenes as the subjects upon which to show their skill and management of those minor principles of art which are common to all subjects, to all schools. In these there was always a richness of colour, a breadth, a mellowness, so that the eye, if there had been no subject whatever, would have been gratified. From these painters, to our own Wilson and Gainsborough, landscape sunk, was totally lost, first descending to unmitigated vulgarities, undefended by any beauty, and became contemptible. The attempts of Lambert and Smith of Chichester to revive it were unfortunate; they were devoid of genius, nor was Wright of Derby as a landscape painter very much in advance of them. Some of Gainsborough's smaller pictures were very beautiful in colour and effect, and the subjects; if not high, pleasing, but he had no

enlarged conceptions of landscape, and in his after style, wherein his execution was totally out of character with his subjects, and his colour unmeaning and dirty, his pictures are probably the most unpleasing that can be offered to the eye of an admirer of nature. Nothing shows his poverty of genius in landscape so much as his published sketches, and yet such is the innate love of nature they were in their day highly esteemed and brought large prices. When the clockmaker was enabled to fix his watch in Gainsborough's village church-tower, and exhibit the toy in the shop-window, he did not so much degrade the painter as afford a practical satire upon his choice of landscape. We speak of a certain time of Gainsborough's pictures, for though we do not think he had any peculiar genius for landscape, some of his smaller wood scenes, evidently from nature, are very charming.

Cantilever Scaffolding.

In a report by Telford on the passage of the Menai Strait, printed in the Parliamentary Papers for 1811, a novel plan is proposed for the centreing of very large arches, especially adapted for situations in which, from the nature of the bottom, the rapidity of the current, or the great elevation of the bridge, a centreing put up from below would be impracticable. It was suggested for the erection of an iron arch of 500 feet span at Ynys-y-Moch. Telford proposed that the masonry of the abutments should be carried up to the level of the roadway, and surmounted by four massive frames, about 50 feet high, placed at the same distance apart that the ribs of centreing were to be. The centreing was to be formed of a number of trussed frames, fitting together like the stones of an arch, these frames being 25 feet deep at the sides, and gradually diminishing to 7 feet 6 inches at the crown of the arch. The first set of these frames of centreing were to be put up by means of scaffolding secured to the abutments, and supported by horizontal ties set in the masonry, and iron rods suspended from the frames at the top of the abutment. On the first portion of centreing thus put up a flooring was to be laid, on which the second set of frames could be moved forward. These being laid upon the first set in an inverted position were to be hinged to them by a contrivance resembling the joint of a carpenter's rule, and then turned over until their ends abutted against the ends of the first set. Suspension rods being then extended from the ends of the second set to the frames on the abutment, the flooring was to be extended, and a third portion of the centreing moved forward and fixed in like manner. Thus the centreing would be suspended from the abutments, and when completed it would have the strength of an arch, as well as that of the suspending rods, to enable it to support the superstructure.

Michele San-Micheli.

With many merits the designs of San-Micheli often exhibit glaring faults, which, if he had confined himself entirely to the study and practice of civil architecture, he would perhaps not have fallen into. In fact, the best of his palazzi and other works of that class are far from being models, except as to their façades and exteriors, being most inconvenient in their plans, besides abounding with monstrous deformities, such as rooms quite out of square, and sometimes with no two sides parallel; and in one instance (Palazzo Bevilacqua) he has placed the principal staircase in an open court without any protection whatever from the weather. His exterior architecture exhibits less of mannerism and more both of invention and nobleness of taste than that of Palladio, but also not a little that is decidedly faulty and offensive. Almost all his buildings are marked by a disagreeable inequality of design, there being a singular mixture of parts highly enriched and others nakedly plain in the same composition. His balustrades to windows and pedestals to columns are too high, and in more than one instance he has raised his columns on a second pedestal over the first one. His style shows itself to most advantage in his lofty rusticated basements, which generally possess an air of dignity. Among the palazzi erected by him are the P. Grimani and the P. Cornaro à S. Paolo at Venice, and the P. Canossa, Bevilacqua, Verza, Pelligrini and Pompei at Verona. In Verona he also built the church of the Madonna di Campagna and the much-admired Cappella Pellegrini.



Architects and Building Committees.

SIR,—I shall be obliged if you will allow me space to bring the following case before your readers, in the hope of some professional brother being able to aid me with his experienced advice in the matter. The case is this.

After making drawings for the extension of a modern church, and the greater part having been carried out satisfactorily, the building committee order their architect to copy seats of another architect, which he declined to do.

The committee, through their secretary, get the builder to make models entirely different to their architect's design (which formed part of the contract), and had their design put into execution, on learning which the architect immediately sent in his resignation, considering himself to have been superseded.

The committee decline to pay the balance due for services up to the time of rupture, and threatens counter-claim for damages for non-completion of work, which they contend the architect had undertaken to see completed.

Architect would be glad of advice from any professional brother who has been similarly placed, or references to any cases bearing on this.

ARCHITECT.

October 21, 1901.

GENERAL.

The Royal Academicians have selected "Saul and the Witch of Endor" as the subject for this year's competition in historical painting. In landscape the subjects are "One of the Bridges over the Thames in London" and "Cumulus Clouds over a Fen Country."

A Collection of Paintings by Mr. N. Hone and Mr. J. B. Yeats, both members of the Royal Hibernian Academy, forms an exhibition which was opened in Dublin on Monday last.

The Glasgow Institute of Architects have elected the following officials for the coming year:—President, Mr. John James Burnet, A.R.S.A.; vice-president, Mr. Alexander Petrie; auditor, Mr. W. Forrest Salmon; secretary and treasurer, Mr. C. J. MacLean.

The Chapel of the Guild of the Holy Cross, Stratford-on-Avon, is to be restored. It dates from the reign of Henry VII., and was erected by Sir Hugh Clopton. It belongs to the Corporation.

The West Houghton District Council (Lancs) have decided to erect public offices and to obtain a design by competition. The accommodation to be provided will consist of a large public hall on the second floor, two committee-rooms with ante-rooms, a couple of offices (each) for the clerk, surveyor, district-rate collector and overseers and poor-rate collector, one office for the School Board, one for the relieving officer, one for the Council's nuisance inspector and the medical officer of health, store-room, waiting-room, caretaker's apartments, &c. The estimate of cost is not to exceed 4,000*l.* to 4,500*l.*, including furniture and architect's fees.

Mr. Silvanus Trevall, who was mayor of Truro in 1894-95, is likely to be again elected to the office for 1901-2. He possesses special qualifications for the duties.

Mr. Edwin O. Sachs will open the discussion on "The County Council and the Safety of Theatres" at next Wednesday's meeting of the O. P. Club.

Mr. C. Hawksley will deliver his inaugural address as president of the Institution of Civil Engineers at the meeting on Tuesday, November 5.

The Statue of the late Mr. Gladstone in Albert Square, Manchester, which was unveiled by Mr. John Morley on Wednesday, was modelled by Signor Raggi. It is 9 feet 10 inches high.

The Lady Chapel of St. David's Cathedral was, after restoration, dedicated on Tuesday by the bishop of the diocese. The ceiling of the lady chapel collapsed 130 years ago. The work of restoration has occupied about a year, and has cost 2,500*l.*, and its accomplishment is due to the unflagging efforts of Dean Howell. The chapel had to be practically reconstructed, and the ante-chapel has also been paved and repaired according to plans by Mr. John Oldrid Scott, who succeeded his father, the late Sir Gilbert Scott, as the cathedral architect.

The Glasgow Corporation have agreed to expend 400*l.* on reproductions of ancient Irish art objects which are now being exhibited in the Fine Art Galleries.

Mr. Carnegie has given 37,000*l.* to Dundee for the erection of four free libraries.

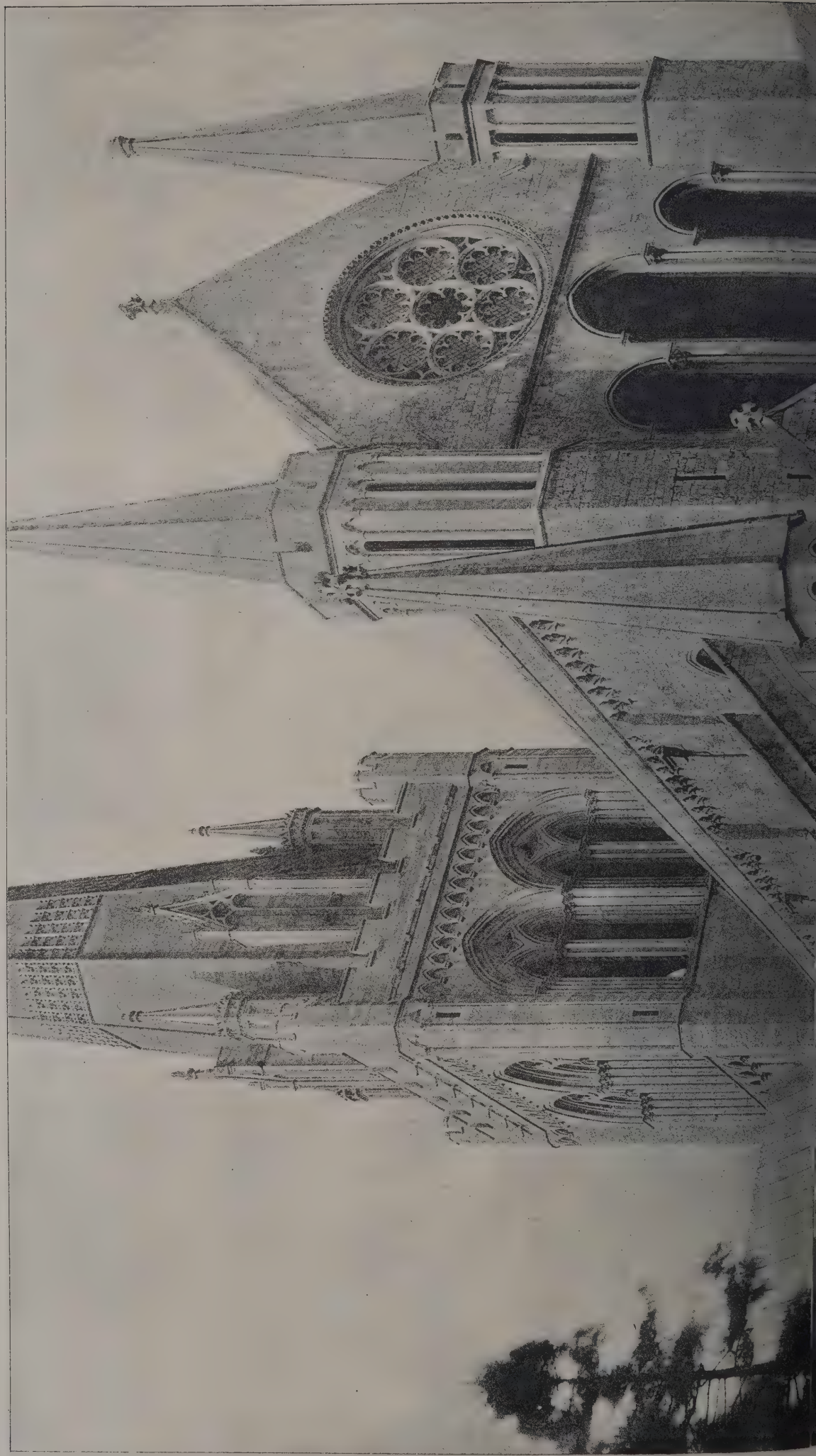
The Marquis of Bute on Wednesday laid the foundation-stone of the new municipal buildings and law courts at Cardiff, of which Messrs. Lanchester, Stewart & Rickards are the architects.

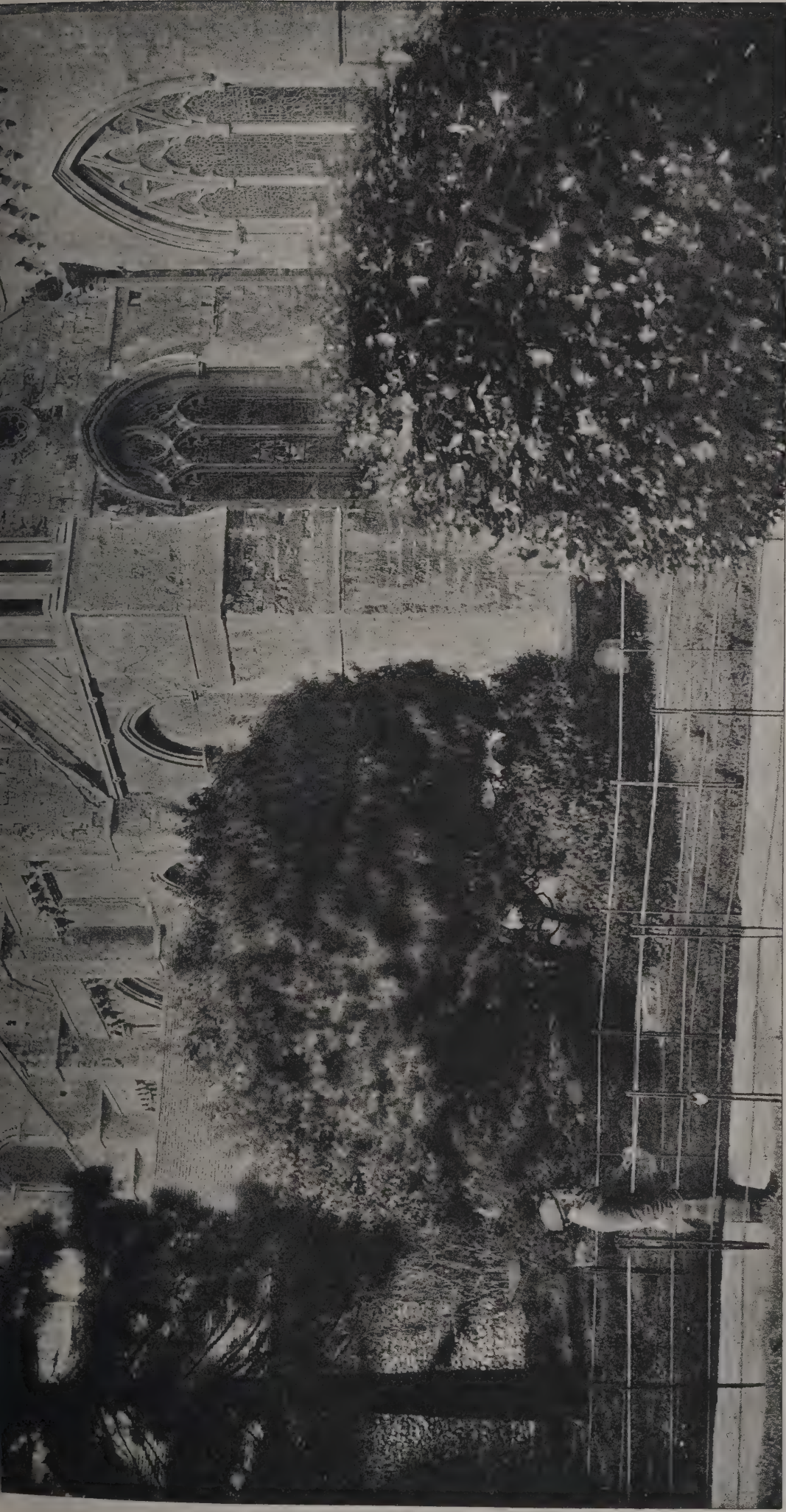
The Late Mrs. Janet Smith or Rodger, by her will directs her trustees to hand over to the Town Council of Glasgow, to form part of the collection of pictures in the art galleries at Kelvingrove, ten paintings which belonged to her late brother, Mr. David Adam Smith.

The New Offices of the Mutual Life Insurance Company of New York.—In the description of the above building in our issue of October 11, it should have been announced that the very handsome ceilings under the gallery and over the main hall, and also the wall tiling to the stairs, were executed by the Burmantofts branch of the Leeds Fireclay Company.

SMITHSONIAN INSTITUTION
WASHINGTON, D. C.

The Architect, Oct 25th 1901.





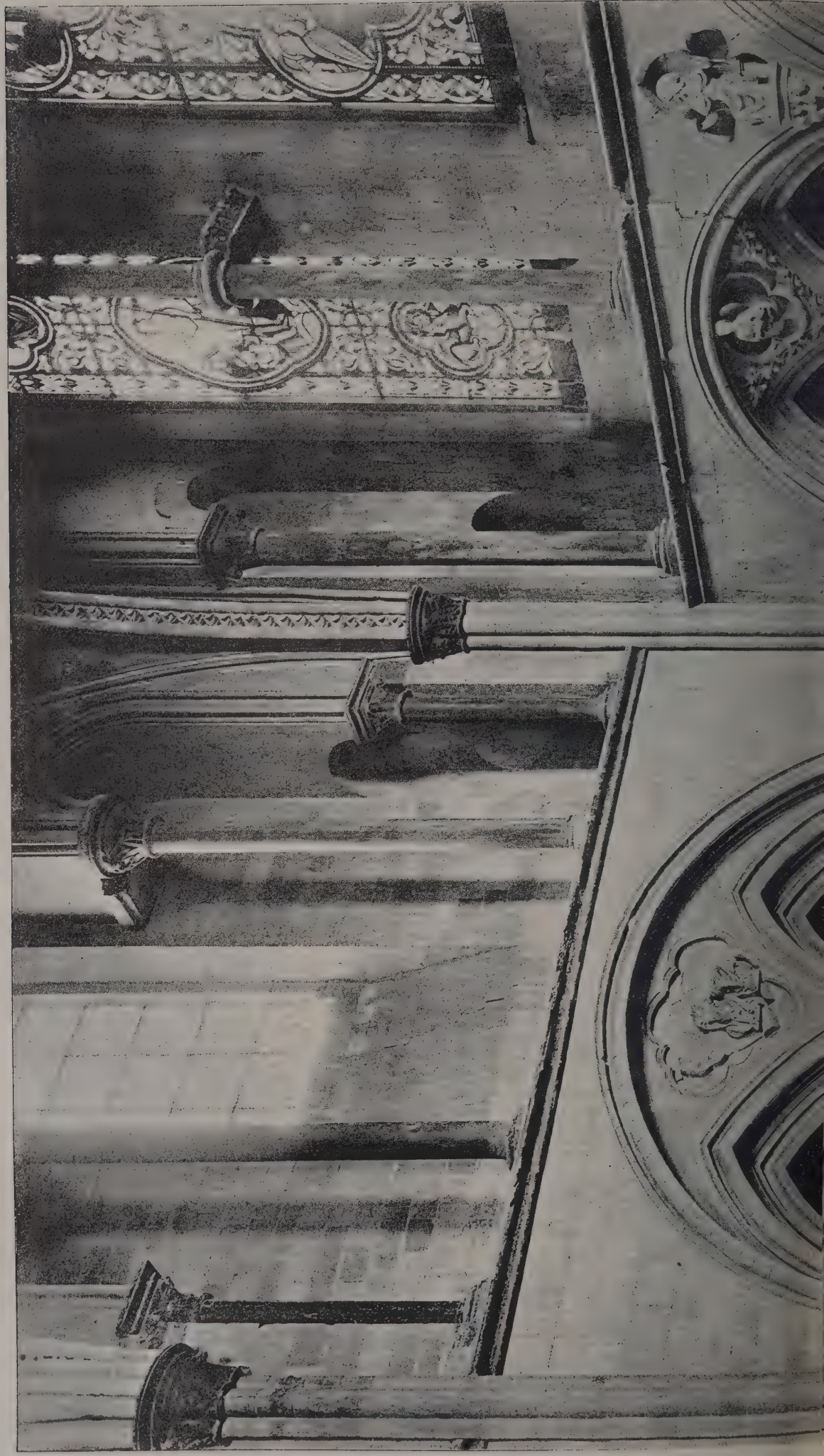
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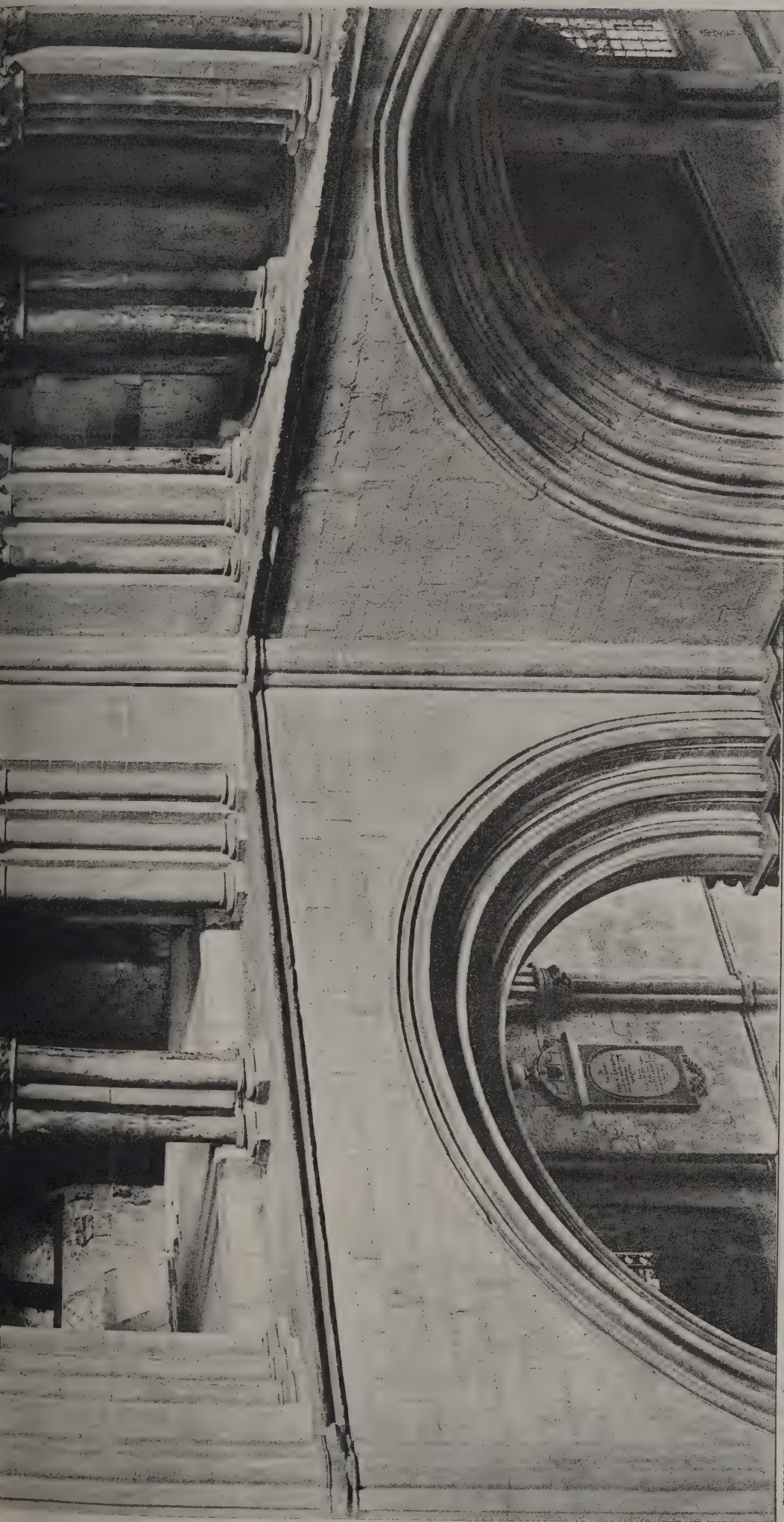
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CATHEDRAL SERIES, No. 361.—CHICHESTER: TOWER AND EAST END OF CHOIR.

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The Architect, Oct 25th 1901.





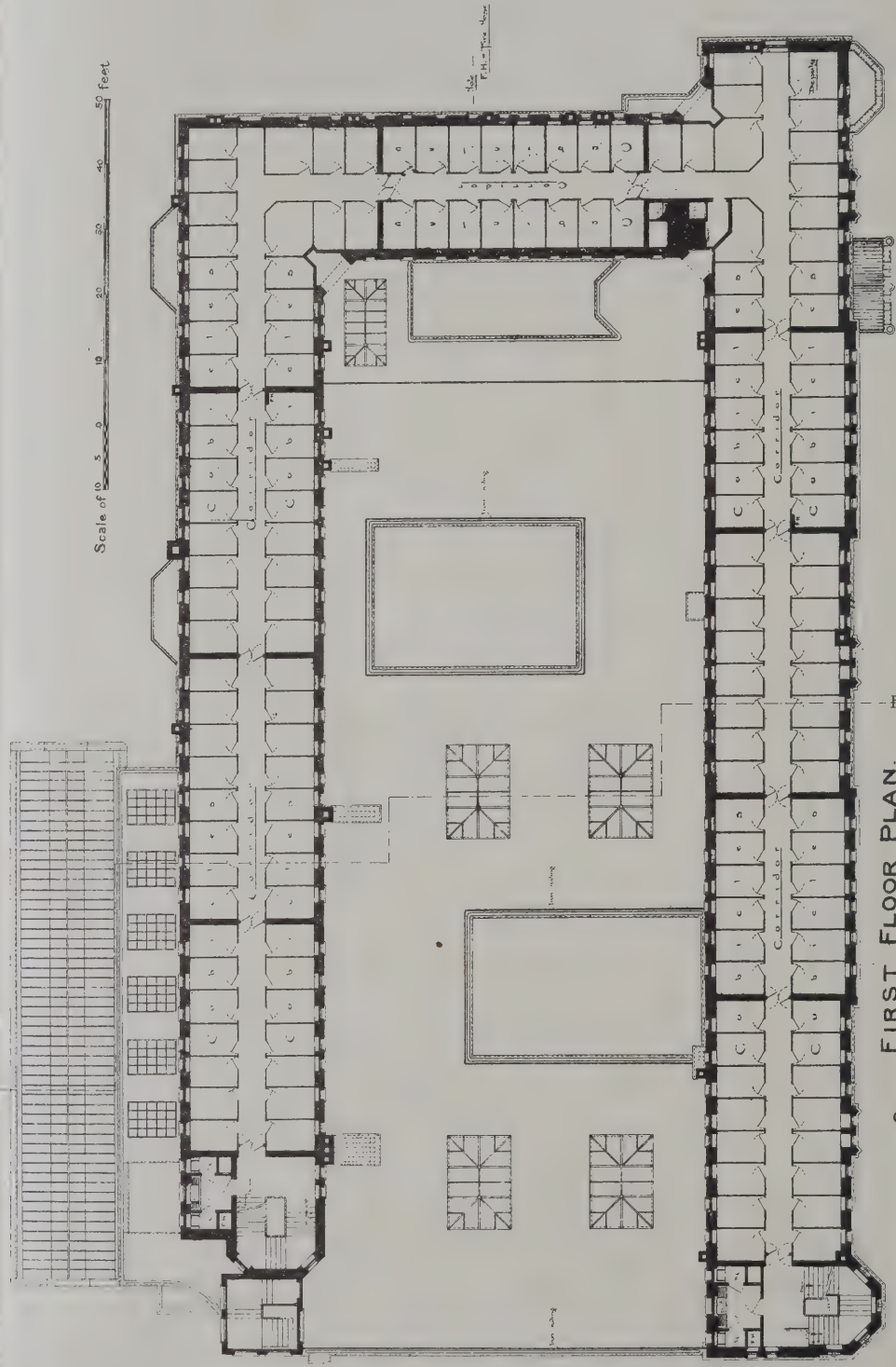
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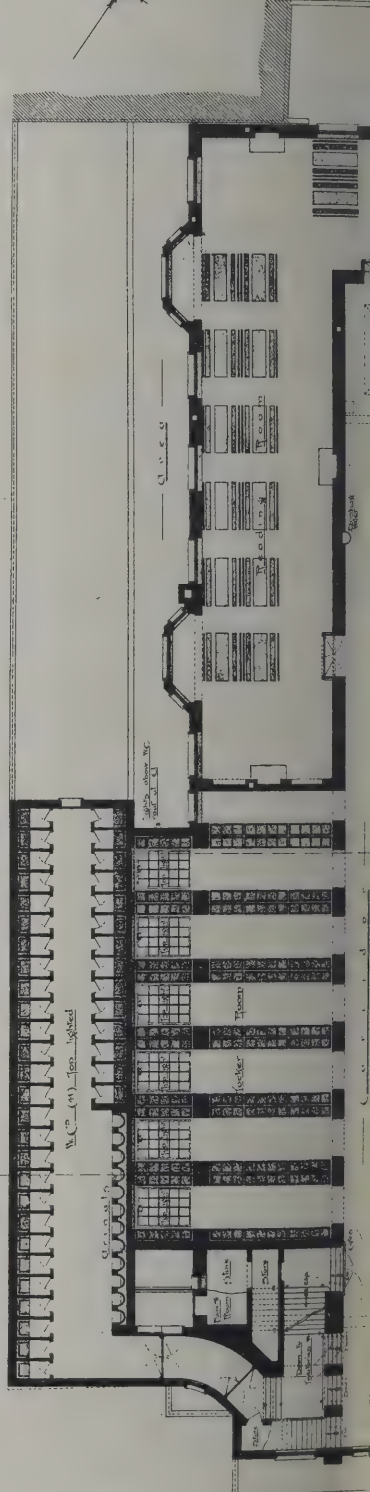
CATHEDRAL SERIES, No. 362.—CHICHESTER: TRIFORIUM, NORTH-EAST CORNER OF RETRO-CHOIR.

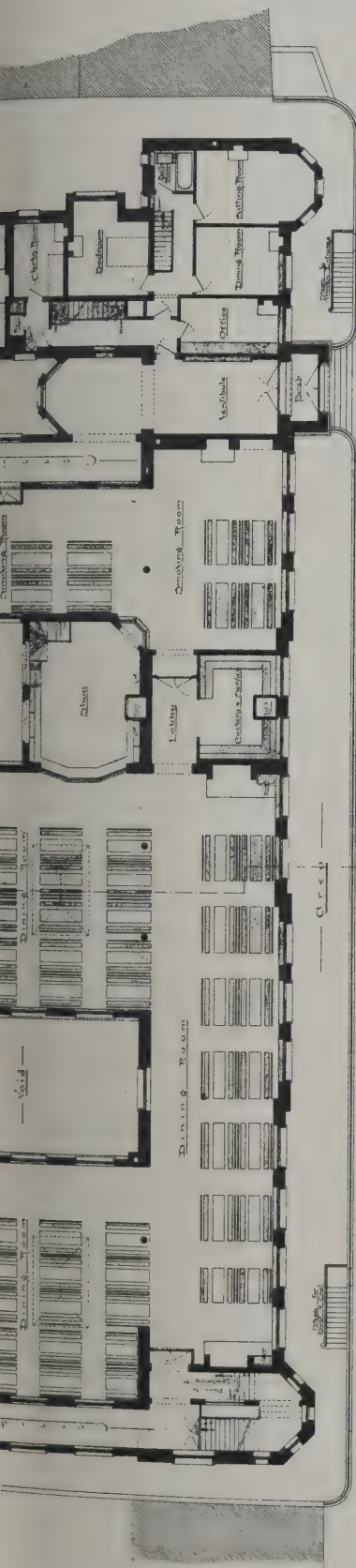
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Chas. Architect, Oct 25th 1901.

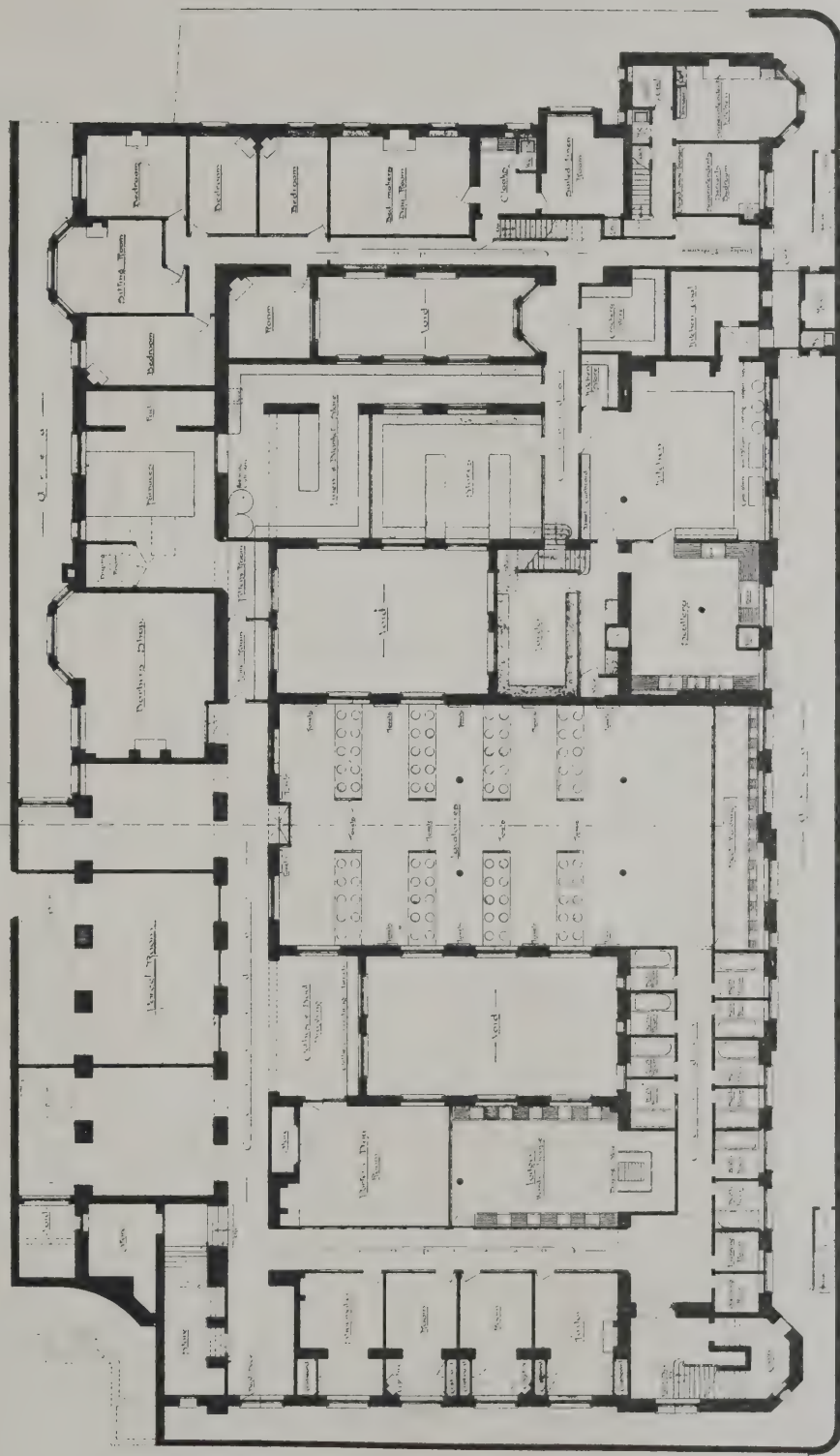


FIRST FLOOR PLAN.





GROUND FLOOR PLAN.



BASEMENT PLAN.

1/2

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HARRY B. MEASURES, Architect.

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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER" Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20% offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 25% offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

CAMBERWELL—Oct. 29.—Plans are invited for public baths and washhouses to be erected upon a site in the Old Kent Road. Premiums of 150, 75, and 50 guineas respectively are offered. The Town Clerk, Town Hall, Camberwell, S.E.

CONTRACTS OPEN.

ARGENTINE REPUBLIC—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ASKAM-IN-FURNESS—Nov. 28.—For erection of new Primitive Methodist Sunday schools, and heating same and existing chapel. Rev. W. Carr, minister, Slater Terrace, Dalton-in-Furness.

ASTON MANOR—Nov. 4.—For main buildings, offices, foundations, chimney-shaft flues, &c., required for their proposed electric-power station, for the Aston Manor Urban District Council. Council Offices, Aston Manor.

BEDFORD—Oct. 29.—For erection of a wash-house, &c., at smallpox hospital. Mr. John Lund, borough surveyor.

BETHNAL GREEN—Oct. 29.—For supply and erection of one Allott & Paton's improved Washington Lyons steam disinfectory, with all the necessary buildings, fittings, &c., at the infirmary, Cambridge Heath, N.E. Mr. D. Thomas, clerk to Guardians, Bishop's Road, Bethnal Green, N.E.

BLACKPOOL—Oct. 30.—For erection of a portion of the new church of St. George, Stony Hill, Blackpool. Mr. H. Goldsmith, architect, 63 Faulkner Street, Manchester.

BOOTLE—Oct. 31.—For enlargement of the Bedford Road Board school, Bootle. Mr. Thomas Cox, architect, 11 Dale Street, Liverpool.

BRADFORD—Oct. 28.—For erection of three shops, North Parade. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

BRENTFORD—Nov. 6.—For erection of an isolation hospital, with administrative buildings, &c., at Clayponds Lane, Brentford. Mr. Arthur Ramsden, surveyor, Town Hall, Chiswick.

BROCKLEY—Oct. 31.—For erection of a sorting office for postmen at Brockley, for the Commissioners of H.M. Works and Public Buildings. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

CAMBRIDGE HEATH—Oct. 29.—For erection of an Allott & Paton's improved "Washington Lyons" steam disinfectory, with all the necessary buildings, fittings, &c., in connection therewith, at the infirmary. Mr. D. Thomas, clerk to Guardians, Bishop's Road, Bethnal Green, N.E.

CARDIGAN—Nov. 1.—For erection of new laboratory and fittings at the county school, Cardigan. Mr. James Stephens, clerk, 3 Green Street, Cardigan.

CARLISLE—Nov. 2.—For construction of underground lavatories in the Market Place, Carlisle, for the Corporation. City Engineer's Office, Carlisle.

CHALFORD—Oct. 28.—For erection of an infants' school at Chalford Hill, Glos. Mr. V. A. Lawson, architect, 17 Rowcroft, Stroud.

CHELTENHAM—Oct. 30.—For erection of a town hall on the winter garden site. Messrs. Waller & Son, architects, 17 College Green, Gloucester.

CLEATOR MOOR—Nov. 12.—For erection of a new butcher's shop, slaughter-house, hanging sheds, &c., at Cleator Moor. The Central Office of the Cleator Moor Co-operative Society, Ltd.

CORNWALL—Nov. 6.—For new joinery and renovating the Wesleyan chapel, Portreath. Mr. Sampson Hill, architect, Redruth.

CUDWORTH—For erection and completion of a workmen's home, caretaker's house and shop at Cudworth. Mr. Geo. Moxon, architect, Barnsley.

DARLINGTON—Oct. 28.—For joiner and plumber's work in connection with the construction of a ladies' lavatory in the covered market, for the markets committee. Borough Surveyor's Office, Town Hall, Darlington.

DARLINGTON—Oct. 28.—For construction of a ladies' lavatory in the covered market. The Borough Surveyor, Town Hall, Darlington.

DARTFORD—Nov. 12.—For the supply and erection at the sewage pumping station at Dartford of two sets of steam-engines and vertical three-throw piston pumps, and the removal

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of the present engines and pumps. Mr. W. Harston, surveyor, High Street, Dartford.

DEAL.—Nov. 13.—For construction of an additional engine-house, boiler-house and coal store at their pumping station, Upper Deal, for the Deal and Walmer Joint Water Board. Messrs. T. & C. Hawksley, civil engineers, 30 Great George Street, Westminster, S.W.

DEVIZES.—Nov. 5.—For building hospital (twenty-two beds in all), for the Devizes joint isolation committee. Messrs. Bell, Withers & Meredith, 3 Salters' Hall Court, Cannon Street, London.

DEVONPORT.—Oct. 28.—For erection of a new building for disinfecter, and additional wing to the infectious diseases hospital, near North Prospect, for the Devonport Town Council. The Borough Surveyor, 30 Ker Street, Devonport.

DEWSBURY.—Nov. 2.—For arching over and inverting a portion of the Dewsbury Beck, adjoining the site of the proposed covered market, for the Corporation. The Borough Engineer, Town Hall, Dewsbury.

DONCASTER.—Nov. 2.—For erection of a classroom at the Stainforth schools. Mr. H. B. Thorpe, architect, Goole.

DURHAM.—For erection of eight tenement houses at South Moor Lane, Stanley, R.S.O. Mr. T. E. Crossing, architect, Front Street, Stanley.

EASTBOURNE.—Oct. 28.—For construction of two public conveniences and alterations to existing shelters on the Grand Parade. Mr. R. M. Gloyne, borough engineer, Town Hall, Eastbourne.

GREAT YARMOUTH.—Oct. 29.—For construction of carshed and boundary wall, Caister Road. Mr. J. Wm. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

GRIMSBY.—For erection of stores on the fish docks. Mr. G. W. Parker, Fish Dock Road, Grimsby.

HACKNEY.—Oct. 28.—For erection of three workshops and outbuildings at Cassland House, Cassland Road, N.E. Mr. A. W. S. Cross, architect, 58 Conduit Street, Regent Street, W.

HEST BANK.—Nov. 3.—For erection of a brick bungalow. Mr. John Greene, architect and surveyor, Meeting House Lane, Lancaster.

HOLBECK.—For erection of a weaving shed at Holbeck. Messrs. Walter A. Hobson & Co., architects and surveyors, 82 Albion Street, Leeds.

HORBURY.—Oct. 28.—For erection of Council offices, stable buildings, cart-sheds, fence walling, &c., Horbury, Yorks. Messrs. Walter Hanstock & Son, architects, Branch Road, Batley.

HULL.—For erection of a theatre, George Street, Hull. Mr. Thomas Guest, architect and surveyor, Cobden Buildings, Corporation Street, Birmingham.

HULL.—Nov. 5.—For erection of offices, King Edward Street and Savile Street, Hull, for the Lancashire and Yorkshire Railway Company. Mr. Henry Shelmardine, architect, Hunt's Bank, Manchester.

ILFORD.—Oct. 29.—For supply and erection of a water-tube boiler, with fittings, pipework, &c.; a 550-kw. steam dynamo (vertical enclosed high-speed engine), and a main switchboard and connections. Mr. John W. Benton, clerk, Council Offices, Ilford.

ILFORD.—Nov. 12.—For erection of tramway car-sheds, workshops, &c., for the Ilford Urban District Council. Mr. H. Shaw, 7 Cranbrook Road, Ilford.

IRELAND.—Oct. 28.—For supply and erection of electrical plant and apparatus for the town of Limerick. Mr. William M. Nolan, Town Hall, Limerick.

IRELAND.—Oct. 28.—For works for the Great Northern Railway Company (Ireland), viz. stationmaster's house at Moira; cottage at Broomhedge, near Belfast; coal store at Cookstown. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Oct. 28.—For renewal of portion of the roof over the Belfast passenger station, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—Oct. 31.—For erection of a central creamery at the Low Bridge, near Kilfinane. Mr. J. C. Bennett, Kilfinane, co. Limerick.

IRELAND.—Nov. 2.—For erection of mortuary chapels, caretaker's house, boundary walls, pillars, gates and railings, and for drainage, forming walks and grave spaces, &c., at the new cemetery at Ballycraig, Larne. Mr. W. G. Young, clerk, Town Hall, Larne.

IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

ISLEWORTH.—Oct. 29.—For additions to the nurses' house at the Brentford union infirmary at Isleworth. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

KEIGHLEY.—Oct. 28.—For erection of pattern stores, workshop, &c, in Bradford Road, Keighley. Messrs. W. H. & A. Sugden, architects, Keighley.

KEIGHLEY.—Oct. 31.—For erection of a public free library, North Street, Keighley. Messrs McKewan & Swan, architects, 3 Newhall Street, Birmingham

KING'S LYNN.—Oct. 30.—For erection of a screw pile light beacon on the west bank of the Vinegar Middle Cut, King's Lynn Channel. Mr. W. D. Ward, clerk, Tuesday Market Place, King's Lynn.

LANCASTER.—Oct. 31.—For erection of a pathological laboratory at the county lunatic asylum, Lancaster. Clerk of Works at the Asylum.

LANCASTER.—Nov. 4.—For erection of an isolation hospital, for the Lancashire Asylums Board. Messrs. Willink & Thinesse, architects, 14 Castle Street, Liverpool.

LEEDS.—Nov. 18.—For various works required in erection of a new engine-house, stabling and boundary wall at the central fire station, Park Street. Mr. Percy Robinson, 72 Albion Street.

LEVENSHULME.—Nov. 2.—For refuse destructor installation. Mr James Jepson, surveyor, Levenshulme.

MALLOW.—Nov. 6.—For erection of labourers' cottages, out-offices, with piers and gates, in various electoral divisions in the district, for the Mallow Rural District Council, according to plan and specification of their engineer. Mr. Maurice Regan, clerk.

MANCHESTER.—Oct. 28.—For erection of a small building on land adjoining their hydraulic power pumping-station at Whitworth Street West, for the Manchester Corporation waterworks committee. Secretary, Waterworks Offices, Town Hall, Manchester.

MANCHESTER.—Oct. 30.—For additional padded-room accommodation in the lunatic department at the Crumpsall workhouse. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Nov. 6.—For supply of electric plant at the Stuart Street generating station and sub-stations. Mr. G. F. Metzger, engineer, Electricity Works, Dickinson Street, Manchester.

NELSON.—Nov. 11.—For erection of Whitefield schools, for the Nelson School Board, Lancs. Mr. T. Bell, Grimshawe Street, Burnley.

NORTHFLEET.—Oct. 28.—For erection of a car-shed, workshops and offices, &c., at Northfleet, Kent. The Secretary, British Electric Traction Co, Ltd., Donington House, Norfolk Street, London, W.C.

OTLEY.—Oct. 29.—For construction of a reservoir, &c, in the parish of Middleton, about 2½ miles from Ilkley station. Mr. John Waugh, engineer, Sunbridge Chambers, Bradford.

OXFORD.—Oct. 31.—For certain alterations and additions to the market house, Market Street, Oxford, for the Corporation. City Estates Surveyor, Town Hall, Oxford.

PECKHAM RYE.—Nov. 6.—For erection of a receiving-house and cottages for children, also alterations to existing buildings on the Newlands, Peckham Rye, S.E. Mr. A. E. Mullins, 16 Church Street, Camberwell, S E.

PONTYPOOL.—Oct. 31.—For erection of an iron schoolroom near Trevethin Church, Pontypool. Mr. Trevor Williams, Belmont, Victoria Road, Pontypool.

PRESTON.—Oct. 28.—For execution of additions and alterations to the laundry buildings at the Fulwood workhouse, for the Guardians of Preston Union. Mr. Whitwell, engineer, Fulwood Workhouse.

ROCHFORD.—Oct. 28.—For erection of women's wards at the workhouse infirmary, Rochford, Essex. Messrs. Greenhalgh & Brockbank, architects, Bank Chambers, Southend-on-Sea.

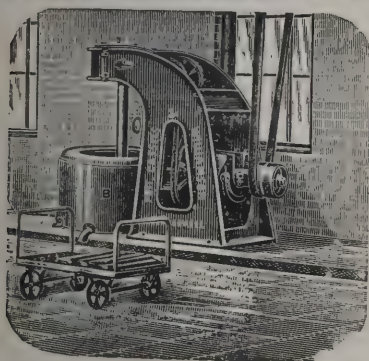
ROPLEY.—For erection of school buildings at Five Lanes End, in the parish of Ropley, Hants. Messrs. Colson, Farrow & Nisbett, 45 Jewry Street, Winchester.

SCOTLAND.—Oct. 28.—For erection of eastern district hospital in Duke Street, Glasgow. Mr. John Baxter, 243 St. Vincent Street.

SCOTLAND.—Nov. 1.—For construction of service reservoir, filters, pure-water tank, &c., at Fairmilehead, Edinburgh, about 2 miles south from the Morningside Road station on the suburban railway. Mr. W. A. Tait, engineer, 72A George Street, Edinburgh.

SHOREHAM.—For erection of circular kiln, chimney-shaft, 110 feet high, at works at Beeding, near Shoreham, Sussex, for the Sussex Portland Cement Co., Ltd. Office of the Company, Newhaven, Sussex.

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SOUTH KIRKBY.—Oct. 31.—For works required in erection and completion of shops, houses, stables, &c. Messrs. Garside & Pennington, architects and surveyors, Ropergate, Pontefract, Wesley Street, Castleford.

STAINFORTH.—Nov. 2.—For various works required in erection of a new classroom at the Stainforth schools. Mr. H. B. Thorpe, Goole.

STEETON.—For erection of a residence in Station Road, Steeton. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

SWINDON.—Nov. 2.—For erection of a chimney-shaft, 60 feet high above ground line, at the isolation hospital, Gorse Hill, Swindon. Messrs. Halliday & Rodger, architects, 14 High Street, Cardiff.

SWINDON.—Nov. 12.—For supply of electric machinery and plant as follows:—Contract No. 2, comprising three Lancashire boilers and economiser, two jet condensers, feed pumps, pipework and accessories; (3) water-cooling tower; (4) 10-ton overhead travelling crane. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

TOTTINGTON.—Oct. 30.—For erection of a building for caretaker at the Council's sewage works at Woolfold, Tottington, Lancs. Mr. L. Kenyon, surveyor, 33 Chapel Street, Tottington.

WALES.—For boarding-house at Llanwrtyd Wells. Mr. H. Teather, architect, Gateway Chambers, Shrewsbury.

WALES.—Oct. 28.—For erection of a large vestry at the Bethania Welsh Baptist church, Porth. Mr. Enos George, 15 Tanyralt Terrace, Porth.

WALES.—Oct. 28.—For building thirty-three houses at Abercwmboi, for the Abercwmboi Building Club. Mr. T. W. Millar, architect and surveyor, Mountain Ash.

WALES.—Oct. 28.—For raising a portion of the south boundary wall of the Cardiff Infirmary. Mr. Leonard D. Rea, secretary and general superintendent, Cardiff Infirmary.

WALES.—Oct. 28.—For erection of a farmhouse near Stalling Downs, Cowbridge. Mr. Daniel Evans, architect, Eastbourne House, Cowbridge.

WALES.—Oct. 28.—For erection of schools at Brynteg, near Wrexham, and also for alterations and additions to existing schools. Mr. R. J. Kendrick, clerk to Broughton School Board, 1 Henblas Street, Wrexham.

WALES.—Oct. 29.—For taking-down and rebuilding chimney-stacks on old infirmary, Griffithstown, Pontypool. Mr. T. Watkins, clerk, Union Offices, Pontypool.

WALES.—Nov. 1.—For erection of laboratory and fittings at the county school, Cardigan. Mr. James Stephens, clerk, 3 Green Street, Cardigan.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysymedw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Nov. 22.—For erection of house, out-offices and boundary walls, &c., at Newbridge, near Ruabon. Mr. W. H. Johns, Vroncyssyllte, Llangollen.

WANDSWORTH.—Oct. 31.—For erection of an intermediate school in Swaffield Road, Garratt Lane, Wandsworth, S.W. Messrs. Lansdell & Harrison, 65 & 66 Basinghall Street, E.C.

WATERLOO.—Oct. 30.—For providing and erecting boundary walls, iron railings and gates at the Bowersdale Park, Seaford, and wood fencing and gates at the Sandheys Park, Waterloo, for the Urban District Council. Mr. F. Spencer Yates, surveyor to the Council, Town Hall, Waterloo.

WEST KENSINGTON.—Oct. 29.—For erection of a sub-district post office. Copy of the conditions and form of contract may be seen on application to Mr. Henry Tanner, H.M. Office of Works.

WESTMINSTER, S.W.—Nov. 12.—For erection of public offices at Westminster, for the Commissioners of H.M. Works and Public Buildings. Conditions and form of contract may be seen on application at H.M. Office of Works, &c., Storey's Gate, S.W.

WILLENHALL.—Oct. 28.—For erection of a disinfecting station at the sewage outfall works, Willenhall, Staffs. Mr. T. Edgar Fellows, surveyor, Town Hall, Willenhall.

WIMBLEDON.—Nov. 20.—For construction of new concrete sewage precipitation, sludge and storm-water tanks, sludge pumps, cast-iron mains, valves, floating arms, penstocks, &c., at the sewage works, Durnsford Road. Particulars may be obtained at the Council Offices, Broadway, Wimbledon.

WINCHESTER.—Oct. 30.—For erection of new museum buildings on the site of the old mechanics' institute, Winchester. Messrs. Colson, Farrow & Nisbett, 45 Jewry Street, Winchester.

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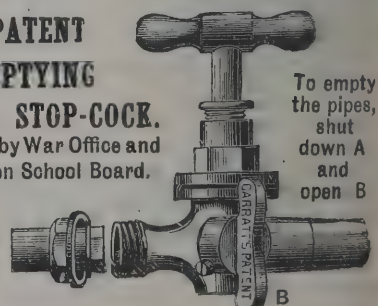
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ARCLID.

For alterations at the workhouse at Arclid, Cheshire. Mr. ALFRED PRICE, architect, Elworth.

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J. Stringer	356	0	0
W. Lees	348	0	0
J. Mellor	334	0	0
W. Street	321	0	0
S. JACKSON, Smallwood (accepted)	297	0	0

BARKING.

For making-up, &c., Longbridge Road, for the Barking Urban District Council. Mr. C. F. DAWSON, surveyor.

J. Jackson	£4,355	3	5
J. Killenbach	4,266	18	5
T. Adams	4,063	0	0
W. Griffiths & Co., Ltd.	3,560	0	0
W. Iles	3,500	0	0
D. T. JACKSON, Barking (accepted)	3,491	4	10
Wilson, Border & Co.	3,482	9	4

For sewerage, making-up, kerbing, channelling, paving and lighting of gas yard, for the Barking Town Urban District Council, Essex. Mr. C. F. DAWSON, surveyor, Public Offices, Barking.

J. Jackson	£455	3	4
J. Killenbach	393	0	0
W. Griffiths, Ltd.	370	0	0
W. Iles	260	0	0
D. T. JACKSON, Barking (accepted)	225	0	0

BARKING—continued.

For fencing work in connection with the Longbridge Road improvement, for the Barking Urban District Council.

Iron railing.

Field, Mallett & Co.	£409	17	6
McKay	349	0	0
Palmer & Co.	331	0	0
Norton Bros. & Co.	329	0	0
W. Iles	302	0	0
J. Elwell	286	0	0
W. E. Innes	285	4	6
Hill & Smith	276	11	6
RAYBOULD & CO., Workington (accepted)	269	4	8

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T. J. Hawkins & Co.	£141	3	6
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Norton Bros. & Co.	109	0	0
B. Horton & Son	107	15	0
Palmer & Co.	104	0	0
W. Iles	98	0	0
ROWLAND BROS., Fenny Stratford (accepted)	88	12	6

For erection of a corrugated iron building at the electricity station, East Street, Barking, Essex, for the Urban District Council.

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For building new operating theatre and other works at the Suffolk General Hospital. Mr. H. PERCY ADAMS, architect.

SHILLITOE, Bury St. Edmunds (accepted)	£2,200	0	0
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For electric wiring and fittings for the Suffolk General Hospital. Mr. H. PERCY ADAMS, architect.

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C. E. Carden	4,662	18	1
W. H. Reading, Wolverhampton (accepted)	4,575	0	0

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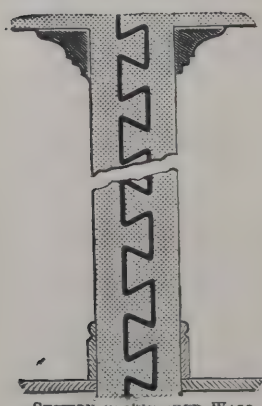
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WORKS: WALDO ROAD, WILLESDEN, N.W.

CATALOGUE AND QUOTATIONS ON APPLICATION.

THE FIREPROOF PARTITION SYNDICATE, LTD.,
10 YORK BUILDINGS, ADELPHI, LONDON, W.C.

CHEADLE.

For erection and completion of mortuary buildings and chapels at a proposed new cemetery, Stockport Road, Cheadle, together with the works incidental thereto, for the Cheadle and Gatley Urban District Council, Cheshire. Mr. G. H. BRADY, architect, Stockport.

Sheldon Bros.	£5,784	0	0
J. Broadhurst	5,620	0	0
J. K. Coates	5,463	0	0
M. Lane	5,380	0	0
J. Briggs	5,370	0	0
Gerrard & Son, Ltd.	5,173	0	0
H. W. Meadows	5,100	0	0
D. Eadie	4,955	0	0
W. POWNALL, Stockport (accepted)	4,930	0	0

COLCHESTER.

For erection of a school in Canterbury Road, Colchester, for the Colchester School Board. Messrs. GOODEY & CRESSALL, architects, Victoria Chambers, Colchester.

F. Dupont & Co.	£10,979	0	0
E. West	10,843	0	0
W. Chambers	10,440	0	0
G. DOBSON & SON, Colchester (accepted)	9,880	0	0

COMBMARTIN.

For erection of a dwelling-house. Mr. ALLEN T. HUSSELL, architect, Ilfracombe.

J. Burgess	£355	0	0
R. Lovering	348	0	0
W. Cutcliffe	329	10	0
W. C. Latham	272	0	0
M. DARCH, Combmartin (accepted)	240	0	0

CROYDON.

For repair of Watcombe Road, South Norwood.

A. Green	£1,435	0	0
G. Wilson	1,227	0	0
J. Mowlem & Co.	1,060	0	0
Fry Bros.	946	0	0
E. Iles	918	0	0
A. Bullock	857	13	0
STREETER BROS., Croydon (accepted)	849	13	0

DODWORTH.

For sewerage works, Station Road and High Street, Dodworth, near Barnsley, Yorks. Mr. P. A. HINCHLIFFE, architect, 14 Regent Street, Barnsley.

T. Rowland	£497	0	0
S. Taylor	319	0	0
J. Hood	314	0	0
S. Squire	310	0	0
I. Hague	214	0	0
J. HIGHAM & SONS, Messborough Dyke, near Barnsley (accepted)	289	0	0
J. S. Duncan	272	0	0

DOVER.

For completing the formation, &c., of Park Mews and Chapel Court, for the Town Council. Mr. HENRY E. STILGOE, borough engineer.

Park Mews.

G. Grigg	£41	15	9
G. Munro	38	14	8
D. & G. Keeler	38	11	3
AUSTEN & LEWIS, Salisbury Road, Dover (accepted)	32	5	0

Chapel Court.

G. Grigg	£83	0	3
D. & G. Keeler	72	3	4
G. Munro	68	19	9
AUSTEN & LEWIS (accepted)	65	14	6

FULWOOD.

For erection of sewerage and sewage-disposal works, Fulwood, near Preston, Lancs. Mr. WILLIAM NAVLOR, engineer, 16 Walton's Parade, Preston.

S. JOHNSON, Manchester (accepted)	£7,359	0	0
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GREENOCK.

For construction of car sheds and repair shops in Greenock, for the Greenock and Port Glasgow Tramways. Length 290 feet by 90 feet wide, including drainage, water supply, lavatories and inspection pits.

Miller & Co.	£7,670	0	0
Aitkenhead & Co.	7,622	0	0
Whitelaw & Co.	7,055	12	6
G. Wilby & Co.	7,023	0	0
J. A. Millen	6,370	0	0
J. MCEWAN (accepted)	6,980	17	6

MCNEILL'S FELTS

MCNEILL'S SLAG WOOL

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Roofing, Inodorous, Sarking, Dry Hair, Damp Course, &c.

(Silicate Cotton), for Fireproofing and Soundproofing.

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SLAG WOOL WORKS, KIRKINTILLOCH, near GLASGOW.

CONTRACTORS TO HER MAJESTY'S GOVERNMENT.

GRAVES' PATENT ROOFING,

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FIBROUS ASPHALTE FOR DAMP COURSE, AND FELTS FOR LAYING UNDER WOOD-BLOCK FLOORING, SLATES, &c.

Experience proves it to be WEATHER-PROOF, ROT-PROOF, and FIRE-PROOF.

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The "PERFECT" Universal Cleaner, for removal of Old Paint and Varnish from Wood, Iron, Steel, or Stone. Magical in action. Guaranteed not to injure material, and new Paint or Varnish may be at once applied.

PORPHYRINE.—A Liquid for Dressing Walls of New Houses, to prevent Damp, and so that Paint or Paper may be put on at once, and for Removing Damp in Old Houses. This is a really wonderful preparation.

FEROPHILE.—A Liquid for Removal of Rust.

"EXCELSIOR."—A Paste for Prevention of Rust.

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W. GRANT, MARINE SURVEYOR, DOVER,

SOLE AGENT FOR UNITED KINGDOM.

SUB-AGENTS OR TRAVELLERS REQUIRED THROUGHOUT THE UNITED KINGDOM.

GEDLING.

For erection of two shops at Gedling, Notts. Mr. HEDLEY J. PRICE, architect and surveyor, 24 Low Pavement, Nottingham.

W. & J. Simons	£1,275	0	0
J. G. Short	1,256	0	0
A. E. Smith	1,223	0	0
T. & W. Lee	1,204	0	0
W. Maule	1,195	0	0
R. Fisher	1,156	0	0
J. Musson	1,145	0	0
Pett & Co.	1,128	13	6
T. Whittaker	1,120	0	0
J. Lewin	1,120	0	0
G. Sadler	1,092	0	0
T. H. Harper	1,040	0	0
T. BELLAMY & SON, Gedling (accepted)	1,030	0	0

GREAT YARMOUTH.

For cemetery chapel, superintendent's house, &c., at Caistor, Great Yarmouth, for the Great Yarmouth Town Council. Mr. J. W. COCKRILL, borough surveyor. Quantities by the borough surveyor.

Eastoe	£1,987	0	0
Potter	1,925	0	0
Gunns	1,907	10	0
Cafley	1,898	0	0
Carter & Wright	1,866	0	0
Banyard	1,825	0	0
Smith	1,816	10	0
Bray	1,788	0	0
Grimble	1,780	0	0
Harman	1,754	0	0
Balls	1,742	0	0
Wright	1,740	0	0
BEECH, Hemsby, Norfolk (accepted)	1,704	0	0

HALIFAX.

For erection of stalls, &c., borough markets, for the Corporation. Mr. JAS. LORD, borough surveyor, Town Hall, Halifax.

J. Turner	£279	4	2
S. Earnshaw	274	14	0
C. J. Norvell	272	10	0
W. MITCHELL (accepted)	248	17	4

HANDSWORTH.

For laying a storm-water sewer in Booth Street, Handsworth. J. WHITE, jun., Handsworth (accepted) . . . £207 14 6

HARRINGAY.

For fitting-up 41, 42 and 43 Grand Parade.

Cadman & Son	£1,070	0	0
MARCHANT & HIRST (accepted)	998	0	0
Jenrick & Crocker	744	0	0

HARROW.

For carrying-out a public street improvement at Lowland's Road, for the Harrow-on-the-Hill Urban District Council. Mr. J. PERCY BENNETTS, engineer and surveyor.

Lowland's Road.

A. Frost	£1,623	0	0
Neave & Son	1,046	0	0
T. Adams	900	0	0
Meston & Hale	845	15	0
C. Ford	845	0	0
Wimpey & Co.	838	0	0
H. Brown	836	0	0
Felkin & Watson	782	0	0
E. W. Hollingsworth	777	0	0
Free & Sons	774	0	0
Bracey & Clarke	746	0	0
Surveyor's estimate	800	0	0

Recreation ground.

Neave & Son	1,741	0	0
T. Adams	1,731	0	0
J. Hiscox	1,691	0	0
Meston & Hale	1,532	0	0
Wimpey & Co.	1,443	0	0
C. Ford	1,398	0	0
Bracey & Clarke	1,185	0	0
E. H. Hollingsworth	1,137	0	0
Surveyor's estimate	1,200	0	0

IRELAND.

For rebuilding the workhouse, for the Guardians, Newry. Mr. JOHN BROWN, architect, Newry.

A. WHEELAN, Canal Street (accepted) . . . £4,749 0 0

**Prevents Dry Rot,
Fungus, Decay, &c.**

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**and is a pleasing
Stain.**

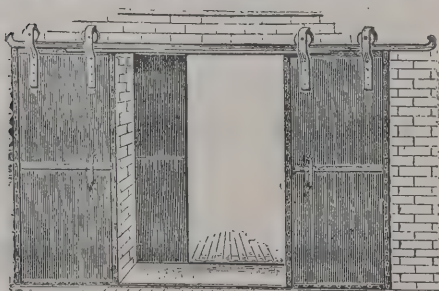
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COMPRESSED OR MASTIC.
IS THE BEST MATERIAL FOR ROADWAY
Footways, Damp Courses, Roofings, Warehouse Floor
Basements, Stables, Coach-Houses, Slaughter-Houses
Breweries, Lavatories, Tennis Courts, &c.

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"Amber" & "Ruby" Cameras, for Hand or Stand

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ILLUSTRATED
CATALOGUE
POST FREE.

KIRKCALDY.

For mains and feeders in connection with electric lighting for the Town Council.

HENLEY'S TELEGRAPH WORKS, London
(accepted) £11,239 0 0

Arc lamps.

CROMPTON & Co., Chelmsford (accepted) 546 6 0

LANGHO.

For erection of the first portion of the inebriates' home, for the Lancashire Inebriates Acts Board. Mr. H. LITTLER county architect.

GERRARD & SONS, Swinton (accepted) £73,418 0 0

LEICESTER.

For erection of a warehouse, Charles Street, Leicester. Mr. CHAS. KEMPSON, architect.

T. Herbert & Sons	£3,623	0	0
T. R. Tebbatt	3,483	0	0
Bentley & Co.	3,400	0	0
H. Bland	3,377	0	0
F. Rudkin	3,366	14	6
Clarke & Garratt	3,332	0	0
F. Elliott	3,314	0	0
W. Haddon	3,314	0	0
J. Mason & Son	3,245	7	0
Bradshaw Bros.	3,245	0	0
J. H. Clayton	3,241	0	0
BECK & Co. (accepted)	3,221	0	0

LONDON.

For alterations and additions to Charing Cross Hospital, for the Council. Mr. A. SAXON SNELL, architect. Quantities by Messrs. NORTHCROFT, SON & NEIGHBOUR.

Howard & Co.	£92,722	0	0
Patman & Fotheringham	89,300	0	0
Bywaters & Sons	87,500	0	0
H. Lovatt	87,000	0	0
Spencer, Santo & Co.	86,775	0	0
Trollope & Sons	86,470	0	0
Higgs & Hill	85,844	0	0
B. E. Nightingale	85,757	0	0
HOLLOWAY BROS., Lambeth (accepted)	82,730	0	0

LONDON—continued.

For works in connection with temporary wards at the North-Western hospital, for the Metropolitan Asylums Board.

Pease & Kentish	£145	0	0
J. Edgar	136	0	0
T. Cole	130	0	0
GARDNER & HAZELL, Canonbury Road, N. (accepted)	119	0	0

For erection of a new receiving ward for children at their workhouse, Renfrew Road, Lower Kennington Lane, S.E., for the Guardians of Lambeth. Mr. SYDNEY R. J. SMITH, architect, 14 York Buildings, Adelphi, W.C.

J. J. Richards	£2,820	16	0
J. Chessum & Sons	2,310	0	0
General Builders, Ltd.	2,197	0	0
Foster Bros.	2,111	0	0
H. M. Patrick	2,105	0	0
R. M. Hughes	2,070	0	0
T. Laphorn & Co.	1,997	0	0
C. Brightman	1,985	0	0
Davis & Leaneay	1,975	0	0
H. L. Holloway	1,972	0	0
W. Wallis	1,931	0	0
L. Whitehead & Co.	1,925	0	0
D. Gibb & Co.	1,920	0	0
B. E. Nightingale	1,900	0	0
Harris & Wardrop	1,897	0	0
J. T. Robey	1,880	0	0
J. Tyerman	1,861	0	0
J. Appleby	1,850	0	0
G. Barker	1,849	0	0
H. Kent	1,849	0	0
J. O. Richardson	1,830	0	0
Voller & Goodfellow	1,636	0	0
J. R. WARD, 191A Bridge Road, Battersea, S.W. (accepted)	1,593	0	0

MANCHESTER.

For erecting dwellings and making streets in Manchester, for the London and North-Western Railway Company. ROBINSON & CROWTHER, Cleckheaton, about £20,000 (accepted).

HAM HILL STONE. DOULTING STONE.

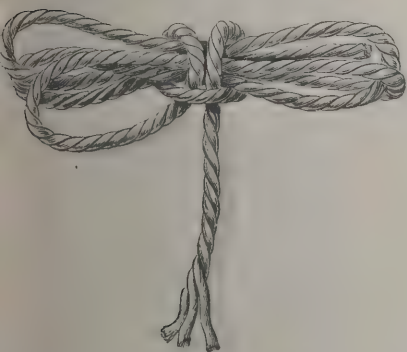
THE HAM HILL AND DOULTING STONE CO.

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Chief Office, NORTON, STOKE-UNDER-HAM, SOMERSET. London Agent, Mr. E. A. WILLIAMS, 16 Craven St., STRAND.

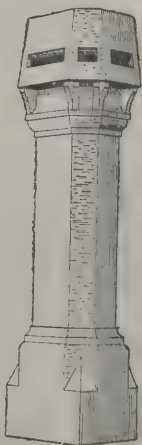
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(PATENT APPLIED FOR.)



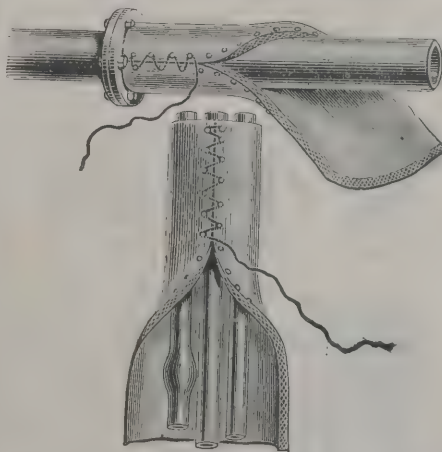
Specially prepared to Protect it from the effects of the weather. It is Rot-proof, Water-proof, and Vermin-proof.

PATENT CHIMNEY POT, "KONKOR."



Specially and scientifically designed to prevent and mitigate the evils of Smoky Chimneys.

FLEXIBLE PIPE-COVERING, For Protecting Water and Steam Pipe from Cold and Frost.



Instantly Fixed and Unfixed. In ordering state whether for Steam or Water Pipes.

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LUTON.

For painting the interior and exterior of the town hall, offices, warehouses and premises in Upper George Street and Manchester Street.

Interior of town hall and offices.

F. YOUNG, Luton (accepted) £85 4 0

Exterior of town hall and other buildings.

T. WOOD & SONS, Luton (accepted) 100 0 0

Free library.

J. HUGGINS & SONS, Luton (accepted) 42 0 0

MIDDLESBROUGH.

For supply and erection of mechanical coal-handling plant in connection with the municipal electricity works.

ASKHAM BROS. & WILSON, LTD., Yorkshire Steel and Engineering Works, Sheffield (accepted) £791 0 0

NETHER BROUGHTON.

For alterations and additions to the Red Lion inn, Nether Broughton. Messrs. SANDS & WALKER, architects, Angel Row, Nottingham.

R. Mann £563 6 6

T. Long 485 0 0

A. Palmer 444 15 0

W. Wilson 439 11 11

W. BURNETT, Hickling, Melton Mowbray (accepted) 370 7 0

NEWTOWN.

For supplying a Cornish steam-boiler at the gasworks, for the Urban District Council.

J. FRASER & SON, London (accepted) £136 0 0

NORTH BERWICK.

For works of electric lighting, for the Town Council. CROMPTON & CO., Chelmsford (accepted).

NORTON.

For construction of an open-air swimming-bath at Norton, Yorks, for the Norton Urban District Council.

A. Barnes £455 0 0

T. Hodgson 435 18 0

T. ANDERSON, Norton (accepted) 386 0 0

NOTTINGHAM.

For alterations and additions to form three shops at the junction of Mansfield Road and Forest Road, Nottingham. Mr. HEDLEY J. PRICE, architect, 24 Low Pavement, Nottingham.

O. T. Fochtman £1,132 18 6

G. Baron 1,130 13 3

J. Hutchinson & Son 1,110 0 0

H. Scott & Son 1,075 0 0

H. Green & Son 1,055 9 0

A. E. Smith 1,052 16 0

J. G. Short 1,047 0 0

T. Cuthbert 1,046 0 0

J. Musson 1,030 0 0

J. Cooper & Son 1,025 0 0

R. Fisher 1,032 19 0

T. & W. Lee 982 19 0

J. & J. ADAMS (accepted) 915 0 0

PENZANCE.

For supply of a pulsometer steam pump for the Town Council.

J. M. B. CORIN & SONS (accepted) £72 0 0

PLYMOUTH.

For the necessary timber for the showyard buildings of the Bath and West and Southern Counties Society's Show at Plymouth, May 27, 28, 29, 30 and 31, 1902.

R. & R. BAYLY, Plymouth (accepted).

SCOTLAND.

For repaving of a portion of Market Street and the laying of 630 lineal yards of kerb and channel at The Scores, also for sewers, Gibson Place, &c, for the St. Andrews Town Council. Mr. WM. WATSON, burgh surveyor.

J. & J. Neilson £628 13 10

P. SOUTAR (accepted) 509 18 8

12-inch sewers, Gibson Place and Strathkinness Road.

T. Johnson 223 15 0

T. Liddel 218 18 0

A & J. Carstairs 210 0 0

W. Mitchell & Son 193 18 3

W. NESS (accepted) 156 5 0

THE YORKSHIRE PATENT GLAZING CO., LIVERSEDGE

"PREMIER" SYSTEM of GLAZING.

Absolutely the most improved and complete method of

WATERTIGHT GLAZING without PUTTY.

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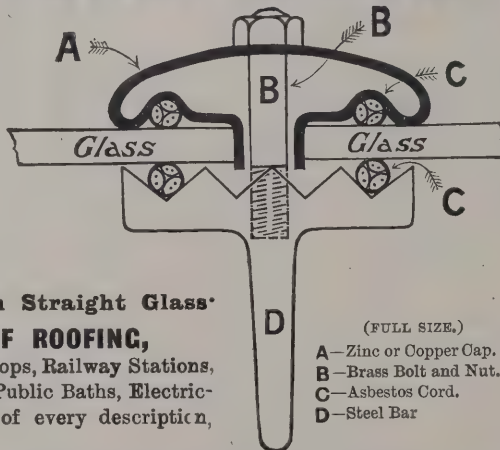
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Wherever adopted saves 95 per cent. in maintenance.

Curved Roofs can be Glazed with Straight Glass

SUITABLE FOR ALL KINDS OF ROOFING,

Such as Weaving Sheds, Engineering Workshops, Railway Stations, Markets, Arcades, Verandahs, Drill Sheds, Public Baths, Electric-Light Works, and Horticultural Buildings of every description, &c. &c.



(FULL SIZE.)

A—Zinc or Copper Cap.

B—Brass Bolt and Nut.

C—Asbestos Cord.

D—Steel Bar

This System allows for full expansion and contraction of glass and absorbs any vibration from machinery or other causes.

No Drip whatever from condensation.

All Materials imperishable.

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"SYPHON" CLARK'S PATENT GAS STOVES.

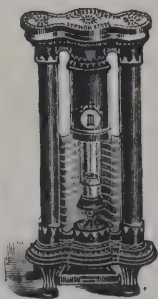
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The Most Improved System for Heating and Ventilating Private Houses and Public Buildings.

EMIT NO SMELL. GIVE NO SMOKE.

NO DIRT OR TROUBLE.

NO DANGER.



Mr. D'O'LEY CARTE, of the Savoy Theatre, writing of these Stoves, says:—"I used your Hygienic Gas Heating Stoves in this Theatre all last winter, and found them in every way most satisfactory. I think I must have had ten or a dozen of them in various parts of the Theatre, and in the very cold weather we had last winter they succeeded in warming the corridors, &c., admirably. Two of them were used to heat the Business Offices of the Theatre, and they fulfilled this object capitally, while apparently in no way injuring the air in the offices—a most important consideration."

Illustrations and full particulars to be obtained of all Ironmongers and Gas Engineers, and of the Patentees and Sole Makers—

S. CLARK & CO., "Syphon" Works, Park St., Islington, LONDON, N.



LIVERPOOL.

Liberal Commission allowed to BUILDERS and ARCHITECTS for introduction of Business.

Subscribed Capital, £2,228,87

SIDCUP.

For engineering works at the new children's homes, Sidcup, Kent, for the Greenwich Union Guardians. Messrs. T. DINWIDDY & T. W. DINWIDDY, architects.

W. & J. Tullis, Ltd.	£9,064	0	0
J. Fraser & Son	8,971	0	0
Clements, Jeakes & Co.	8,750	0	0
Tomlinson & Milan, Ltd.	8,680	0	0
Bradford & Co.	8,055	0	0
J. & F. May	8,000	0	0
Potter & Sons, Ltd.	7,890	0	0
Goddard, Warner & Massey, Ltd.	7,781	0	0
Summerscales & Sons, Ltd.	7,645	0	0
Williams & Sons, Ltd.	7,350	0	0
Moorwood, Sons & Co., Ltd.	7,246	0	0

For electrical installation at the new children's homes, Sidcup, for the Greenwich Union Guardians. Messrs T. DINWIDDY & T. W. DINWIDDY, architects.

JOHNSON & PHILLIPS (accepted)	£4,906	0	0
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STAFFORD.

For rebuilding wards for infirm at the workhouse, recently destroyed by fire, for the Guardians.

ESPLEY & SONS (accepted)	£530	0	0
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SURBITON.

For construction of about 4,000 yards of stoneware storm-water drains of various sizes from 6 inches to 2 feet, at Alpha, King Charles's, Ewell, Kingsdown, Langley and Oak Hill Roads, Surbiton, with inspection chambers, gullies and connections thereto, for the Urban District Council.

G. Osenton	£4,965	0	0
W. Adamson	4,638	8	5
A. Green	4,604	17	4
T. Adams	4,319	0	0
Cooke & Co.	4,206	13	3
C. Ford	3,794	0	0
Free & Son	3,739	12	3
Barry Building & Contracting Society, Ltd.	3,731	14	7
Killingback & Co.	3,713	0	0
Johnson & Langley	3,596	0	1
S. Atkins	3,510	10	0
S. KAVANAGH, Surbiton (accepted)	3,388	0	0

WALES.

For erection of a vicarage house near Neath. Mr. Geo. E. HALLIDAY, architect, 14 High Street, Cardiff. Quantities by Mr. J. W. RODGER, Cardiff.

W. A. James	£1,697	17	0
W. H. Creighton	1,040	0	0
D. Thomas & Son	1,555	0	0
J. GOODRIDGE & SON, Swansea (accepted)	1,460	0	0
C. Gower	1,444	10	4

For erection of two vestries at Cwmavon Wesleyan chapel.

Morgan & Co.	£166	0	0
J. Beavon	160	0	0
W. RIDLER, Blaenavon, Mon (accepted)	147	10	0

WEALUSTONE.

For certain works of street improvement and surface-water drainage in the High Street Mr. F. HILL PARR, surveyor.

Surface-water sewer.

W. Neave & Son	£386	17	3
Adams & Co.	379	0	7
R. Ballard & Co.	368	0	0
G. R. Mann	347	13	5
E. W. HOLLINGSWORTH (accepted)	338	7	9
G. Wilson	318	0	0
Free & Sons	308	18	0
Felkin & Watson	278	0	0
H. Brown	263	13	9

Road.

H. Brown	1,266	2	5
Adams & Co.	1,237	3	10
Felkin & Watson	1,233	0	0
R. Ballard & Co.	1,185	0	0
G. Wilson	1,179	0	0
Free & Sons	1,149	8	5
W. Neave & Son	1,129	18	0
G. R. Mann	1,125	0	0
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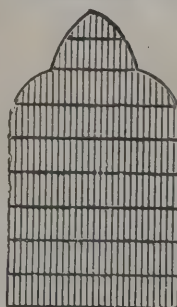
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T. L. Hall	580	0	0
J. Harding	565	0	0
H. H. Hall	549	0	0
CLARK & SON (<i>accepted</i>)	544	0	0

SOUTH SHIELDS.

For erection of a dwelling-house at Westoe, South Shields.
Mr. H. GRIEVES, architect, Albany Chambers, South Shields.

W. J. Robertson	£850	0	0
R. Allison	845	0	0
J. YOUNG, Tyne Dock (<i>accepted</i>)	843	16	9

ELECTRIC NOTES.

A NEW bridge being necessary before the electric cars at Hull can travel down to the piers, there has been much discussion in and out of Council circles, and the Hull Chamber of Commerce, at a special meeting, resolved that they saw no objection to the making of a permanent bridge, providing facilities were given by a canal for the passage of lighters.

PLANS of the new tramway it is proposed to construct by the British Electric Traction Company through a portion of Soothill Upper were placed before the district authority at a meeting on Monday. In answer to a question, it was stated that the company intended to lay a double line from Dewsbury to Birstall if the necessary power could be obtained. It was decided to pass the plans conditionally upon the substitution of granite for local stone between the rails.

THE electrical equipment of the Union Street section of the tramway system is now about to be taken up by the Aberdeen Corporation. Until that is accomplished none of the outlying districts can be furnished with a speedier means of locomotion than horse traction, and the general feeling is that the latter is not only the slower but also the costlier method. Reports by

the burgh surveyor and the electrical engineer have been submitted to the tramways committee. The conversion of the route to the electric method of traction is estimated at about 5,000%.

TRADE NOTES.

THOMAS CRAPPER & Co. have been honoured with an appointment as sanitary, warming and ventilating engineers to His Majesty the King. They held a similar appointment when he was Prince of Wales.

THE Workmen's Home, Craigneuk, Motherwell, has been ventilated by means of Mackay's patent direct-acting louver ventilators of an ornamental design, supplied by Cousland & Mackay, ventilating engineers, Glasgow and Manchester, the sole makers.

THE public hall and Council offices, Grange-over-Sands, have lately been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, employing their "Rahnee" radiators and "Rex" radiator valves, and patent "Tubular" exhaust ventilators.

BUILDING AND BUILDERS.

A PIECE of land has been obtained at Llandrindod Wells for the erection of a Roman Catholic church and presbytery.

THE Market Hall, Denbigh, is to be converted into a public hall according to plans by the borough surveyor, with the approval of the Town Council.

LARGE offices are to be erected in Cockspur Street, W., for the Canadian Pacific Railway Company, on a site between the Union Bank and Sun Insurance Office.

A NEW lighthouse is in progress at Beachy Head, which will require another year for completion. It will be 120 feet high. Much difficulty was encountered in laying the foundations.

SKETCH plans by a member of the Council for fire station public baths, surveyor's and other offices have been submitted to the Hayward's Heath Council. It was resolved to complete the plans and prepare specifications before the next meeting.

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FIRST FLOOR PLAN.—GROUND FLOOR PLAN.—BASEMENT PLAN.

THE Education Department have approved the plans selected by the West Bromwich School Board for the new schools to be erected on the Lodge Estate. The work will be proceeded with as soon as possible.

A SERIOUS accident happened on Saturday morning at a new Board school which is being built in Blackpool. Five of the workmen were coming down the brick lift when the balance weight went wrong, and the men fell a distance of nearly 40 feet. Two were seriously injured, and were removed to the hospital. The others were taken to their homes.

THE new offices of the Gloucester Workmen's Benefit Society opened lately are considerably larger than the ones previously used. The whole of the work has been carried out to the design and under the superintendence of Mr. W. B. Wood. The total expenditure in connection with the building, including the purchase of the site but not including furniture, amounts to 3,000/.

IN the recent competition for the Trowbridge and District Joint Isolation Hospital, to be built at Trowbridge, Wilts, the designs of Mr. J. Hugh Goodman were selected for the first premium, and adopted by the committee for the erection of the hospital, in accordance with the recommendation of the professional assessor. There were over fifty designs submitted in the competition, which was an open one.

MR. J. S. BRODIE, the Blackpool borough surveyor, after visiting the principal watering-places of England and the Continent, has presented his report and suggestions as to the best form of sea wall for Blackpool, and the extent of the promenade widening. He recommends a solid wall of nearly upright or curved face, and is in favour of 100 feet widening. This will permit of a promenade 78 feet wide, a carriage-way 40 feet, tramway 17 feet, and two footways.

SIR H. CRAIK, K.C.B., on Friday last formally opened the Kingsland school, Peebles, erected at a cost of 12,000/ (including furnishings). The school is designed with a large central hall, with various classrooms entering from it and with teachers'

rooms, &c. The total accommodation is for 728 pupils. The exterior elevations are treated in simple English Renaissance style suited to a school building. The school was built to designs by the late Mr. Robert Wilson, Edinburgh, and completed under the supervision of Mr. J. A. Carfrae, architect, Edinburgh.

COLONEL A. C. WEST, R.E., held a Local Government Board inquiry at Birkenhead into an application by the Corporation for sanction to borrow 7,628/ for the purchase of 16,715 square yards of land bounded by Cleveland Street, Vittoria Street, Corporation Road and Verner Street, for the purpose of a depôt for the borough surveyor's department. Mr. Alfred Gill, town clerk, explained the scheme, and said the Council had approved of it on the recommendation of the road and improvement committee. He said it was possible that some time the Corporation might erect their own stables on that site.

AT a meeting of the asylum committee of the Cardiff Corporation on the 17th inst. the architects of the new borough asylum attended and gave particulars of the progress made with the plans up to date. It was explained that if there was no hitch of any kind the committee would be in a position to invite tenders for the execution of the work in September of next year, this being two months earlier than the original estimate of the architects. The architects stated that if the committee desired the contract could be divided—one for the foundations and the other for the superstructure, in which event the committee might advertise for tenders for the foundations in February next, the result being that the completion of the entire work would be facilitated by six or seven months. This question will be considered at a later meeting.

A DISPUTE has arisen among the joiners at Barrow in connection with the rebuilding of the pier which was burnt down last summer. The contract is in the hands of Messrs. Gradwell & Co., who have been employing a large number of shipwrights to do the work. The joiners claim that this is a class of work that belongs to them. Several meetings have taken place between the Master Builders' Association and the representatives of the men, but as no agreement could be arrived at, all the joiners in the employ of Messrs. Gradwell have been called out. How far this will affect all the other joiners in the town is not known, but the masters threaten that unless a satisfactory settlement is made they will lock out all the house joiners. This will be a serious matter, inasmuch as the building trade at the present time is extraordinarily brisk.

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COLONEL A. G. DURNFORD, R.E., held an inquiry on the 16th inst. on behalf of the Local Government Board into an application by the St. Helens Corporation for sanction to borrow 30,000*l.* for the construction of the new reservoir at Brown Edge and 3,140*l.* for the purpose of making and improving various streets, including Elephant Lane, Marshall's Cross Road, Nutgrove Road and Kirkland Street Bridge. Mr. G. W. Bailey, town clerk, said part of the money was required for the purchase of land for the widening of Elephant Lane, and the rest of the 3,140*l.* for paving, &c. Speaking with regard to the reservoir, the town clerk stated that the Corporation could borrow 150,000*l.* for waterworks purposes, and of this sum 94,274*l.* remained unaffected by previous applications. The land for this reservoir had been secured at 1*s.* 6*d.* a yard freehold, which was quite reasonable in view of the fact that in 1868 the land for the existing reservoir and softening works was bought for 1*s.* 8*d.* a yard, while land in the locality had recently changed hands at 2*s.* 6*d.* a yard. The water engineer (Mr. J. J. Lockland) then explained the scheme, and the inquiry was concluded without opposition being offered.

VARIETIES.

WE are requested to state that Mr. W. Church Howgate, A.R.I.B.A., has, owing to the expiration of his lease of Perchard House, Gower Street, W., removed to 10 Sackville Street, Piccadilly, W., as from the 22nd inst.

THE new pathological laboratory at the Oxford University Museum, which has been erected at a cost of upwards of 10,000*l.*, has been opened.

THE Coventry Corporation have adopted plans prepared by Mr. Swindlehurst, the city engineer, for the construction of an arcade leading from Smithford Street to the Market Hall, at the estimated cost of 3,000*l.*

MR. H. BISCHOFFSHEIM has presented to the London County Council photographs of several paintings exhibited recently at the Whitechapel Art Gallery. The originals are by Canaletto, Boydell, S. Scott and E. Dayes, and formed a series representing places of interest in London in the latter part of the eighteenth century.

THE Sunderland Corporation have been refused by the Local Government Board power to borrow 20,000*l.* to purchase the Victoria Hall and site, and add additional buildings for a

public hall and other purposes. The Board are of opinion that the objects do not come within the scope of the Municipal Corporations Act.

IT is proposed to restore the ancient Cloth Hall at Newbury as a memorial of Her late Majesty Queen Victoria. The necessary steps are being taken to secure the building for the town with the object of having it fitted up as an art gallery and museum. The estimated cost is 1,500*l.* or 2,000*l.*, and there is every prospect of raising the necessary subscriptions.

THE Ripon City Council decided last Friday to purchase for 5,000*l.* the drill field site from the Marquis of Ripon for the erection of baths and pump-room, and for the laying out of pleasure-grounds in connection with the Spa scheme. The land put in offer includes not only the drill field but the adjoining museum, houses and gardens, the entire area being 3½ acres.

MR. WALTER LONG visited Hull for the purpose of opening the first of a series of new streets, which in the centre of the city will take the place of a considerable amount of slum property. At the request of the Mayor, the right hon gentleman severed a ribbon stretched across the street, which is 80 feet in width; and, after declaring the new thoroughfare open, named it King Edward Street.

THE Maidstone Urban District Council last Monday adopted a new scheme on the bacterial principle for the treatment of the borough sewage. The scheme will involve an expenditure of 72,000*l.*, exclusive of land. Mr. James Mansergh, who prepared the report, has been retained as engineer to carry out the scheme, and to prepare the necessary particulars, plans, specifications, &c, and to support the application to the Local Government Board for their sanction to the same, and to the loan which will be required.

FOR several months past a movement has been on foot to establish a district highways surveyors' association for the county of York. A meeting of all district highways surveyors in Yorkshire was called in September last, and it was unanimously decided to form an association purely for district highways surveyors. A council of management was elected and several council meetings have since been held, the last being last week, at Leeds, when a code of rules was adopted and the association became an established fact. One of the main objects of the association is to get through Parliament a Bill giving district highways surveyors tenure of office under Local Government Board control.

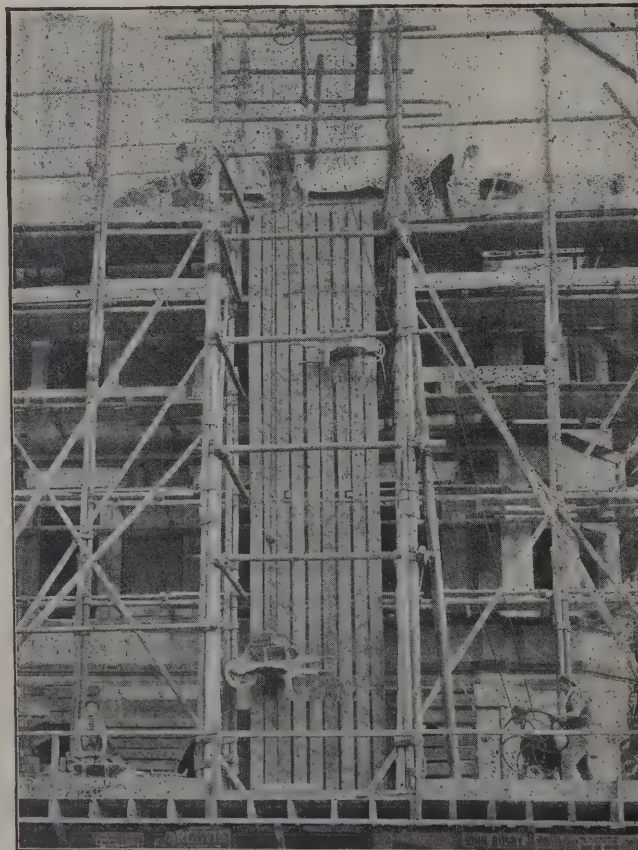
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AN offer has been made to erect a monument over the historic well of St. Bede at Monkton village, the work to be carried out at a cost of not less than 50*l.*, and not more than 100*l.* The erection will consist of four stone pillars, surmounted by a canopy, and will be placed over the well. The scheme for the preservation of the well is arousing considerable interest in the district, and altogether it is intended to raise a fund of 500*l.* to be devoted to this purpose. It is intended to interest antiquaries and theologians in the project by holding a series of public meetings in Jarrow and Newcastle.

THE Borough of Camberwell has always been among the most pushing of the public bodies of London. Last Monday the Mayor opened the Grove Vale depôt in East Dulwich. It has been erected at a cost of about 30,000*l.* from the designs of the borough engineer, Mr. William Oxtoby; the contractor was Mr. H. L. Holloway, of Deptford. The main depôt is 1½ acres in extent, whilst a large piece of land lying between the Approach Road and the London, Chatham and Dover railway embankment, has been enclosed by lofty walls, is paved with granite setts, and will be used for the storage of materials for road-making and other purposes. The various blocks of building provide accommodation for nearly 100 horses, and there are fodder and corn stores, workshops for wheelwrights, carpenters, painters, farriers, harness makers and smiths. Several rooms are devoted to machinery. For many years past in Camberwell the want of a central depôt has been greatly felt, and it is to remedy this that the present work was carried out.

A MEETING of ratepayers has been held at the temporary Board school, Litherland, for the purpose of protesting against the action of the Litherland District Council in requesting their surveyor (Mr. W. B. Garton) to resign his position. The chair was occupied by Mr. W. Roberts, who said the public could see no reason why the surveyor should be requested to resign. They were of opinion that the Council's action had been very severe, because Mr. Garton was beyond the age limit, and there was nothing left for him but to be cast on to the streets. There was absolutely nothing against him, and they all knew him to be an honest, upright and straightforward official of the Council. When he first came to the district the population numbered 2,000, whereas it was now 10,500. His starting salary was 100*l.*, and at the present time he was in receipt of 144*l.* with house, &c. An animated discussion followed, and ultimately a resolution was unanimously passed in favour of Mr. Garton retaining his position, and a

large and influential committee was appointed to formulate petitions, to obtain the requisite signatures, and present the same to the Council.

NO more sure index to the advance in taste of the present generation is to be found than the way in which we desire to have artistic surroundings. Those who cater for the public recognise this, and endeavour to answer the demand. A notable instance is the Monico. This famous restaurant has had to undergo some enlargements and improvements, and in doing so money seems to have been no consideration. The principal rooms affected are the table d'hôte room and the International Hall. The former has been decorated by Messrs. Jetley, of North Audley Street, who have been influenced by drawings and documents of the pre-Raphaelite school. Mr. Boekbinder has superintended the improvements in the International Hall. The architectural features of the apartment have not been altered, but the ceilings, walls and windows have undergone an entire change. The walls have been fitted with beautifully modelled panels, highly decorated and lavishly enriched with gold. The ceiling has been covered with fibrous plaster enrichments, and the girders have been supported by artistically modelled caryatides. The whole scheme is in the Renaissance style, with light tints, giving to the hall the appearance of greatly increased space.

A STREET subsidence at Dalton-in-Furness, which occurred last week, is much more serious than was expected. The ground in Station Road suddenly collapsed, leaving a hole about 20 feet deep and almost as many feet wide. Many cartloads of material were tipped into the hole, but it gradually sank, and now iron girders will be put underneath the street at the dangerous part, with the ends resting on solid rock. The gap will be filled up and concreted. There have been several subsidences in the same valley. The "fault" in the limestone rock in the neighbourhood is fairly extensive, and to this and the mining and pumping operations at the mines the accident is attributed. Some years ago, about a mile and a half from Dalton, part of the railway suddenly subsided, engulfing a locomotive, which has never been recovered.

THE new branch library which has been erected at Routh was opened by the Mayor recently. It is built in red pressed brick, lined inside with buff-coloured bricks, with a glazed brick dado. The arcade system has been adopted to separate the lending department and ladies and boys from the main reading-room, and this arrangement adds materially to the internal effect. The main hall is 65 feet long, 45 feet wide and

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32 feet high, in addition to which are librarian's office, mess and storerooms, &c. In designing the building, which is lighted throughout by electricity, the architects (Messrs. Teather & Wilson, of St. Andrew's Buildings, Queen Street) had in view three important features, namely, supervision, it being possible for the whole of the interior to be under the eye of one attendant, thus effecting economy of staff, and providing abundant ventilation, and light on all sides of the readers. At present the library numbers 7,000 volumes, but it is capable of containing 11,000, and can be expanded so as to contain 17,000. Including boundary walls, fittings and furniture, the building has cost 2,485*l*.

The foundation-stone of the Freemasons' Hall at Oswestry was laid on the 17th inst. The designs prepared by Mr. W. H. Spaul are in the Renaissance style. The building will be faced with red brick and buff terra-cotta dressings. It will be warmed throughout by hot water and fitted with the electric light. The cost is estimated at about 2,000*l*. Messrs. Griffiths & Sons, of Ellesmere, are the contractors.

A NEW Nurses' Home in connection with the Altrincham Provident Dispensary and Hospital was opened on the 12th inst. by the Duchess of Buckingham and Chandos. The accommodation in the hospital for the nursing staff had been inadequate for a long time, and about two years ago plans were prepared for the erection of a new building. The cost of a scheme of that kind was found to be too large for the reserves, and instead of building a new home the hospital bought a convenient house near by which happened to become vacant. The premises cost 1,500*l*. The building has been altered and additional bedrooms have been added, and the whole expense of acquiring and fitting up the home has amounted to 3,400*l*.

THE alterations and improvements which for some time past have been in progress at Holy Trinity Church, Chester, are now practically completed, and the work has been carried out without the necessity of closing the church on Sundays. The principal improvements effected are the internal restoration of the roof, which has for some time been very defective; the provision of proper ventilation; the extension of the heating apparatus round the clerestory and under the east and west windows; the installation of electric light throughout the church, and the restoration of the organ. The work has been carried out under the supervision of the architects, Messrs. Douglas & Minshull, Chester.

THE Mayor of Hull reported to a special meeting of the improvement committee that negotiations had taken place with

the Post Office authorities with a view of providing a site for the new central post office at the corner of Alfred Gelder Street, a new and wide thoroughfare which is now being constructed on the south side of the town hall. After due consideration the committee unanimously resolved that the Corporation assent to the proposal made by the Government authorities for the exchange of a piece of land at the corner of Alfred Gelder Street for such portion of the frontage of Mr. Dumoulin's property as is required to widen Lowgate, and also for part of the rear portion of such property, the areas exchanged being equal in quantity.

HOUSING OF THE POOR IN IRISH TOWNS.

A LECTURE was lately delivered in Dublin by Mr. Joseph Maguire, B.L., upon the "Small Dwellings Acquisition Act." In explaining the provisions of the Act, the lecturer pointed out that the whole working of it lay in the observance of two sets of statutory conditions—those precedent to the advance and those subsequent to it. At present the financial basis should be made so as to leave a fair margin to the local authority for working it. In working out the provisions of the Act, practical care should be taken to select, as far as possible, titles which would not be complicated—freeholds could more easily be brought within the Act than leaseholds. The Act empowered the local authority of any area to advance to the resident occupier of any house within the area a proportion of the purchase money necessary to acquire ownership. The advance was not to exceed four-fifths of the market value of the ownership, nor 240*l*, except in case of fee simple or leasehold with ninety-nine years unexpired. In either of those cases 300*l* might be advanced, but no advance was to be made when the market value of the house exceeded 400*l*. In all those cases the opinion of the local authority was to be the criterion of market value. Actual residence at the time of the advance was not essential, but the borrower must intend to reside, and undertake residence therein within a period not exceeding six months, which the local authority might fix from the date of the advance. The period allowed for repayment was such as might be agreed upon, not exceeding thirty years, and the rate was not to exceed one-half per cent. more than the rate at which the local authority could then borrow from the Commissioners of Public Works. Repayment might be made either by equal instalments

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of principal or by an annuity of principal and interest combined. For the actual borrower who had become a proprietor the scheme of the Act was highly satisfactory. But to many intending borrowers and to the local authority, with whom they must treat, it was, on the other hand, not so satisfactory. The duties and responsibilities thrown on the local authority were so onerous as to be practically deterrent. Having regard to the inquiries as to title, sanitary condition and repairs, which were required to be made by the local authority before an advance was made, and having regard also to the duty of keeping a register of such advances as might be made and of enforcing the statutory conditions in relation to each, it was a matter of no surprise that comparatively few local bodies had yet adopted the Act, though it had been passed in 1899. Considerable credit was therefore due to the Corporations of Dublin and Belfast who, notwithstanding heavy and daily increasing financial responsibilities, had, in the interests of their citizens, adopted the Act in spite of its shortcomings. A more liberal margin between the rates for borrowing and lending by the local authority would no doubt commend its adoption by bodies already too heavily weighted with financial burdens to undertake voluntarily a further financial responsibility. It was one thing for a public body to adopt the Act, and another to work it fully and freely.

WINSLEY SANATORIUM.

PLANS have been prepared by Messrs. Silcock & Reay, of Bath, for the sanatorium which it is proposed to erect at Winsley, near Limpley Stoke, for patients suffering from tuberculosis in the counties of Gloucestershire, Somerset and Wilts. In designing the building the plans of the principal continental sanatoria have been consulted, and the leading features in them which experience has proved to be desirable have been adopted. The general arrangement consists of a long main building, with wings at both ends, set on the south side at an obtuse angle, thus securing for the various apartments the maximum amount of sunshine with the least exposure to the easterly winds. On the north side the wings project at right angles to the main building, and in addition there is a large projection in the centre containing the principal entrance and hall. The kitchen and offices, together with the dining-hall over, are contained in a building separated entirely from the sanatorium proper, and approached by a

covered way and bridge. The building has three floors, each 10 feet high, consisting of a wide corridor extending nearly the entire length of the north side, with the rooms on the south; at the junction with the wings the corridor is continued, but in the centre, with rooms on either side.

The ground floor contains a spacious entrance-hall, with bureau, staircase, reception-room, library, large cloak-rooms, wardrobes and disinfecting-room. One wing is devoted to the use of the medical officer, and contains his dining-room, study, consultation-room and laboratory and dispensary. Suitable apartments are provided in the other wing for the matron, and immediately adjoining them are the linen and store rooms. In addition to the principal staircase, others are provided at each end of the north corridor, affording easy access to all parts of the building. A passenger lift, capable of containing a bed or reclining chair, is also provided. The two projecting buildings at the end of the north front contain the lavatories, bathrooms and w.c.'s, ample provision being made for both sexes. Especial care has been taken to entirely disconnect these from the main building; this has been done by means of a ventilated passage. The first and second floors are given up to the bedrooms, and additional rooms have been provided in the roof for the use of the female staff. The building will be capable of accommodating sixty patients. A wide verandah runs along the south side and returns round the two wings, and additional verandahs are provided on the north side, sheltered from the east winds by the projecting buildings. The building is to be erected with rough stone obtained from the site, and the walls will be impervious to moisture by a facing of a cement stucco.

INQUIRY INTO LONDON FOGS.

THE general purposes committee of the London County Council report that they have had under consideration a letter from the Secretary of the Meteorological Office, stating that it is proposed to hold an inquiry into the occurrence and distribution of fogs in the London district, and their relation to other atmospheric and local conditions, and asking for the co-operation of the Council in the conduct of the inquiry. The suggestion arose out of applications to the Meteorological Council, from electric supply companies and others, for special forecasts or warnings of the approach of fogs. The committee propose:—(1) That a gentleman of suitable scientific qualifications

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be engaged by the Meteorological Council for a limited period to formulate instructions and a scheme of observations, and to conduct the investigation; (2) that the observations be taken at the various Fire Brigade stations, and by men of the Fire Brigade; and also, if it can be arranged, at other institutions of the London County Council; (3) that the returns be sent from the various stations, and from any other institutions selected, direct to the Meteorological Office; (4) that the Meteorological Council do arrange with the police authorities for observations to be taken at selected positions outside the county of London; (5) that all responsibility as to the conduct of the investigation and any published results of such investigation do rest with the Meteorological Council; (6) that a copy of the complete returns and twelve copies of a report thereon by the Meteorological Council be supplied to the London County Council, and that the London County Council do contribute a sum of 250*l.* for the investigation." The committee understand that these proposals represent a satisfactory and practicable arrangement, that the Fire Brigade committee will raise no objection, and that the chief officer of the Fire Brigade is prepared to conduct the work as far as the brigade is concerned, provided that the instruments intended to be used for the observations are the ordinary hygrometric instruments, such as are used in the Royal Navy.

WORKMEN'S COMPENSATION.

A PARLIAMENTARY return has been issued from the Home Office giving statistics of proceedings under the Workmen's Compensation Act, 1897, and the Employers' Liability Act, 1880, during the year 1900. Neither of the Acts contain any provision for the making of returns, the only source, it is explained in an introductory note, from which official statistics can be obtained are:—(1) Returns as to cases which come before the county courts, supplied by the registrars; (2) returns of cases in which memoranda recording agreements or awards by private arbitrators are registered; (3) certain particulars of cases carried to appeal; (4) official references to the medical referee; and (5) particulars as to certified schemes. These returns leave untouched the great body of cases of compensation. In the majority of cases compensation is settled by agreement or by informal arrangement, of which no official information is available. Of those cases

in which a record is available, the return shows that in England and Wales the total number dealt with by county court judges and arbitrators in 1900 was 1,145, as compared with 999 in the previous year. The cases settled by acceptance of money paid into court numbered 70. There were also 407 cases which were either withdrawn, settled out of court, or disposed of in such a way that the results are not officially known. Of the claims settled within the cognisance of the committee, 867 were in favour of the applicant and 194 in favour of the respondent. The proportion in which the applicant is successful has increased from 75 per cent. in 1899 to 81 per cent. in 1900. In 245 cases compensation on account of death was awarded to dependents, the total amount awarded being 40,042*l.*; a slight increase over the total figure for the previous year, though the average award has fallen from 173*l.* to 163*l.* The average award in cases of injury was a little more than 9*l.* As to the effect of the Workmen's Compensation Act on the number of cases brought under the Employers' Liability Act, 1880, the reduction, as compared with 1898, is only 25 per cent., while the reduction in the amount recovered is about 34 per cent. The average amount of solicitors' costs under the Employers' Liability Act was 21*l.* 4*s.*, and under the Workmen's Compensation Act 9*l.* 17*s.* 9*d.* The number of cases under the Workmen's Compensation Act carried to the Court of Appeal in England was 90, or nearly 60 per cent. of the cases that came before the county courts. This is an increase as compared with 1899 of 4 per cent. In Scotland the number of appeals has increased from 18 to 32. Of the English appeals 31 were by workmen and 59 by employers. Of the former nine and of the latter 25 were successful. There were seven appeals to the House of Lords, in six of which the workman was the appellant, and in five of the six the appeal was successful. Generally the returns for 1900 do not show any very great change in the operation of the Act compared with those for the year 1899. There is, however, a tendency to increase in the number of cases brought before the county courts, and still more in the number of cases carried to appeal. In the case of deaths, where the claims are for comparatively large sums, a good many, as in 1899, are disputed. The number of claims for compensation on account of death in 1900 was altogether 2,314, but only 14 per cent. came before the Court for decision. As to claims for injury, it is stated that the unofficial figures available in certain industries show clearly that the number of litigated cases is less than 1 per cent. of the total number of cases in which compensation is payable.

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MELTHAM SEWAGE SCHEME.

LOCAL GOVERNMENT BOARD inquiry was held on the inst. by Colonel A. E. Durnford, R.E., into an application the Meltham Urban District Council for consent to deviate from the chemical purification scheme of sewage treatment, for which a loan was sanctioned in 1899.

It was stated by the Council's solicitor, Mr. F. A. Reed, that the scheme previously sanctioned consisted of chemical precipitation followed by artificial filtration and subsequent filtration, but the Council now desired to substitute in place of that the polarite bacterial oxidation system, which would be more suitable for the requirements of the district in the scheme previously sanctioned, whilst the advantages to be obtained from it, in addition to greater efficiency, were that the use of chemicals would be dispensed with, the works would be automatic, and there would therefore be a considerable saving in labour.

Mr. J. B. Abbey, of Messrs. Abbey & Son, of Huddersfield, engineers to the Council, produced the plans of the proposed works and described the system, which briefly consists in passing the sewage through a screening tank, and then into detritus tanks, where the organic solids will become split and disintegrated by the liquefying action of the bacteria present. From the detritus tank the sewage enters three aerobic bacteria beds, the effluent from which will flow along settling channels, and then be sprinkled by means of automatic revolving sprinklers fed by automatic intermitters on to polarite bacterial oxidation beds. These beds have a combined area of 104 square yards, with a working depth of 3 feet 6 inches, and will deal with 240,000 gallons of sewage per day. The advantage of delivering comparatively small quantities on the beds with short intervals of rest is that a more complete oxidation of the effluent, as well as filter bed, is obtained, and consequently a higher degree of purification of the effluent, is obtained by thoroughly deluging the beds and giving longer intervals of rest. Experience has also proved that better results are obtained by sprinkling than by either continuous distribution or ordinary contact beds.

Dr. Wilson, chief inspector of the West Riding Rivers Board, was in attendance, and expressed the opinion that this was one of the most complete schemes he had seen submitted to any district council, and urged that the work should be put on foot forthwith, the intercepting sewers having already been completed.

ASTLEY-CHEETHAM FREE LIBRARY, STALYBRIDGE.

THE new public free library which has been presented to the borough of Stalybridge by Mr. J. F. Astley-Cheetham, was formally opened on the 16th inst. by Mrs. Astley-Cheetham, the wife of the donor. The library is adjacent to the new post-office, which has been designed in His Majesty's Office of Works, and the two buildings are in sufficiently similar styles. The architectural style chosen by Mr. Astley-Cheetham is that commonly known as Jacobean, with great mullioned windows and bold cornices. It was at first intended that the whole of the exterior should be in stone, as most in keeping with the characteristics of the more ancient buildings of the district. Subsequently it was decided to face the upper part of both library and post-office with bricks of a deep red colour. The roofs are covered with purplish red tiles, which harmonise well with the brick and stone below. The windows of the staircases and some others are glazed with lead lights, the other windows generally with clear plate-glass. The casements are of bronze metal, which is not liable to rust or decay. The outer doors and the main entrance doors are of oak, but the interior woodwork generally is pitch-pine. The central hall, which is lighted from above, is surrounded by pillars and arches of red terra-cotta. The planning and arrangement of the rooms is such as to enable the librarian and his assistants, without moving from their places, to keep an eye on what is going on in the different rooms. The whole of the westerly part of the building has well-lighted and ventilated cellars, fit for use as book stores or bookbinding workshops, or otherwise. There is also a sitting-room for the staff, other than the chief librarian. The ground floor is nine steps above Trinity Street, where is the main west entrance. In the outer porch is a stone tablet, carved with the following words:—"The foundation-stone of this building, the gift of her husband to the town of Stalybridge, was laid by Beatrice E. Astley-Cheetham, on October 9, 1897, in commemoration of the sixtieth year of the glorious reign of our Sovereign Lady the Queen Victoria." The vestibule leads to the central hall. At the south-west of the hall is a spacious apartment intended for use as a reference library. At the north-west corner is a smaller room, which may be used for magazines or otherwise, as found convenient. At the north end of the central hall is the boys' room. At the north-east corner of the building is the news-room, and at the south-east the book-store, which has direct communication

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with the space behind the counter where the assistant librarians stand. At the south of the central hall are the librarian's private room and other necessary offices. The great staircase for the public is to the north of the main entrance. This leads only to the lecture-hall on the upper floor. The hall extends along the whole of the west front, excepting only the portion occupied by the staircase, and will seat comfortably about 250 persons. It has a panelled open roof and large windows east, west and south. The building is electrically lighted throughout. The architect was Mr. Medland Taylor, of Manchester, and the builder Mr. Isaac Gould, of Leeds.

RAINY HALL, EDINBURGH.

THE decorations of Rainy Hall, New College, Edinburgh, which was formally opened about twelve months since, have now been completed in accordance with the original designs of the architects. The architecture of the hall is in fifteenth century Gothic. The roof, an open timbered one, with the hammer-beams resting upon stone corbels, which are richly carved, is divided into six sections by massive main rafters. The hammer-beams are connected by arched ribs, the spandrels of which are carved and gilded. The flat soffits over the spandrels and the upright parts of the ceiling over the hammer-beams are divided into panels, which are filled with painted ornament in primary and secondary colours in keeping with the architectural style of the hall. The cornice dividing the soffits from the upper panels has also been relieved in primary colours, with the carved ornament in solid gilding. The upper section of the roof is divided into panels with moulded ribs, and the panels have chevron bands of blue and red colour, which are relieved by ornaments of fleur-de-lys and roses in pale yellow. The walls of the hall are fitted with wainscot to the height of 10 feet, and are divided by decorative buttresses into bays to correspond with the bays of the roof. The cornice at the top of the wainscot dado is richly carved, the ornament representing the vine; the foliage is in solid gilding and the fruit in red and blue. The upper walls are oil-painted in rich blue, with stencilled ornament, the lion rampant alternating with fleur-de-lys in shades of red. On the walls are hung portraits of moderators and professors, which enhance the appearance of the hall, the place of honour being given to a kit-kat portrait of Principal Rainy above the platform. The electroliers, of graceful design, are

in wrought-iron, and these have been finished in the st oxidised silver. There are shields on the stone corbels, support the hammer-beams, in the centre of the c spandrels between the principals of the roof, and on the of the hammer-beams. These shields, 48 in number, been filled in with the coats-of-arms of the nobles joined the Covenanting party in Scotland in 1638. In sel the arms to be emblazoned on the shields, the tests applied w Signature of the Covenant of March 1638, or presence a great Assembly in Glasgow in December 1638, or particip in the muster of the Covenanting army at Duns in Jun Among the nobles who fulfilled one or other or all o tests, and whose names appear, are Argyll, Loudon, Suther Montrose, Rothes, Cassillis, Lothian, Balmerino, We Blantyre, Eglintoun, Dalhousie, Cupar, Sinclair, Marre, F Forbes, Boyd, Lindsay, Dunfermline, Carnegie, Maris Home, &c Professor Masson, whose knowledge of the h of the period is unsurpassed, was kind enough to giv assistance in selecting the names, and he considers th clusion of Montrose and Rothes as an act of great hist courage. There are also shields with the Royal ar England, Scotland and Ireland, and with the arms o university towns and universities in Scotland. The her has been specially drawn for the shields by the arch under the direction of Mr. James Baltour Paul, the Lyon of-Arms, who took great pains to ascertain the correct an the various nobles as borne in 1638. The whole of the has been admirably carried out by Mr. James Clark, G Street, under the instructions of the architects, Messrs. S Mitchell & Wilson.

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ly eliminated when the oil is burnt on the Bunsen principle with an incandescent mantle. The adoption of this principle has hitherto been prevented by the trouble caused by decomposing and clogging the burner, making the light faint and necessitating skilled attention. Our notice has been drawn to a new system of oil lighting, in which the inventor, Mr. A. Blanchard, claims to have entirely overcome the obstacle, and thereby providing a light unrivalled in brilliancy, possessing all the brilliancy of the electric arc light and its inherent unsteadiness and liability to extinction. In this system the oil is supplied under pressure from a cistern through tiny metal pipes to the burners, while it is vapourised and burnt like ordinary gas. The light is regulated by a tap in any convenient spot, which may be at any distance from the burner, and a by-pass is used to obviate the necessity of lighting. A burner yielding a light of 500 candle-power will run in twenty-four hours one gallon of oil, and the lamp will run continuously for about three months without attention, any kind save filling the reservoir, which is required only about fourteen days, depending, of course, on the capacity of the vessel. The Blanchard lamp should be of great interest to those who have large areas to light, for its purpose it is admirably adapted, street illumination in particular.

NEW CHURCH, PATNA.

The new United Free church at Patna, N.B., of which the foundation-stone has recently been laid, is to be built on an elevated site facing the main road through the village, and is designed in Gothic style of the Early Decorated period. The road is a lofty gable, with entrance porch at one end behind which an octagonal staircase turret rises to a height of about 70 feet. A projecting buttress runs up the side of the gable, and on each side of this buttress are windows in the lower part of the gable, and double windows with richly traceried heads in the upper part. The gable terminates with a canopied niche under the apex of the gable. The entrance porch has a deeply-moulded archway leading into the stone-lined porch, within which double stairs lead to the area and the gallery staircase. The stairs are carried up quite plainly in the lower stages, but the upper part is pierced with four tall belfry openings, divided by lions and with tracery in the heads. Above this the roof will be carried up and finished with red roofing

tiles. The side elevations are agreeably varied with tall double and triplet windows, divided by massive buttresses and broken by projecting transepts. Internally the church is cruciform in plan, with shallow transepts, one of which forms an organ-chamber. The nave is roofed in one span with semi-octagonal roof, divided into six bays by massive moulded timber couples, and will be lined with wood. Moulded stone arches span the transept openings, and the pulpit will be placed under a stone arch with moulded shafts. The pulpit gable is pierced with a six-light wheel window, and the lower part of the gable behind the pulpit will be finished with wood panelling. The church will accommodate when completed 422 sitters, of whom 86 will be in the end gallery, and the sittings will be arranged on the most roomy and liberal basis with ample organ and choir accommodation. A capacious vestry is provided behind the church, and the likelihood of future extension is prepared for. The materials used are red Ballochmyle stone for all walling and hewnwork, the roofs will be slated with light green slates and red ridge tiles, the whole interior woodwork of pitch-pine and windows glazed in cathedral glass. The masonwork is already well advanced. The buildings have been designed by Mr. John B. Wilson, A.R.I.B.A., Glasgow.

WOLVERHAMPTON FREE LIBRARY.

The new free library, which has been erected on the site of the old Theatre Royal at the corner of Garrick Street and Cleveland Road, Wolverhampton, is so far completed that it is expected that it will be opened in about three months' time. The structure is two storeys high, and the main rooms will be a news-room and reference library, 50 feet by 45 feet, and a magazine-room and lending library, 50 feet by 68 feet. The material used in the exterior walls is mainly red pressed bricks with terra-cotta dressings. Over the main entrance which faces Snow Hill are the royal arms in terra-cotta, and over the windows of the Garrick Street elevation are the names of well-known poets in terra-cotta lettering. The rooms on the ground floor are lofty and well lighted by means of crown topped windows, and the floor above is supported by a number of Corinthian pillars with plain shafts, panelled bases and ornamental capitals. The rooms on the first floor are reached by a wide staircase winding from the left side of the main entrance. At the top is a spacious landing with a handsome domed and lighted roof, ornamented with the borough arms and borders

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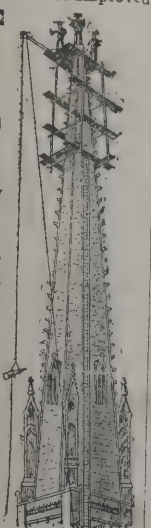
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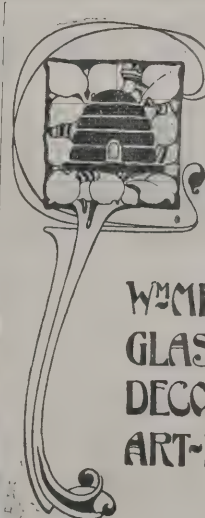


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of flowers. On this floor is the reference library, with a domed ceiling, supported by four massive columns. It will be panelled with oak. Leading out of this room are the librarian's room and other apartments for the members of the staff. On the other side of the landing access is gained to the lending library, which is already fitted with an entirely new system of shelving for the books. This room has an arched roof, and is also well lighted. The whole of the rooms will be coloured to produce as light an effect as possible.

ST. HELENS GASWORKS.

OWING to the constantly increasing business with which (in spite of the large and growing demand for electric light) the St. Helens (Lancs) Corporation Gasworks have to contend, it is found imperative to extend the works, and for this purpose nearly eleven acres of land, formerly the site of M'Bryde's chemical works, and belonging to the United Alkali Company, have been acquired. When the present works in Warrington Road were purchased from the old Board of Commissioners in 1875 at a cost of 131,600*l.*, the capacity of production was a million cubic feet per year, an output which has increased since that time by 400 times. The plant is now capable of manufacturing a million and a quarter of cubic feet of gas a day. The capital expenditure up to 1891 was 201,486*l.*, and up to this year 274,499*l.* In 1891 the year's income was 36,138*l.*, and for the last twelve months it was 53,818*l.*, the price being 2*s.* 6*d.* per 1,000 feet, against 2*s.* 9*d.* in 1891. The amount transferred to the borough fund for the relief of the rates since the gasworks were purchased by the Corporation was 49,030*l.* In order to extend the works the gas committee have for some time been looking for a suitable site, and that now decided upon is in the midst of many large factories and works, and is in close contact with two railways. The minutes of the proceedings of the gas committee referring to the proposed purchase of M'Bryde's works include a resolution to that effect, and another which authorises the town clerk to apply to the Local Government Board for a provisional order so as to give the Corporation power to hold and to erect gasworks, and to manufacture and store gas and residual products upon the lands to be acquired by them, and to confer upon the Corporation all necessary increased borrowing and other powers with respect to the extension of their gas undertaking, and that the sub-committee be authorised to arrange the neces-

sary details and give the requisite instructions to the town clerk and the gas engineer in the matter.

MIDLAND COUNTIES ASYLUM.

AT a special general meeting of the donors and subscribers of the Midland Counties Asylum (Knowle), over which Lord Leigh presided, Sir Arthur Hodgson, referring to the proposed extension of the asylum, drew attention to the appeal support issued to the public, pointing out that the institution was established in 1868 through the combined efforts of their president, the late Dr. Bell Fletcher, and Messrs J. H. Kimbell and G. F. Muntz. During the three years 39 per cent. of the cases received into the asylum had been discharged showing various degrees of improvement. It was built originally to accommodate 60 patients, but by an enlargement in 1893 this number was increased to seventy-five. The building was now filled to its utmost capacity, while the applications for admission continued to increase. The Lunacy Commissioners having frequently pointed out the necessity for increased lavatory improvements and additions the committee had been compelled to carry out those suggestions. The cost involved was estimated at 2,000*l.*, and the improvements would absorb a legacy bequeathed by the late Mr. W. H. Wood, of Birmingham, together with the present bank balances. The effect of this would be to deprive the committee of all the available cash on the side their investments. Sir Arthur concluded by reading the remainder of the special appeal, which stated that it was intended to combine facilities for the classification of patients, providing suitable rooms for those patients whose condition rendered them unfit to associate with those capable of mental and physical improvement. The probable cost of this work was about 5,000*l.* The annual average cost of maintaining an inmate in the asylum in 1900 was 32*l.*, the subscriptions and donations for that year were 4,017*l.* 17*s.*, and the payments for friends of patients 1,375*l.* The average number resident during the year was sixty-five, and out of that number forty-six were election cases at 10*l.* per annum. In view of its past and present usefulness and the urgent necessity for maintaining and extending the scope of the only institution of its kind in the Midland Counties, the managing committee confidently appealed to the friends and supporters of the charity and the residents within the counties of Warwick, Stafford, Sal-

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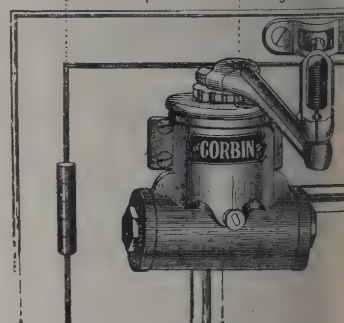
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chester and Worcester to assist in carrying out the additions and improvements. The appeal, added Sir Arthur, was absolutely necessary—5,000% being required—a good deal of the work having been forced upon the committee by the Commissioners. Sir A. F. Godson moved a resolution approving of action of the managing committee in deciding to enlarge present asylum buildings for the purpose of sanitation, ventilation and improved industrial training, rendered necessary by the increased applications for admission. The resolution was unanimously adopted.

APPRENTICESHIP AND TECHNICAL EDUCATION.

The following circular is now being addressed to the local authorities acting in conjunction with the Plumbers' Company, and to the associations engaged in the building industry in the various centres of the kingdom:—

The committee of representatives of district councils in London, Birmingham, Bradford, Cardiff, Dublin, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Nottingham, Plymouth, Sheffield, acting in conjunction with the Plumbers' Company, deem it highly desirable that a prescribed apprenticeship course of training should be recognised in connection with the national registration of plumbers. A special form of indenture has been prepared for the purpose by a conjoint committee composed of representatives of the London Society of Associated Master Plumbers, the United Operative Plumbers' Association of Great Britain and Ireland, and the Plumbers' Company. The indenture is based on the form of indenture authorised by the Corporation of the City of London and approved by the Court of Chancery. It includes definitions of character and scope of the work of the registered plumber of the term "sanitary plumbing," as approved by the Parliamentary Committee on Trade, in order that the sanitary nature of the work of the registered plumber may be generally recognised by plumbers, as well as by architects, local authorities and others, as constituting the reason for the registration system and the ground of the application of statutory powers to be conferred on the registered body. The definitions are in the following terms:—The trade of a plumber and the art of sanitary plumbing, including all branches of the said trade or of the said art which require technical knowledge of water fittings and other sanitary appliances, and skill to construct and adjust the same in such

manner as to prevent the contamination of air or water in dwelling-houses or other buildings by emanations from drains or sewers. Covenants are included expressly providing for (1) the attendance of the apprentice at approved classes of technical instruction; (2) the apprentice presenting himself for annual examinations in technical knowledge and workmanship in conformity with such regulations as may from time to time be prescribed in connection with the national registration of plumbers; (3) the cancelling of the indenture after due notice to the parties in the event of the apprentice failing to pass a satisfactory examination in the third year of his apprenticeship, provided such cancellation be recommended by the examining body. It is recommended that this form of indenture (subject to such modification as may be necessary to meet special cases) should be generally adopted with a view to a uniform qualification being established for the purpose of the national registration of plumbers. It is also recommended that a register of apprentices should be kept in each district. It is hoped that the desire to provide an efficient system of training for the coming generation of plumbers will have the sympathy and support of each council, and that they will be pleased to encourage the object by securing the adoption of the prescribed form of apprenticeship as far as possible in the district. A corresponding form of indenture is prepared adapted to the requirements of the Scots law.

THE CARRARA MARBLE INDUSTRY.

THE United States Consul at Leghorn devotes a recent report to the present condition of the marble industry at Carrara, in which practically all the adult males of the communes of Carrara and Massa (with a total population of 45,000) are engaged. At present 611 quarries are being worked. The concessions are in the hands of the local authorities, and are really granted in perpetuity, subject to the payment of the annual rent, though nominally only for thirty years. The rent also is nominal. The Marina, the port of export, is on the sea only six miles from Carrara. Since 1890 the marble slabs have been conveyed here from the quarries by a railway which is a marvel of engineering skill. Though only fifteen miles in length it cost 800,000*l.*, on account of the number of tunnels and lofty viaducts. The mode of quarrying is still primitive, and has not materially changed for centuries; but the cheapness of labour, the heavy cost of fuel and the great difficulty of access

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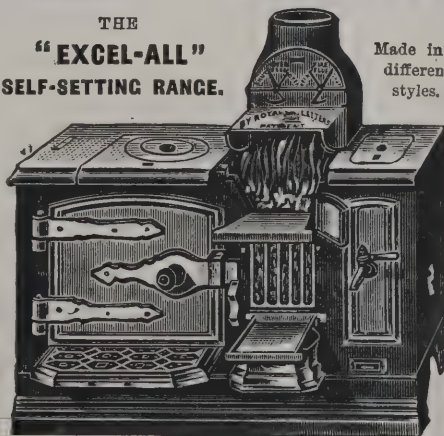
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to many of the higher quarries have much to do with the neglect to adopt modern machinery in the work. To these should be added the strong opposition of the quarrymen to innovations. The old modes of blasting take much time and cause enormous waste, the sawing is done by hand, and even months are spent over the work. Even the loading is done by rollers, skids and crowbars, derricks not being employed for this purpose. In the decade ending with 1899 the total export of the marble amounted to over 1,600,000 tons, valued at about 5½ millions sterling. Of this quantity about 20 per cent. went to the United States, the same amount to Italian ports, 15 per cent. to Great Britain and her colonies, and 13 per cent. to France. The ordinary marble is sold at about 6s. 6d. per cubic foot, f.o.b. Leghorn, and the better grades of statuary blocks at 14s. to 28s. Many varieties of coloured marbles are found in the mountains around Carrara, and some new and very beautiful ones have lately been discovered—red, black and gold, blue and dove-coloured are now quarried. Some fine onyx has also been found at Monte d'Arin. The Carrara merchants also deal largely in the well-known Siena yellow marble and the varieties of Numidian marble quarried at Oran, in Algiers. "The extent of its commerce with all nations, in its own particular line, with the variety, quality and beauty of its marbles, justly entitles Carrara to stand at the head of the marble-producing centres of the world. It has occupied this position for centuries and bids fair to continue to do so for many more to come."

RETTFORD INFIRMARY.

A NEW infirmary in connection with the Retford (Notts) workhouse has been recently opened. The old infirmary was condemned several years ago by the Local Government Board inspector, and rather than patch up this building, it was determined to erect an entirely new structure. The architect was Mr. W. Southall and the contractor Mr. C. Jones. The building, which was started sixteen months ago, has been erected at a cost of 4,000l. It is built on the north side of the workhouse premises, and extends for nearly 200 feet. The whole of the buildings are of ordinary red wire cut bricks, and the roofs are slated with Bangor slates. There are three entrances, the main, and one for the males and another for the females. The old infirmary will be pulled down and the spaces laid out as gardens. A covered way will lead from the centre of the new building to the kitchens. On the ground

floor in the centre block are the nurses' rooms on either side beyond the dispensary and kitchen with pantry. There are two acute wards and dormitories that contain fifty-six beds (men and women). The upper floor contains exactly the same accommodation for both men and women as the ground floor, but a feature for both dormitories and day-rooms is a balcony formed of rolled steel joists on cast-metal columns. Down from the said rooms open on to the balconies, and as they are on the south sides the inmates who are too infirm to get about can be wheeled out. Nurses' day and bedrooms are arranged on this floor in the centre, with lying-in ward in front. The whole of the rooms are heated by means of water and circulating pipes. All the rooms have windows each side opposite each other for through ventilation, and fresh air is admitted by means of Boyle's air inlet panels. The whole of the gas and water pipes are exposed to view, and made easily accessible in case of repairs; 160l. has been allowed for the furnishing, but this item is not so great as one would expect, for some of the furniture from the old building was utilised.

ARTISANS' DWELLINGS IN GLASGOW.

THE housing committee of the Liverpool Corporation appointed to draw up a scheme of artisans' dwellings, after visiting Glasgow, have just issued an interim report, in which they state that the artisans' dwellings of Glasgow are occupied by a much superior class to that to be provided for in Liverpool, Glasgow having so far not attempted to provide for the very poor. Criticising the details of the Glasgow dwellings, the deputation note that one water-closet is provided for four tenements, and all refuse and ashes have to be carried down to ashpits on the ground floor, and in the case of the Hagley tenements one ashpit serves sixteen persons, and no separate yard space and separate sculleries are provided. All this is in contrast to what has been insisted upon by the Local Government Board in Liverpool, and to copy Glasgow would be a retrograde step. The deputation do not approve of the Glasgow system of filling up separate floors with dry ashes to render them sound-proof, preferring concrete floors and iron joists; those of Glasgow it being contended, tending to harbour vermin. On the whole, the tenements of Glasgow are good substantial buildings, but the wooden floors did not compare themselves to the Liverpool deputation.

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The Architect.

THE WEEK.

THE Liverpool Cathedral committee merit to be rewarded by many excellent designs on account of their desire to meet the wishes of architects. A meeting was held on Monday, when an entire change in the programme of the competition was arranged. It was proposed by the Earl of DERBY, and seconded by Mr. ROBERT GLADSTONE, that the preliminary competition for the design of the new cathedral be left open to competitors as regards style, that the time for sending in portfolios be extended till June 30 next year, and that the architects who are selected to compete in the final competition be paid the sum of 300 guineas each for their designs, whether they be accepted or rejected. An amended advertisement is to be issued immediately. A battle of styles will therefore take place unlike any which has been fought since the Courts of Justice were the prize. As many architects have had experience in designing both Renaissance and Gothic buildings, it may be expected that they will not confine themselves to one style.

THE report of the Manchester Society of Architects states there are 182 members on the roll. The Council cannot take credit for much important work during the year. All the schemes for new rooms for the Society or for joint tenancy with other societies have fallen through. The Association of Master Plasterers and Painters of Manchester and Salford (plasterers' section) requested that a sub-committee should be appointed to discuss some points in connection with plasterers' work, but although the sub-committee is said to exist, no meeting has as yet been held. Another sub-committee was formed to confer with the Principal of Owens College about the proposed chair of architecture, but there is no record of a conference. The Council held a special meeting when it was announced that a city architect was to be appointed, and passed the following resolution:—"That this Council hears with pleasure of the intention of the Manchester Corporation to appoint a competent architect as architectural adviser to the Corporation, and would respectfully suggest that this appointment should not prevent the Corporation giving to practising architects all works of architectural importance which they may in the future contemplate, this suggestion being made by them both in justice to the architectural profession (practising in this city) and as a means of securing more varied architectural treatment than would be possible if all designs emanated from one source, and this Council will have much pleasure in furthering the views of the Corporation in any way that it may consider desirable."

It is satisfactory to learn that the building trades have shown more desire to utilise the Conciliation Act than the majority of other trades. Under that Act the Board of Trade, in addition to their functions in connection with the registration of voluntary conciliation boards, are authorised to take certain action in cases in which a dispute exists or apprehended either between employer and workmen or between different bodies of workmen. The Board may of its own initiative inquire into the circumstances, or take steps to promote a conference between the parties, while on the application of either party they may appoint a conciliator, and on application from both sides an arbitrator. A special form of application is prescribed by the Act, and the Board have not suggested one, as, owing to the very different circumstances of the cases, they have considered that it is undesirable for a stereotyped form to be invariably employed. It is the usual practice for the Board of Trade to pay the fees and travelling expenses of arbitrators and conciliators appointed by them, and it is customary for the parties to the dispute to share the local expenses, such as those connected with the hire of a room for meetings and conferences, and the payment of a shorthand writer in cases in which they consider shorthand notes necessary. During the whole period since the passing of the Act in 1896 forty of the arising cases, or more than a

third of the total, have been in the building trades. The number of disputes actually settled in the two years from July 1, 1899, to June 30, 1901, was twenty-nine, of which sixteen affected the building trades. Out of the seventy settled disputes since the passing of the Act, twenty-eight were in the building trades. This is an excellent record. Masters and men who reflect must know from experience that the disorganisation which follows strikes in the building trades is less easily remedied than in most trades in this country.

THE sixty-third section of the London Building Act says:—"Every new building exceeding 60 feet in height shall be provided on the storeys, the upper surface of the floors whereof is above 60 feet from the street level, with such means of escape in the case of fire for the persons dwelling or employed therein as can be reasonably required under the circumstances of the case." The Act does not define what are reasonable means of escape, and they are not to be understood from the by-laws. On Monday the owner of a large block of high buildings let as flats at Buckingham Gate was summoned for penalties for allowing occupation of the storeys over 60 feet from the ground level without a County Council certificate that there were adequate means of escape in case of fire. It was stated for the London County Council that the plans hitherto submitted were inadequate and unsatisfactory. At present staircases were the only means of escape. Last July the defendant was fined in respect of these flats. Fresh plans had been submitted since, but they were incomplete and unacceptable. Counsel for the defendant said that a builder was placed in a position of great difficulty because no definition of what was actually required could be obtained from the County Council officials. The defendant was most willing and anxious to do all the Council demanded, and for plans to be approved he asked for an adjournment. The magistrate thought that this was reasonable, and granted a month's interval. But it may be again declared that the plans are unacceptable. The County Council can readily reject plans on that ground, but the arrangements which should be substituted are nowhere defined.

ANOTHER case under the Building Act demands attention from all who take an interest in the erection of large blocks of model dwellings. The Portland Industrial Dwellings Company own a building at the corner of Paradise Street and Ashland Place, which covers an area of over twenty-five squares. Section 74 (3) of the Act says that "in every building exceeding twenty-five squares in area, containing separate sets of chambers or offices or rooms, tenanted or constructed or adapted to be tenanted by different persons, the floors and principal staircases shall be of fire-resisting materials." As the floors and staircases were not in accordance with the Act, the builder was summoned by Mr. ASHBRIDGE, the district surveyor. Counsel for the company contended that the subsection quoted mainly referred to large buildings like flats, containing three or four rooms, intended to be occupied by different persons, and with an outer door. Every one of the rooms in the building in question might be let off separately; at any rate, a weekly rent would be charged per room. They therefore thought it was oppressive and unreasonable to try and compel them to incur the great expense of making the floors of even the smallest rooms fireproof. Mr. PLOWDEN said the question seemed to be, What was a fair meaning to be placed on the words of the Act, that in every building "containing separate sets of chambers, offices or rooms" there should be fireproof floors? In his opinion "separate sets" had nothing whatever to do with offices or rooms, but referred simply to chambers. Every kind of room, office or set of chambers which was inhabited at all should therefore have fireproof floors. Consequently he held that this building contained sets of chambers or rooms, or, even if not sets, they contained rooms which required fireproof floors. It was therefore ordered that the builder should comply with both section 74, subsection 3, and section 68 of the Act, which says the supports must also be of a fire-resisting material. Costs amounting to five guineas were imposed.

THE DESIGNS FOR THE MEMORIAL OF QUEEN VICTORIA.

IN the whole of the English annals no parallel can be found to the enthusiasm respecting a Memorial of Queen VICTORIA. The contributions up to the present time may be less than was anticipated, but the amount subscribed exceeds all precedent. It was, therefore, a rare distinction for the five architects who were selected to express the national desire for a Memorial which would be worthy of the subject. Great labour and anxiety were required, but the privilege of competing more than compensated for all the toils. To take part in the contest is to obtain a name in the history of art, whatever might be the success of the designs.

It was impossible, however, in this case, great as it was, to escape the usual consequences of limited competitions. In such cases it is always easy to anticipate the character of the work which will be produced by the different combatants. An architect who gains prominence almost inevitably falls into a mannerism which cannot escape the scrutiny of his brethren. The aim of a competitor, therefore, is to deal with definite obstacles, and his attention is so much engrossed with the endeavour to have fewer weaknesses than his rivals, he is not in a position to do justice to himself. On that account we advocated a more general competition than has been adopted. It is among the unknown quantities, so to speak, that originality is likely to arise. Men who have gained repute are more or less afraid of undertaking any course which will involve their professional character in any risk, and they are consequently timid. Architects, on the contrary, who have little to lose are likely to be more daring, and, if happy thoughts arrive, to allow them to have sway over their ideas.

The whole of the designs, which are open to public view to-day, can claim to be "safe," and do not err on the side of extravagance. They are, in fact, so well balanced, it must have been extremely difficult to decide between them. Under the same conditions it would be possible to obtain from English architects, if the competition were more general, at least 500 designs which would be equally meritorious. Each of the five designers shows that he was working under restrictions, and was afraid to let himself go, if we may be allowed to use a common expression.

The project resembled an epic theme in poetry, and in treating it everyone would like to see some evidence of the fine enthusiasm of art. A modern HOMER might occasionally be allowed to nod like his great predecessor, if he made compensation for the occasional weakness. So it should be with the designers of the Memorial. All the accessories introduced ought to be of such a character as to make a climax of the figure of Queen VICTORIA, or should be, as SHAKESPEARE says, "as happy prologues to the swelling act of the imperial theme." But all that is supposed to be practicable, according to the present designs, would be the setting up of more or less statues with a near or remote relation to the principal figure. The joyless production of the designs is apparent when we find that groups have been copied from the Albert Memorial in Hyde Park. In fact, what we have is generally the prose of architecture instead of its poetry.

It must be admitted, however, in defence of the architects, that they were working to some extent in the dark. The measure of the liberality of Great Britain in subscribing to the Memorial is uncertain, and has to be differently estimated according to the disposition of the calculator. The character of the various designs depends to a large extent upon the ideas of the authors about the money that would be available. Mr. ERNEST GEORGE, for example, takes a sober view of the amount which would be at his disposal. He has consequently been sparing of statuary along the line of roadway from Buckingham Palace to Charing Cross, and throughout respects economy. Mr. T. G. JACKSON, on the contrary, may be said to have a continuous row of statues placed in semicircular recesses along both sides of that route, and around the statue of the QUEEN they are also numerous. Mr. ASTON WEBB proposes to erect equestrian groups as well as single figures along the processional road. Dr. ROWAND ANDERSON has also many statues. Sir THOMAS DREW is so confiding in

the generosity of the public that he is not satisfied with setting up triumphal arches and employing a multitude of statues, but he has had the courage to propose the transformation of Buckingham Palace into a building that would be more majestic than any part of the Louvre. There is no doubt the existing building is not adapted to serve as a background to any ornamental scheme. This was felt by the designers, and the manner of treating the palace on the drawings reveals its shortcomings. Dr. ROWAND ANDERSON, for instance, has shown parts of his design by means of very clever water-colour drawings, but they lose much of their value and the architect's contemplated work introduced in them is affected injuriously by the mass of disagreeable colour which had to be used for the façade of Buckingham Palace. He immolates himself through his respect for facts. The small model of the statue which stands at the end of the room in which the designs are exhibited in St. James's Palace would be deprived of much of its effect if the background had been represented as it is, but care has been taken to make a piece of cream-coloured pasteboard serve instead of the sooty Portland cement. Mr. ASTON WEBB indeed proposes several alterations in the buildings. If economy were to prevail or a financial society could have control of the project, Mr. ERNEST GEORGE's design would be the favourite, but with adequate funds Sir THOMAS DREW's design if carried out would impart the gorgeousness to the surroundings of the figure of the late QUEEN which would be in keeping with the aspirations of the wealthiest of nations.

Three of the designers have laid out the colonnade in which Mr. BROCK's group is to be placed on curved lines. Mr. ERNEST GEORGE has straight lines along the sides and a rather flat curve uniting them. Mr. JACKSON prefers straight lines for his colonnade, but they are not laid out in a continuous line but in short stretches, which are connected by others at right angles. Outside the colonnade there is an almost circular roadway. Mr. ASTON WEBB seeks after lightness in his colonnade and screens, in which he introduces domed blocks with much tact. The garden about the central group contains several statues, obelisks, &c. Dr. ANDERSON keeps the architectural framing which surrounds the statue rather low in height, and on the elevation it looks to be an insufficient and unimposing barrier. But the statues introduced of the various patron saints of the country, Queen ELIZABETH and other worthies, suggest that more attention was given by him to his sculpture than by the rest of the competitors. Mr. ERNEST GEORGE varies the roof of his colonnade by utilising small domes. The Tuscan order is applied to the columns. A fountain rises in front of the statue, and a second between it and Buckingham Palace. Mr. JACKSON places his fountains at the sides of the statue. Both Corinthian and Tuscan columns are used in his colonnade, and at the angles referred to above there are arched openings surmounted by typical figures with obelisks above. The number of vases brought in to break the monopoly of the upper horizontal lines is too commonplace a device for so important an undertaking. Far too many of the ordinary means for overcoming difficulties are to be recognised in the various designs, and the conclusion must be drawn that there is not much difference between the Italian which was in vogue at the beginning of the late QUEEN's reign, and the Renaissance which finds favour with successful architects at the present time.

The official instructions made it necessary to have a straight line of roadway from the Palace to Spring Gardens. Mr. ASTON WEBB has introduced a *rond point* which breaks the sameness and is an agreeable arrangement. Mr. ERNEST GEORGE's gateway at Spring Gardens is simply treated, but is one of the most interesting features in his design. It would appear rather plain if contrasted with the high and ornamental structure which Sir THOMAS DREW employs to mark the opening of the avenue.

The drawings are excellent; nearly all are made by the pen. The coloured drawings cannot be considered as advantageous from a competitor's point of view, because Buckingham Palace becomes a blot which does not enhance the merit of the proposed work. All the representations are straightforward, and if the works were carried out they would be not less effective than the appear in the designs. But for the realisation of the adopted design, or, indeed, of any of them, the amount of

money contributed is insufficient. If the designs are exhibited in provincial towns as well as in St. James's Palace they might have the effect of inducing people to subscribe to a larger extent. As we have said at first, there is a remarkable equality about the merits of the collection, and on that account they all somehow co-operate in emphasising the character of what is proposed to be accomplished. We cannot recall a competition in which the effect was of the same kind. But where there is so much of a level in merit and so marked a confirmation of the original proposal there is opportunity for discussion, and in that way the desires of the promoters of the Memorial will be likely to be realised, and the work can be undertaken on a satisfactory basis.

MEDIÆVAL BEVERLEY.

ACCORDING to CARLYLE, "The soul gives unity to whatsoever it looks upon with love; thus does the little dwelling-place of men, in itself a congeries of houses and huts, become for us an individual, almost a person." In that way Beverley in Mediæval times can seem to us a being who believed in religious and trade guilds, and insisted on other people observing the rules and regulations of them, especially those relating to pageants; who was disposed to levy fines on slight breaches of by-laws, who was willing to become an archer or an armed man whenever occasion demanded, who had no objection to the common funds being applied occasionally to exhibitions of dancing bears in the market-place, who considered it was an offence to kill a bull unbaited, who was ready to accept articles like a modern pawnbroker in payment of taxes and dues when money was not to be obtained, who objected to trading with foreigners, but sought for judgment against a native who sold shoes which were "not sufficiently made" or formed of sheepskin, or adulterated his bread. Although many of the most important records have disappeared, enough remain to enable imagination to create for itself a representation of life in the ancient town, and of the stout Yorkshiremen who found their abode in it.

Architects and other lovers of buildings will, however, regret that amidst so much information about everyday life there is a lack of reference to the noble church which is the chief reason for the reputation of Beverley. The Minster was one of the buildings which RICKMAN in the beginning of the nineteenth century selected as typical of Early English, Decorated and Perpendicular characteristics. His choice has been approved by later authorities. But the records of the town do not reveal to us any item which extends our knowledge of the history of the building. We recognise the importance of the clergy of St. John when in the deed dated 1359, which is called the "Magna Charta of the Community," the twelve elected keepers of the town announce that, in addition to the common seal, they "for greater security thereof have procured the seal of the Venerable Canons of the Chapter of the Blessed JOHN of Beverley to be affixed." The building was a landmark that was often referred to as indicating limits, and, as the principal church, served its part in the life of the town.

When the various manors and lands belonging to St. John's, and valued at 1,000*l.* a year, were seized by HENRY VIII. the building fell into decay. A memorial was presented in 1552 to his successor praying that certain lands of the value of more than 60*l.* which did not form part of the sequestered property should be assigned for paying for reparation. It was, in truth, money bequeathed to uphold the building. The Chancellor and Council report that the Office of Works belonging to the Minster long possessed property of the value of 68*l.* 1*s.*, and with the profits the church was preserved. They also admitted that the church was very great and ruinous, and yet very necessary to be upholden, as Beverley was a market-town very notable and populous. But the property in question had been made over to royal favourites, the high and mighty prince JOHN, Duke of Northumberland, being one of them, and His Majesty EDWARD VI. therefore ordered that the twelve governors of Beverley were to receive 19*l.* 11*s.* 8*d.* out of the old chantry revenues, and the money was to be expended "upon the reparacions of the said church from henceforth yearly as necessity shall

require." A sum of 62*l.* 14*s.* 8*d.* was also given in lieu of the arrears. This robbing of PETER to pay PAUL casts light on the discreditable financial expedients which were adopted at the Reformation, and which were the cause of the ruin of many churches. The Minster Fabric Roll for 1447 contains some information about the building. An account of it appears in the "Transactions of the East Riding Antiquarian Society."

Another church is St. Mary's, which was once regarded as a chapel of St. John's. In 1520 there is an entry of a payment of 8*s.* 7*d.* to a goldsmith for exchange of a chalice which was broken when the church fell. Two years afterwards PETER CRAWE, draper, "graunted to pay xx markes toward the newe beyldyng of Saynt Mary Church now leyng in rewyne." The twelve governors were allowed 3*s.* 6*d.*, which they expended with the Master Mason (latomo) of the church, whence it may be assumed there was a consultation about the works to be undertaken, of which, however, the particulars are not forthcoming.

The Archbishop of YORK exercised much power in Beverley. He had his spiritual and temporal courts as well as a gaol. The Archbishop's hall was used for many purposes, weighing bread being one. He possessed water rights which were to some extent sacred. Presents were made to his lordship; in 1366 we read of 4*l.* 0*s.* 11*d.* for a pipe of wine, and in 1541, 4*l.* 5*s.* was paid for capons for him. The people also possessed their common hall, and in 1500 there was a purchase of a messuage in Crossgarthes for a new hall. In 1434 it was decided to dispose of some of the money received out of the land known as the "averys" for the building of a certain new hall on the Dyngs.

Whether the halls were used for the meetings of the guilds is not certain. There were not many churches in Beverley, and vestries could not serve for all the guildsmen. Mention is made of a meeting of all the venerable men in the chapter-house of the Minster, in order to consider whether a man could serve as one of the twelve governors if his son were in gaol as a suspected thief. The right to meet, like many other rights in which several had concern, was in Beverley under the control of the governors. It was prohibited in 1461, under the heavy penalty of 20*s.*, to hold assemblies or meetings in the houses of the friars or in other places. Numbers were not to gather in the Guild-hall unless duly summoned. The regulation was not unreasonable, especially as several of the trades do not appear to have been incorporated into guilds. The guilds of which there is evidence were those of merchants, cloth-workers, butchers, bakers, carpenters, smiths, tailors, skinnners, tanners, weavers, "sheremen," fullers, sailors, barbers, glovers, coopers, fishers, tilers, besides guilds which resembled religious confraternities. Each guild had its aldermen and seneschals.

The aldermen and their seyrssours or searchers examined all journeymen who sought work, unless they had been apprentices in Beverley. Those who were considered competent paid 4*d.* for examination fees, and all who failed were either to be bound as apprentices or to serve at lower wages.

The manner in which the Beverley trades were governed will, however, be better understood by taking a particular trade, the carpenters (with which some others were occasionally united), and describing the regulations. By an ordinance of 1461 it was settled that no carpenter, tiler, or plasterer who had not a regular apprentice with him was to employ a journeyman without the consent of the master with whom he worked. The latter could employ any journeyman he pleased, and finish a job begun by one with another man. Carpenters, tilers and their servants, sawyers, paviours and their servants and workmen, were to observe the following hours:—From Easter to the Assumption (August 15), from 4 A.M. to 7 P.M., with an interval at 6 A.M. of $\frac{1}{4}$ hour to drink, at 8 A.M. of 1 hour for breakfast, at 11 A.M. of $1\frac{1}{2}$ hour to dine and sleep, at 3 P.M. $\frac{1}{2}$ hour to drink. They were not to be tardy, or absent from their work, on pain of paying 12*d.* to the community. From the Assumption to Easter they were to begin at daybreak, and leave off when the light failed. At that season they might have at 9 A.M. $\frac{1}{2}$ hour to drink or breakfast, at 12 noon 1 hour to eat, and at 3 P.M. $\frac{1}{4}$ hour to drink. No carpenter, &c., was to refuse to work with any burges who

wanted him unless previously engaged on some other work; penalty 6s. 8d.

It was not always easy to draw the line between carpenters and other workers in wood, and in 1514 there was a lawsuit in which the carpenters, bowyers and other trades were parties. It was arranged that the carpenters were to withdraw their suit in London and the bowyers, turners, carvers and joiners their suit in Beverley. Every carpenter belonging to the guild was to be free to engage in carving, "enbowinge, rabbiting, jonyng and seelinge" without any contribution to the bowyers. But every carpenter occupied with making of "copburds, cownters, chists, awmbres or pressur" should yearly pay to the alderman of bowers for his contribution 8d. If he were not a brother of the guild the sum was to be raised to 20d.

The smiths were not allowed to use bad iron or steel. All work considered blameable by the overseers was to be forfeited, and a fine of 3s. 4d. imposed in each case. If a smith endeavoured to entice a servant from a brother smith, the alderman and stewards were to judge of the circumstances, and if their orders were not accepted the penalty was 6s. 8d. Any master of the craft who offered goods for sale on a Sunday was to pay 2s.

The goldsmiths as early as 1365 were obliged to make declarations that no silver of worse alloy than the current coin would be used by them. The issuing of any piece without their accustomed mark brought a penalty of 40d. Two "serchors" were appointed to ascertain that the gold and silverwork of Beverley was without fraud. Every goldsmith who did not satisfy the "serchors" was fined 12d., besides a similar sum for the maintenance of lights before the altar of St. DUNSTAN, the patron of the craft. On setting up shop for the first time 20d. was to be paid towards the light, as well as 10d. on employing a journeyman. If the lights prescribed for any trade were not ready at the stipulated time a fine was levied.

It was not only by contributing candles and torches to churches the guilds aided in ecclesiastical ceremonies. Beverley had acquired a remarkable organisation in the guilds for the production of pageants which illustrated scenes from Scripture. There are records of the following subjects:—

"Creation of the World," "Paradise," "Redemption of Adam and Eve" (le Coke Pageant), "Abraham and Isaac," "Three Kings of Cologne" (Epiphany), "Flight into Egypt," "Raising of Lazarus," "Sleeping Pilate," "Judgment of Pilate," "Crucifixion." There were also representations by particular trades of Pride, Covetousness, Luxury, Envy, Sloth, Anger, Gluttony, &c. Every craftsman was expected to contribute towards the expenses of the pageants, and to wear the appointed livery on the occasion, which was generally the feast of Corpus Christi. Should a craft remain unprepared a fine of 40s. had to be paid. Beverley possessed "properties" which were available by those who were not sufficiently organised or were too poor to purchase such aids. For instance, in 1391 the "hayrers" obtained the loan of the following objects, which JOHN OF ERGHES undertook to return after presenting the play of "Paradise," viz. one car, eight hasps, eighteen staples, two visors, two angels' wings, one pine pole, one serpent, two pairs of linen boots, two pairs of shirts, one sword.

The various trades used to erect wooden castles in connection with the pageants, from whence the spectacles could be witnessed. There is one curious entry of 1411, by which it was arranged that for the play of "Fleyng into Egip," as well as for "Habraham and Isaak," every brother should appear with a "fit bed-covering" ("cum coopertura lecti habili") at the castle on Rogation Monday. We may now smile at the simple efforts of the craftsmen to represent scriptural subjects, but the attempts aided in preparing people for the English drama, and were, moreover, useful to painters and carvers in suggesting composition as well as colouring. As in other affairs, plays were sometimes followed by fines. Thus in one year we find that the painters' alderman was fined 2s. because "Lez 3 Kyngs of Colleyn" was played badly and disorderly in contempt of the whole community in the presence of many strangers. The alderman of the tailors was mulcted in 12d. for that his play of "Slepyng Pilate" was badly played, against the ordinance made in that behalf; while the alderman of the

drapers was fined 2s. because of his play being badly played; 4d. of the same because his pageant was not covered with decent dresses.

Beverley had also its waits or minstrels, for whom not only liveries, but chains, escutcheons and collars were provided by the twelve governors. On account, no doubt, of the silver ornaments, the waits were required to find sureties. In the sixteenth century we find records of companies of players visiting the town. The Kyng's players and the Prynce's players arrived in 1541. In 1557 the Queen's players and Lord SKROOPE's players were to be seen, and at a later time the Duke of SUFFOLK's, Lord LEICESTER's and Master RICHARDSON's companies were received and rewarded. In that way life in Beverley must have been rendered less dull than in an earlier period.

From its position Beverley was compelled to sustain a competition with Hull, which nature had more liberally endowed with facilities for commerce. In the end Hull succeeded, but so long as it retains its Minster and its records, Beverley will retain its hold over architects and students of history.

THE SOCIETY OF ARCHITECTS.

THE annual general meeting of the Society of Architects for the session 1900-1 was held at St. James's Hall, Piccadilly, on October 24. Mr. Walter Emden, the retiring president, took the chair. The following officers were elected:—President, Mr. Silvanus Trevel, Truro; vice-presidents, Mr. Walter W. Thomas, Liverpool, and Mr. G. Gard Pye, London; hon. secretary, Mr. Ellis Marsland, London; hon. corresponding secretary, Mr. W. Cooper, Hastings; hon. treasurer, Mr. H. G. Quartermain, Merton; hon. auditor, Mr. J. Bartlett. The following members of Council were also elected:—Messrs. R. G. Bare, W. R. Bryden, C. Caine, J. W. Dunford, J. W. Dyson, W. L. Grant, W. J. Jennings, W. R. Mallett, G. A. T. Middleton, A. E. Pridmore, J. H. Richardson and W. A. Scott.

Messrs. C. Bagot, Clayton Botham, H. C. Lauder were elected members, and Mr. A. H. Weeks as student. The qualifying examination had been passed by Mr. A. L. Cox and Mr. R. G. Kirkly.

The hon. secretary read the seventeenth annual report of the Council, which stated that the past year had been one of progress and development. A large number of applications for membership had been received, resulting in the addition of twenty-three new members. The students' register had also increased, the total membership being 592, the highest yet recorded. Two members had died, fourteen had resigned and three had been removed from the list. Three studentships had lapsed. The half-yearly examinations to qualify for membership had attracted an increased number of applicants, of whom seven had been successful. One candidate, Mr. A. A. H. Scott, had been awarded the silver medal of the Society. The syllabus of examination had been revised and strengthened. The Council had continued its policy of keeping before the profession the question of statutory registration, and would not relax its efforts in working for a principle which it believed to be for the ultimate advantage of the public and the profession. In April last the Council passed a resolution urging that all architects who were British subjects should have an opportunity of submitting designs for the proposed Victoria Memorial. The committee with whom the matter rested, however, refused to alter its decision. It is expected that the balance sheet which will be presented at the November meeting will show that the surplus funds of last year have been considerably augmented; and although development must necessarily be attended by a corresponding increase in the expenditure, the working expenses of the Society will be found not to have increased out of proportion to the benefits which have been thereby secured to members and the Society generally. While the Society continues year by year to increase its membership and extend its influence, there is still plenty of scope for further efforts, and its resources can be developed and increased in proportion as the membership grows. The qualifying examinations and other restrictions as to entrance into the Society debar any but those properly qualified from admittance, and progress in numbers, if sure, is comparatively slow; therefore, it behoves the members to make a special effort to introduce those whom they know to be qualified to the privileges of membership or studentship, as the case may be, and the Council trust to have evidence of their wish to take a share in the development of the Society by receiving through their influence a greatly increased number of applications during the coming session. No report of the Council would at this time be complete without referring to the retirement from office of its president, Mr. Walter Emden, L.C.C., who for four consecutive years has so untiringly and generously devoted himself to the interests of the

Society, and the Council desires to place on record its appreciation of his ready and valuable services. The report was adopted.

The retiring President, who, in the unavoidable absence of his successor, remained in the chair throughout the meeting, expressed satisfaction that, after a hard struggle, the Society had been placed in a satisfactory financial position. The usual votes of thanks were adopted.

THE BRITISH SCHOOL AT ATHENS.

THE annual meeting of subscribers to the British School at Athens was held at the rooms of the Society of Antiquaries, Burlington House, on the 24th ult. Sir Richard Jebb, M.P., presided. The report of the managing committee stated that within the last few months the King, who as Prince of Wales had from the first taken a warm interest in the British School at Athens and given it his hearty support, had been graciously pleased to signify his continued desire for its welfare by becoming its patron. The work of the school, both on its teaching and on its exploring sides, had been energetically carried on during the past session under the newly-appointed director, Mr. Carr Bosanquet. The number of students in residence was five, as compared with six in the previous session. Mr. Marshall, who reached Greece in November, spent December and January in the museums at Athens and at Candia, working out a comparison of the Mycenaean remains from Crete and the mainland. In the course of this study he made most successful restorations of the unpublished vases from the Vapheio tomb and of some vases from a newly-found grave at Mycenae, which were entrusted to him for this purpose by Dr. Tsountas. Subsequently he travelled for some weeks in Eastern Crete and took part in the school excavations at Praesos during May, June and July. Mr. Hopkinson, who reached Greece at the beginning of December, spent most of his time in work upon the vase collections in the Athenian museums, devoting particular attention to the unpublished fragments from the Acropolis excavations. He also spent three weeks in Crete, partly at the museum in Candia and partly in the neighbourhood of Knossos, visited sites on the western coast of Asia Minor, and worked for a fortnight at Mykonos on the unpublished vase fragments from the excavations in Anti-Delos. Since his return to England Mr. Hopkinson had been appointed to the post of lecturer on Greek in the University of Birmingham. The new director, Mr. Bosanquet, reached Athens at the end of October, and returned to England at the end of August, thus residing altogether ten months in Greece, of which about six months were spent at Athens and about four in Crete. Mr. Bosanquet has marked the beginning of his term of office by submitting to the committee some valuable suggestions for the guidance of students at the school, which would, it was hoped, help to increase its usefulness as a teaching institution. Excavations were undertaken this year by the school at Praesos, situated on the central plateau of Crete, and at Petras on the coast, a few miles to the north. The work was conducted by the director, with the assistance of Mr. Marshall and Mr. Wells. Praesos was in historic times the chief centre of the Eteocretans, who represented the most primitive element in the population of ancient Crete, and it was therefore hoped that the excavations here might bring to light traces of civilisation of the Mycenaean epoch, together with inscriptions in the non-Hellenic and presumably Eteocretan language, of which one specimen had previously been found in this neighbourhood. The first hope was not fulfilled, for on the site of Praesos itself only one product of Mycenaean art was discovered, a gem found embedded in the mortar of a late Greek house, into which it must have been accidentally brought with the earth from some neighbouring tomb when the house was built. About a mile away, however, a large house of late Mycenaean work was discovered in a valley near a spring, and somewhat nearer the city were found two tombs of the same period, one a square chamber with a dromos, and the other a well-built beehive tomb. In the same neighbourhood a number of later tombs were opened, ranging from the Geometric period to the fourth century, and containing a large quantity of vases of various periods. Praesos itself appears from the remains discovered to have been an important place from the eighth or seventh century downwards. The most interesting objects were brought to light in a temenos on the top of a crag near the town. Here Mr. Bosanquet was fortunate enough to discover an inscription seventeen lines long in the non-Hellenic language referred to above, and written in Greek characters of the fifth century B.C. In the same place were found a series of votive offerings in bronze and terra-cotta. The terra-cottas, which range from the sixth to the fourth century, reveal the existence of a vigorous native school of art, and include the upper part of a fine archaic statue of a young god, half life-size, and a well-

preserved head with fragments of the body of a couchant lion. The remains of three other sanctuaries were also investigated. On a saddle below the Acropolis was discovered a large and solidly-constructed building of late Greek workmanship, with a front 75 feet long, which may, it is suggested, have been an "Andreion" of the kind in which the Cretan citizens met for common meals. The excavations at Petras on the sea coast brought to light considerable quantities of pottery of the Mycenaean period. The site appears, however, to have been systematically turned over and terraced by its owners a few years ago, and it was therefore not thought worth while to undertake here work on a large scale. Accounts of the discoveries at Praesos and Petras will be published in the forthcoming number of the annual. In the course of the past spring Mr. Loring, the hon. secretary of the school, returned from South Africa and for a time resumed his old post. But on receiving the offer of a commission in the Scottish Horse, he decided to go back to the seat of war. Mr. Loring was severely wounded in the right arm and leg in the attack on Colonel Kekewich's column last month. As the wounds, however, were not classed as dangerous, and Lieutenant Loring was among those who are described as doing well, the committee thought it probable, in the absence of detailed information, that the school might ultimately be the gainer by his earlier return to England. In this hope they renominated Mr. Loring as hon. secretary, and also nominated Mr. Mayor as acting hon. secretary until Mr. Loring's return.

Sir R. Jebb said that the British School at Athens was continuing to fulfil the purposes for which it was founded. It was intended to be a permanent station at Athens from which exploration in Hellenic lands might be conducted. It was to be at the same time a centre of regular training for students of Hellenic antiquity. And lastly, though this function was necessarily less definite, it was to serve as a sort of archaeological consulate for cultivated British visitors to Greece, a place where they could obtain advice and guidance as to the disposal of their time. The year which ended last summer was the fifteenth during which the school had performed this threefold office. The school had gained an honourable position among the other institutions at Athens, representing various nationalities which were engaged in the same pursuits, and its relations with them from the first had been of the most cordial character. Owing to the lack of general public interest in the matter the school had had in the past to contend with financial difficulties which only the aid of Oxford and Cambridge and the liberality of some private friends enabled it to surmount. The recent Government grant to the school had been a much-needed and well-deserved assistance, and was especially to be welcomed as a recognition of the fact that it was a public service to maintain the position of England in this field of scientific research, a field which engaged the energies of all the most highly civilised nations. During the past year the school had been doing its part in the latest researches. The centre on which the attention of classical archaeologists had lately been focussed was, without question, Crete. England had been represented there by two agencies—that of the Cretan Exploration Fund, and that of the British School at Athens. The work of the British School in exploring Praesos, on the central plateau of Eastern Crete, was carried on by the director, Mr. Bosanquet, with Mr. Marshall and Mr. Wells. It had had some positive results of great interest, chief among which must be placed the discovery of a second inscription in an unknown language, presumably that spoken by the old Eteocretan inhabitants, but written in Greek characters of the fifth century. While Crete had been the chief centre of interest, the year had not been barren of archaeological events in other parts of Hellas which were of interest for members and supporters of the British School. One, at least, of them deserved special mention. Professor Furtwängler had made a fresh examination of the temple in Ægina, and had ascertained that it was dedicated, not to any of the greater divinities, but to a local goddess called Aphaia. The dedicatory inscription had been found, and ran thus:—" . . . being priest," the name was mutilated, "the house was made for Aphaia; the altar and the ivory image were added; and the wall was made around it." The temple was dedicated soon after 490 B.C., replacing an older Doric temple of the sixth century. Attention might now be called to an old conjecture that in Herodotus, iii. 59, where a temple in Ægina was mentioned, the name of Aphaia should be read instead of that of Athena. There was no abatement, but rather an increase, in the activity with which Hellenic sites were being explored by the co-operation of various countries. The British School aimed at advancing knowledge. It also aimed at educating young archaeologists. The school at Athens and the recently opened school at Rome offered the best facilities available to our countrymen for a practical training in archaeological work. But they would all be of one mind in desiring that the educational work should be carried on without detriment to the energies of the school as an agency for exploration and for the advancement of knowledge. t

would be of great advantage to the director if he could command the services of another advanced archaeologist—or of more than one such colleague—to assist in conducting excavations and in editing the results for publication. They wanted something in the nature of an archaeological fellowship in connection with the school, to be tenable for a certain term of years. The appointment to such fellowship might rest with the managing committee in consultation with the director of the school for the time being. In selecting among candidates a preference might be reserved to former students of the school who could produce evidence of good work, but candidature should not be restricted to such students. Such a fellowship would be an object to which a student of the school might look forward as a possible opportunity of more advanced work. It would be a step towards organising a career for a man who possessed a genuine gift and love for such pursuits. It would also be a legitimate development of the school, bringing it nearer to the idea of a college of archaeology at Athens. The French School of Athens actually possessed much of that character. He threw out the suggestion rather as something that they might do well to keep in view, than as a proposal which there was any immediate prospect of realising. They might have to wait; but the fulfilment might be reached some day, possibly sooner than they could now foresee.

Mr. Arthur Smith seconded the report, which was adopted.

THE BISHOP OF RIPON ON "TASTE."

A LECTURE was delivered last week in Birmingham by the Right Rev. W. Boyd Carpenter, Bishop of Ripon, the president of the Birmingham Ruskin Society. His lordship described the aims of the Society as intended for the diffusion and promotion of the spirit of cultivation in the midst of the city. Taking an interest in the city, they recognised the difficulties and the temptations which were natural to civic life, and their wish would be, he imagined, to hold up before the citizens some lofty and worthy ideals. There was every reason for keeping alive the remembrance that a man's life consisted in something nobler than the mere accumulation of the means of subsistence, and the object of such societies which set before their fellow citizens the brighter and more beautiful side of life was most commendable. The purpose of the Society and the purpose of his address were, that while on the one side they recognised the duty of honesty and indefatigable and honourable toil in all the employments which fell to their lot in this great city, they were not unmindful of the beautiful and the graceful things; that they would be honest men on the one side—honest in work, honourable in toil—and on the other side men of taste. The range in which taste could exercise an influence was a range which touched every point and every portion of human life. That was not a quality which belonged only to a kind of fastidious refinement. It was the quality of life with truthfulness that he spoke of; for without absolute truthfulness of disposition a man would have but poor taste indeed. There was only one vulgarity in the world, and that was affectation, and there was only one high rule of taste, and that was absolute truthfulness. He could not say that taste belonged merely to the mind, and still less could it be said that it was a matter of conscience; but it was the pervading influence in all the departments of a man's life, and it made an immense difference to the method in which he dealt with his opinions and his principles. A man's taste became part of his equipment, and the moment they said he possessed good taste they gave him a recommendation, a testimonial of superiority; whereas a lack of taste implied a distinct lack of capacity, and not a momentary lapse of attentive power. Taste was an immense social power. Opinions were like the stones which made up the strength of the wall, but taste was like the mortar, which gave it coherence, consistency, and a pleasant and agreeable surface. The taste of the individual was the doorway which could be thrown open to give him the entrée into treasures which otherwise would be sealed to him. The world was so full of so many beautiful things that over and over again the pity of it was that so many things had been made with such wondrous fairness and so many were the multitudes whose eyes were blinded to their beauty. Often they thought that the best and the most beautiful things were put before them with the rich and prodigal hand of nature, and somehow or other there was the lack of capacity on their part to admire them. Then taste was the revealer of beauty to them, and when he pleaded that a society like the Ruskin Society was doing good service in that it promoted taste and the diffusion of taste he was not speaking in an unpractical way. The towns were growing fuller and the country emptier, and the town surroundings were such that the people were losing the capacity for enjoyment of the beautiful. He therefore urged in favour of the cultivation of taste because it was the unsealing of the eyes of men to behold and to enjoy the things that were beautiful. The custom of

having spring and autumn exhibitions of works of art was an admirable one, but he hoped that in addition to loan exhibitions there would always be in every great town permanent exhibitions, because the fleeting ephemeral education given by the casual spring and autumn exhibitions, good and well as it was, was almost lost unless supported by the continuous manifestation of beautiful works of statuary or painting all the year round to the eyes of the inhabitants. Passing to another aspect, the laws and principles of taste, he said the law of good taste was the law which governed and expressed the condition of harmonious relationship. It was absurd to talk about matters of taste and then not acknowledge that there were some fixed rules and standards. However difficult they might be to obtain, however wide they might be, there were still some standards or principles of good taste, and they might not unfairly be called laws of taste. The reason they resented law being introduced was because they loved their own freedom, but unless there was a really free individualism brought into their judgments in matters of taste all the laws would be of very little value. God's world was permeated by laws, and they lived by those laws. Law made nothing perfect, and they would never acquire good taste by the most intelligent understanding of the laws laid down by the great experts on taste. Taste was a subtle thing, part of themselves and incommunicable by mere instruction and the presentation of mere theories. It must grow as the best things grew, and if they wanted it to grow then it would grow into them if they lived amongst the men of taste, lived in constant fellowship with the great ones of the past. They could have communion with Dante, Milton, Shakespeare, Spencer, Tennyson, the demi-gods of the past and the great men of the present. They should live with them, make them their companions, open their ears and hear what they said, drink in the music of their verse, rejoice in the magnificence of their imagination, draw in by study their great lessons, and slowly there would be created in them that incommunicable thing that was called good taste.

LIVERPOOL CATHEDRAL.

THE following letter in addition to those already reprinted has appeared in the *Times* :—

From Mr. J. Oldrid Scott.

The controversy which is going on over the style of the proposed new cathedral is one of great importance to all interested in church architecture. As far as architects are concerned, it has so far been rather one-sided, and I hope you will allow me space for a few words which will be more or less in favour of the views held by the committee.

There are one or two points which seem to me to want clearing up. Some of your correspondents have assumed from Mr. Robert Gladstone's expressed admiration for Westminster Abbey that architects competing for the new cathedral are to be restricted to an imitation of that building. This would be an absurd mistake for the committee to make, but I doubt whether they have made it, for in the advertisement they have issued no such restriction is to be found. The word "Gothic" is used without any further limitation, and the full liberty desired by Mr. Graham Jackson seems to be given.

Mr. Reginald Blomfield first entered on the conflict to protest against Mr. Gladstone's use of the word "devotional." He assumed that it was the idea of the committee that Gothic architecture was *per se* more devotional than other styles; but surely Mr. Gladstone could only have meant that to us Gothic was the style most closely associated with devotion, and, considering that the great majority of Englishmen worship in Gothic churches, old or new, such a statement is absolutely true. It is curious that Mr. Blomfield in his taunt about devotion being connected with cusps and crockets falls headlong into the same error of confusing details with architecture which he condemns so fiercely in others.

Please let me add a word of protest against the statement that Gothic architecture is played out, and that its use now means nothing but a servile reproduction of ancient buildings. Nothing could be further from the truth. Look at the grand series of churches, culminating in Truro Cathedral, designed by Mr. Pearson; look at Mr. Bodley's noble churches, or Mr. Austin's, or Mr. Temple Moore's, all founded on a life-long study of old examples, but every one of them full of life and originality, and each of them carefully adapted to the requirements of the place it is built in.

The fact is that a critic is not in a position to decide authoritatively whether a building in any style is original or a mere reproduction unless he has acquired a close familiarity with that style. No one admires Mr. Blomfield's work more than I do, but I do not consider that his wide knowledge of one style qualifies him for condemning the works of those who practise in another.

I plead, as Mr. Graham Jackson does, for a Gothic design; but for one treated in the freest and most unfettered spirit. I plead for a design instinct with the sacred character which appeals to us in our glorious old cathedrals, but at the same time essentially modern in its treatment and adapted in all respects to the spiritual needs of a great modern city.

MANCHESTER ART GALLERY.

A MEETING of the Governors of the Royal Manchester Institution was held last week for the purpose of electing seven representatives on the art gallery committee of the Corporation. Mr. T. Worthington presided. The annual report stated that the question of the continuance of the right to nominate representatives on the art gallery committee had been again raised by the Corporation. A deputation from the Council of the Institution had had an interview with the Parliamentary sub-committee of the Corporation. As the proceedings seemed to offer a basis for an amicable settlement, it was trusted that the way might be cleared for the sub-committee of the art gallery which had been appointed to draft a scheme for the enlargement of the galleries and for the extension of the work of the art gallery generally. The existing galleries had been improved in various ways. The committee had continued the policy of purchasing works by deceased masters of the British school as well as works by living artists, and the list of bequests and gifts showed some interesting and important additions to the collection. Sir E. Burne-Jones's series of four oil-paintings *Pygmalion and Galatea* had been lent to the Gallery for twelve months by Mr. J. T. Middlemore, M.P. During the winter months interesting lectures were delivered under the auspices of the Institution by Mr. J. Ernest Phythian and Mr. Carl Armbruster.

Mr. T. C. Horsfall, in moving the adoption of this report, contrasted the condition of things in Manchester with Frankfort, where there was active co-operation between the leading citizens and the Town Council for the general good of the community. The members of the Manchester Institution had played the part of enlightened citizens working for the welfare of the community. The co-operation which had existed between them and the Town Council was now about to take a new form, and they hoped that before long a system would be adopted which would allow the work to be carried on upon a wider basis. It would be a good thing for Manchester if representatives of education and art from outside could be got to share with the governors the responsibility of co-operating with the municipal government in the promotion of art.

Mr. H. P. Greg pointed to the satisfactory increase in the attendance at the gallery on Sunday afternoons.

The Chairman mentioned that the total attendance at the Gallery last year was upwards of a quarter of a million.

The report was adopted. The seven representatives were elected as follow:—Messrs. T. Worthington, H. P. Greg, L. Schwabe, E. W. Marshall, J. E. Phythian, J. D. Milne and E. Salomons.

CHADDLEWORTH CHURCH, BERKS.

IT is stated by the Rev. Dr. A. Jessopp, rector of Scarning, Norfolk, that the church of St. Andrew's, Chaddlesworth, certainly stands upon the same site as that which was originally planted there more than a thousand years ago. It is not improbable that King Alfred, who died in 901, may in his wanderings—and remember, the king was born at Wantage seven miles off—have seen the "original" church of Chaddlesworth. There are indications that such a church did exist before the Norman Conquest, and proof positive that additions to that old church were made in the reign of William Rufus, or it may be earlier. The present tower appears to have been built in the thirteenth century as an improvement and enlargement of a smaller and older tower—with an entrance to the church on its western face. Chaddlesworth probably never had a pulpit from which sermons were preached till the seventeenth century. Sometimes sermons were preached from the rood-loft—a kind of balcony fixed on the top of the rood-screen which stretched across the church from north to south. Of the rood-screen he believes but a fragment remains. Sermons were also preached in the open air at the churchyard crosses occasionally. The Chaddlesworth cross, much mutilated, stands now where it must have stood for centuries. The circular font at Chaddlesworth is one of a type which belongs to very early times. The present chancel of the church is a good specimen of a structure in beautiful brickwork. It is probable that the earliest chancel was in the form of an apse. In the thirteenth century there was in many parts of England quite a rage for destroying these early apses and replacing them by rectangular chancels. Possibly the architect of the new chancel may have obtained his inspiration for the designing of the present chancel arch from some fragments of the ancient work which

he may have found in the foundations. The recent insertion of the east window in the church is a real enrichment of the sacred building, and by its subdued colouring, carefulness of drawing and softness of tone it helps to cast a calming and solemnising effect upon those who come to worship. The window is a gift to the church by Mr. William Cotesworth, of Chaddlesworth House, in memory of his son, Captain Hugh Cotesworth, R.N., who was in command of H.M.S. *Barraclouta*, and died very suddenly.

ADMIRALTY WORKS DEPARTMENT.

SOME important changes have just been made in the head office staff of the Admiralty Works Department. This department is responsible for the design and construction of all engineering and architectural works in the naval establishments at home and abroad, as well as for their care and maintenance. These works include docks, wharves, slips, breakwaters, dredging, barracks, hospitals, magazines, stores, workshops, dwellings, drainage, lighting and water supply, &c. The care and management of Admiralty lands and property is also dealt with in this department. The increase of the fleet during recent years has necessitated a corresponding growth in the shore establishments, and this has involved a large increase in the staff of the Works Department. With the changes lately made the authorised permanent staff of the department under the director of works is as follows:—Two assistant directors of works, from 850*l.* to 1,000*l.* a year (with an addition of 200*l.* a year to the senior). Engineering staff—Eleven superintending civil engineers, from 600*l.* to 700*l.*; twelve civil engineers, from 400*l.* to 500*l.*; twenty-two assistant civil engineers, first grade, from 300*l.* to 400*l.*; twenty-one assistant civil engineers, second grade, from 180*l.* to 300*l.*. Surveying Staff—One chief surveyor, from 800*l.*, rising to 1,000*l.*; six surveyors, from 400*l.* to 500*l.*; ten assistant surveyors, first grade, from 250*l.* to 350*l.*; nine assistant surveyors, second grade, from 125*l.* to 250*l.*; one surveyor of lands, from 600*l.* to 800*l.*; one surveyor of coast-guard buildings, from 500*l.* to 700*l.*; one clerk of works for coastguard buildings, from 215*l.* to 300*l.*. Many of these appointments carry in addition a house, London or colonial allowance. Entries to the staff are made in the lowest grades, viz. assistant civil engineer, second grade, or assistant surveyor, second grade, by open competitive examination held by the Civil Service Commissioners. The limits of age at entry are twenty-three to twenty-eight for the assistant civil engineers, and twenty-three to thirty for the assistant surveyors. Promotions are made by selection as vacancies occur, through the successive grades up to senior assistant, director of works and chief surveyor respectively. All officers of the staff are liable for duty either in London, at home stations, or at stations abroad.

SAXON CHURCHES.

A LECTURE was given on Friday at Normanhurst, by permission of Lord and Lady Brassey, by the Rev. Walter Marshall, M.A. He pointed out that the history of ecclesiastical architecture in Great Britain previous to the Norman invasion was veiled in partial obscurity because of the few specimens left. The best indications of pre-Norman work were to be found in the village churches. The main periods of Anglo-Saxon architecture were from 596 to 1045. There were several instances of early Saxon buildings in Ireland, and, speaking of their characteristics, he adverted to the effect of the Italian missionaries on the style of architecture, and added that, while there was no genuine architecture of the Anglo-Saxon period, it was an imitation of the contemporary art of Italy. Further, he spoke of the characteristics of the so-called Anglo-Saxon work, such as the "long and short" (which were probably the Anglo-Saxon interpretation of the Classical plaister, and not the result of the carpenter transferring his method of working from one material to another), the triangular heads to doorways and windows, the baluster shafts and lofty proportions. He went on to prove that the Anglo-Saxon heritage was ecclesiological rather than architectural, remarking that the Roman tradition was characterised by the apse, confessional, crypt and the wide chancel arch, and the Saxo-British tradition by the square east end, transepts lower than nave (such as the church at Worth, near Three Bridges), the central tower, single west tower, and the narrow chancel arch. The lecture was illustrated with some limelight views of various country churches.

Mr. Maurice Fitzmaurice, chief engineer of the Assouan Nile reservoir, and formerly resident engineer on the Blackwall Tunnel, has been appointed chief engineer to the London County Council at a salary of 2,000*l.* a year.

NOTES AND COMMENTS.

As several months have elapsed since we last referred to them, the proceedings against the parish priest of Montmartre on account of his new church may not be remembered. The old church which adjoins the immense building known as the *Sacre-Cœur* was treated as a dangerous structure by the municipal authorities, and is now scheduled as a historic building. The curé was therefore compelled to erect a new parish church, and he obtained a site nearer the base of the hill of Montmartre. M. DE BAUDOT was appointed architect. An immense crypt was first constructed and many of the artists of the district have adorned the walls with paintings. It is in use for services. The superstructure was next commenced. The architect decided on the employment of "ciment armé." When the walls were nearly raised the accident occurred at a bridge constructed, of the material at the International Exhibition. The authorities immediately became alarmed about the church and a special inquiry was instituted into the construction. The church was found to sustain all tests. Then the curé was summoned for undertaking building operations without lodging plans. He was fined 5 francs, but the question arose whether he should take down the building. The curé appealed for form's sake. Before the judgment of a higher tribunal was obtained an amnesty was announced, and he, "good easy man," believed his contests were over with secular authority. But that force does not easily succumb. The payment of 5 francs may not be demanded, but the prefecture with all its strength insists on the overthrow of the building, and for no more than a disregard of the common line of frontage. In England penalties are usually incurred for going beyond the line, but the Montmartre church is kept back from the line because the curé was possessed of sufficient land. In a case of this kind the interference of a superior power is demanded, but Paris does not possess one, and from red tapeism a costly and most interesting building is likely to be demolished.

THE adaptation of the Pavillon de Marsan in the Louvre has been sufficiently advanced to allow the Union Centrale des Arts Décoratifs to take formal possession of the building. The offices of the Union will not, however, be transferred until the beginning of next year. Meanwhile some of the collections will be installed, and a start will be made with the valuable collection of wood carvings which M. EMILE PEYRE spent many years in gathering. It is possible that collection will be seen by the public while the other parts of the new museum are being arranged. The Union already possesses so many examples of art it has required over nine hundred packing-cases to contain them. Indeed, there is so much property awaiting disposal, M. REDON, the architect, has found much difficulty in the carrying out of his plans.

THE following resolutions were adopted at the convention of the American Institute of Architects held at Buffalo from 3rd to 5th ult.:—(1) That a committee be appointed by the chairman, to consist of himself and four other members of the Institute, who shall study the question of a national art commission, report to the board of directors, and, with the consent of the board, petition Congress on behalf of the American Institute of Architects to create such a commission. (2) That a permanent committee on competitions, composed of three members, be appointed by the chair to give advice to those desiring information, and to induce reputable architects to refrain from entering improper competitions. (3) That a committee on municipal improvements, composed of three members, be appointed by the chair to co-operate with other societies having municipal improvements as an object. (4) That a committee of five, inclusive of the chairman, be appointed to secure the formation of a national bureau of architecture, under whose administrative charge shall be placed the architectural work of all the departments of the national Government, the work to be executed under a law similar to the Tarsney Act, which should, however, be mandatory and not optional. (5) That a committee of five be appointed by the chairman to organise a world's congress of architects, to be held in St. Louis in 1903 in connection with the centennial celebration of the Louisiana Purchase. (6) That one delegate from each of the national societies

of sculpture, mural painting, landscape architecture and civil engineering be hereafter invited to attend the annual conventions of the Institute; said delegates to have all the privileges of the floor, except that of voting. (7) That a committee of three be appointed by the chairman to ascertain the views of the members of the Institute as to the desirability of adopting in this country the metric system of measurements; said committee to confer with the superintendent of the Bureau of Standardising, and to represent the views of the members of the Institute before Congress.

THE office of architect to the French Ministry of Foreign Affairs is not a sinecure. The recent outbreak in China has necessitated the departure of M. CARRÉ, who holds that office, and he is now on his way to Peking. The buildings of the legation are in the state of ruin which the illustrated papers have shown, and which M. PIERRE LOTI has described in charming language. The French Ambassador and his assistants are compelled to put up with accommodation that cannot be considered as comfortable. Experience teaches, and western nations must be prepared for other attacks on their buildings in Peking. There is nothing sacred to a Chinaman in an embassy, and it will therefore be necessary to provide against ebullitions of savagery in the future. The plans which M. CARRÉ has prepared show that he has given some attention to military engineering, and they have had to be submitted to the experts of the Ministry of War. When he has completed his work in Peking M. CARRÉ will conduct operations in more civilised places, for his services are required at Washington and Vienna, as well as in London.

THE consequences of the unparalleled liberality of Mr. A. CARNEGIE will be various. In New York it has led to co-operation among architects of a novel kind. The trustees of the New York Public Library are enabled by him to erect no less than forty-two branch libraries in the city. The trustees, as a first step, have retained Messrs. McKIM, MEAD & WHITE, Messrs. CARRERE & HASTINGS and Messrs. BABB, COOK & WILLARD to design and supervise the construction of the buildings, with the exception of one which, it is expected, will be constructed from designs furnished by Mr. JAMES BROWN LORD. It has been arranged that the three firms of architects will act in collaboration and decide jointly all matters of common import regarding the designs and construction and other details relating to the buildings. At the same time the designing of each building and the supervision of its construction will be entrusted by allotment to one or other of the firms. In that way it is anticipated there will be secured individuality of design, while having the combined judgment of several skilled architects. But it is not impossible that Mr. LORD's library may be the most successful, for co-operation does not always insure inspiration.

FOREIGNERS when visiting Paris rarely venture on a journey to the Place Royale, although it deserves a visit as a survival of the time of HENRI IV. It has borne many names. It was changed in 1792 to the Place des Fédérés, and in 1793 to the Place de l'Indivisibilité, in 1799 to the Place des Vosges, in 1814 it resumed the old title, in 1848 it was again the Place des Vosges, and in 1854 the Place Royale. Madame DE SÉVIGNÉ was born there, and it has had many celebrities among its tenants. VICTOR HUGO lived in No. 6, which he maintained was once the residence of MARION DELORME, and in the house it is intended to establish a museum which will be devoted to relics of the poet. On the first floor will be a collection of pictures and engravings illustrative of his works; on the second his designs and the pieces of furniture made by him will be placed; the third will be a reconstitution of the room in which he died; while in the rooms on the fourth floor will be various books and documents relating to him.

ILLUSTRATIONS.

THE ALEXANDRA TRUST DINING-ROOMS, CITY ROAD, E.C.

CATHEDRAL SERIES.—CHICHESTER: CHAPEL OF ST. CLEMENT.
LOOKING INTO SOUTH AISLE OF NAVE. ONE BAY OF NAVE
TRIFOBIUM.

LONDON AND SOUTH-WESTERN BANK, LIMITED, WEST EALING.
PEECHWOOD, PUTNEY HEATH LANE.

HERTFORD.*

HERTFORD, which gives its name to the county and hundred in which it is situated, is the county and assize town of Hertfordshire, and is also a municipal and parliamentary borough. The borough comprises an extent of nearly six square miles. From a very early period Hertford has been a place of considerable importance; it is said to have been the site of a town of the Trinobantes, and subsequently to have been one of the places of residence of the kings of Essex. As

standing in front of the library, and which I pointed out to you, was planted by Sir George Faudel-Phillips, to celebrate the jubilee of our late lamented Queen.

The Castle.

From the earliest historical times this was a royal manor, the inhabitants being, as I have said before, tenants in burgage, and paying taxes direct to the king. The castle, commenced by Edward the Elder, was materially strengthened by William the Conqueror, who granted further privileges to the burgesses, and had coins minted within the royal borough. He committed the custody of the castle to Peter de Valoignes or de Valence, one of his principal Norman followers, from whom it came to his son, Roger de Valence, who died, leaving issue Peter and Robert. The former, who succeeded his father, died without male issue, whereupon the governorship of the castle came to his brother Robert, who had an only daughter and heiress, Gunora, wife of Robert Fitz-Walter. Though this Robert Fitz-Walter afterwards became governor of the castle, he does not seem to have obtained a *jure uxoris*, for in the year 1202 Richard de Munfichet, sheriff of Essex and Herts, was governor. King John visited the castle on four occasions. The history of the castle since 1212, the many attacks upon it, the changes that were made from time to time in the governorship of it, is a matter of history, but far too long for my paper.

Henry VIII. seems to have frequently visited Hertford, and at one time to have contemplated making it a Royal residence, and Prince Edward was residing at the castle when his father, Henry VIII., died. In 1561 Queen Elizabeth visited the castle and remained there sixteen days. She also contemplated making Hertford a Royal residence, having expended considerable sums in restoring the

castle, but though she was a frequent visitor she never resided at Hertford for any length of time. She granted arms and a charter to the borough.

Of the original castle but little now remains, the greater part of the ruins which survived to the commencement of the present century having been demolished by the Marquess of Downshire, the then tenant of the mansion. A portion of the ancient building, however, is still to be seen about 60 yards to the east of the present building, and some fragments of towers, a mound and an embattled wall. The last, however, is nearly complete, and it is partly Norman. There is also a gate remaining. A mansion was built on the site of the castle about the time of James I. by Sir Henry Hobart, but it has been so often and so much restored and added to that but little of the original character remains. Before the completion of the college at Haileybury it was occupied by the East India Company as a training school for their civil service. It is now the residence of Mr. A. McMullen, by whose kind permission we have visited the place to-day.

All Saints Church.

The old church of All Saints, which was burnt down in 1891, was undoubtedly ancient, as there is a record of a vicar

early as the year 673 a National Synod was convened in Hertford, under Theodorus, Archbishop of Canterbury, the object being to assimilate the forms of Christian worship throughout the various dioceses, and to frame laws for the better government of the Church in England. At a later period Hertford and the surrounding neighbourhood were held by the Danes; their vessels being of light draught were enabled to pass up the Lea from the Thames as far as Hertford, where the Danes are said to have erected a fortification on Port Hill. No indications of a camp now remain. By the facilities which their ships afforded they were enabled to hold their position here after the main body had been defeated by the Saxons, in the west. King Alfred determined to drive them out of their stronghold, and had recourse to stratagem for that purpose. At a shallow part of the Lea, near Waltham, he divided the stream into several channels, so that there was not sufficient depth of water to float the Danish vessels. Being thus cut off from reinforcements, the Danes fell easy victims to the Saxon soldiers.

About the year 905, Edward, the elder son of Alfred, erected a fortress in the town near the site of the present castle, and eight years later he commenced building the town on both sides of the river Lea, and subsequently created it a borough. The householders were thereafter called burgesses, inasmuch as they paid an annual rent to the king, and held in burgage.

Passing on to the time of William the Conqueror, we find Hertford a place of considerable importance, with two churches, three mills and 146 burgesses, as set forth in Domesday Book, but I must leave the further history of Hertford, interesting though it is, as time will not permit me to dwell upon it, and I will now confine myself to the places visited to-day; suffice it to say that the town is full of interest, and has very many quaint old buildings.

On leaving the railway station, and shortly before entering the principal streets, and by the side of the public library, I pointed out to you a drinking fountain erected from some of the stones saved from the church of Great St Mary; those stones are of great beauty and the fountain quite unique; it deserves a more prominent position, but it stands, as also does the library, upon the site once occupied by Great St. Mary. Within the hall of the library there are some more stones, also saved from the same church. The oak tree

* A paper by Mr. Thomas Stock, read at Hertford on October 12 before the members of the Upper Northwood Athenæum.



THE ANCIENT ENTRANCE TO HERTFORD CASTLE.



NORMAN WALL OF HERTFORD CASTLE.

who was appointed in 1248, but it appears it had but little pretension to architectural beauty; it is, however, said to have been commodious. There were two galleries for the use of the boys and girls attached to Christ's Hospital and there were also several ancient monuments. The building which we have to-day visited stands on the site of the old one, and when finished will be a church of good dimensions.

St. Andrew's Church.

Old St. Andrew's Church was an ancient but dilapidated structure, utterly devoid of architectural merit, and only accom-

Luscombe, who formerly officiated at the church, was over the altar at the old church, and it has been placed in the new church in a less prominent position. The old original doorway and holy-water stoup I pointed out to you.

In the side chapel there is a stone pre-Reformation altar, which was brought from the church of St. Mary the Great when that building was demolished. The register of the parish dates from 1560.

I am indebted for most of my information to Cussan "Hertfordshire," Murray's Guide, and a guide by an old inhabitant.



PARGET WORK IN FORE STREET.

modated about 300 persons; it was therefore demolished, and the church we have to-day seen was erected in its stead, the first stone of which was laid by Earl Cowper in June 1869. The church was consecrated by the Bishop of Rochester in March 1870. It is, as you will have noticed, a handsome and commodious building. The style is Transitional—the period between Early English and the Decorated. A statue of the patron saint (St. Andrew) is in a niche over the entrance in the north porch, and was placed there at the expense of a lady resident. A very good painting of Our Saviour and two of His Disciples, the gift of the late Bishop

Balls Park.

The priory of the Blessed Virgin Mary at Hertford was founded by Ralph de Limesey, a nephew of William the Conqueror, who bestowed it, with detached portions of land at Hertford, on the abbots of St. Albans. He eventually became a monk and was buried in the priory church. In the reign of Edward I. the borough of Hertford was represented in Parliament by Simon de Balle, who seemingly resided on a portion of the priory land, and gave his name to the estate now known as Balls Park. At the Dissolution the "Manner of Harfield Priory" was sold by Henry VIII. to Anthony Denny and John

s wife. From their son Edward it was purchased in 1578 by John Docwra, and from him it passed to Martin Trott. A later owner of the manor was William Henmarsh, of Balls, and by the marriage of his daughter Jane, the property was conveyed to Richard Willis; and in 1626 we read that he died seized of a tenement called Balles." Their eldest son, who was created a baronet in 1641, had previously sold the estate to Sir John Harrison, Knight, who in the reign of Charles I. built, as Chauncey states, a "fairish" brick structure in the middle of a garden. Chauncey describes it as having every side equally ornamented and exactly uniform, with ceilings wrought with several distinct patterns of fretwork, with the steps in the great staircase wainscotted in panes, and with the hall paved with black and white marble. With the exception that the central quadrangle has been roofed over, the house remains unaltered.

predicting these motions for all past and future time. It has measured not only the dimensions and determined the elements of our planetary systems, but it has also made no small progress towards a knowledge of the dimensions of the sidereal system and of the amount and direction of our sun's motion through space. It has catalogued the stars to a high order of magnitude, and determined many facts as to their distribution in space. There is no subject to which higher genius has applied itself than that of the unravelling of the celestial motions and the laws which govern them. Thus the old astronomy, from the difficulties of her task, the beauty and precision of her methods and the proved accuracy of her predictions, has earned for herself the acknowledged position of queen of the sciences. But her task is by no means ended, for the so-called old astronomy



THE TUDOR GATEHOUSE.

under date of April 15, 1643, Evelyn wrote, "Near the town of Hertford I went to see Sir J. Harrison, his house new built." Balls Park continued the home of the Harrisons until the middle of the eighteenth century, when it passed by marriage to Charles, third Viscount Townshend, who was Secretary of State to George II. Much of the furniture in the house is of his day. Balls Park, with its 1,500 acres, which were included in the manor of the priory, remained the property of the Marquess of Townshend until it was acquired by Sir George Audel-Phillips, Bart., G.C.I.E., D.L., J.P., and ex-Lord Mayor of London, who very kindly permitted our visit to-day.

The illustrations are from photographs kindly lent by Mr. Robert Thornton Andrews, of Hertford.

OBSERVATORIES AND THE NEW ASTRONOMY.

CAPE COLONY is the theatre of war, but in the capital, amidst all the anxieties, Sir David Gill, the Astronomer-Royal, as becomes a British Archimedes and his staff, continue to enrich science with their observations. A telescope, which cost 10,000*l.*, has been presented to the Observatory by Mr. McClean, of Rusthill, Kent, and a sum of 14,000*l.* has been expended on the erection. On September 26 the memorial tablet was unveiled by the Governor, when the following address was delivered by Sir David Gill:—

The ceremony which I am about to ask Your Excellency to perform is one regarding which some explanation seems to be necessary. We all understand the significance of the laying of a foundation-stone or the formal opening of a new building, but it is evident that the function of to-day represents neither the one nor the other. Your Excellency will therefore, perhaps, permit me to enter into a short account of the origin and the history of this great telescope, and of the Observatory under the name of which we are now assembled. If in so doing I appear first somewhat discursive, I trust to be forgiven on account of the interest of the subject and of the occasion. Until about thirty years ago the science of astronomy concerned itself chiefly with the positions of celestial objects. It occupied itself with the observation of their apparent places in the sky, tracing the origin of their motions and finally computing and

still provides, and for ever will provide, a boundless field for research and for exercise of the highest efforts of the human intellect. Sixty years ago no one believed it possible that astronomy could embrace the study of the constitution as well as the motions of celestial objects. It is true that the speculations of Laplace seemed so well based and to fit so well with known facts and scientific possibilities as to afford the belief that the sun and planets had been evolved from common primeval matter. But Laplace's views could only be regarded in the light of a hypothesis; they were not capable of that proof which is necessary to raise speculation, however plausible, to the level of scientific truth.

Comte, in his "Cours de Philosophie Positive," expressed the opinion of his time thus:—"We may speculate with some hope of success on the formation of the solar system, of which we form a part, for it presents to us numerous perfectly well-known phenomena, susceptible perhaps of giving proof of its true immediate origin. But what, on the other hand, could possibly form a rational basis for our conjectures on the formation of other suns? How confirm or disprove by the evidence of phenomena any cosmogonical hypothesis when no phenomena of such a kind are known, nor doubtless are even knowable?" In other words, the philosophic dictum of sixty years ago was that the chemical constitution of other systems than our own is a subject which, from the nature of things, must be regarded as unknowable.

But the discovery of the lines in the solar spectrum by Fraunhofer, the interpretation of the meaning of these lines by Kirchhoff and Bunsen, and the application of the spectroscopic method to other celestial objects have upset that philosophic conception of the unknowable and given to us the new astronomy.

This new astronomy deals not so much with the position as with the constitution of celestial objects. Its aim is not so much to answer the question, "Where is such a star?" but "What is it?" "What can we find out about its chemical constitution and the chemical history of its development?" But with all this distinctive difference between the new and the old astronomy, it is impossible to divorce the one from the other. There is perhaps no finer illustration of the correlation of the physical sciences than is to be found in the outcome of this new development of astronomy. The old astronomy required the combined efforts of the optician, the mechanic, the engineer, the observer and the mathematician for its

pursuit; the new astronomy adds those of the physicist and the chemist, and we are every day finding out not only how each and all of these branches of science contribute to the advancement of astronomy in general, but also how their common application to astronomy has contributed to the advancement of these separate sciences.

I may perhaps be permitted to dwell briefly on this most interesting subject. The fact that light travels with a measurable velocity was first demonstrated by Roemer in 1675, because he found that the eclipses of Jupiter's satellites apparently occurred too soon when the earth is near Jupiter, and apparently too late when far from Jupiter—a phenomenon that could only be accounted for on the assumption that light travels with a measurable velocity. Here, then, is a notable contribution by the old astronomy to the science of physics.

Newton, as everyone knows, showed how sunlight, after passing through a slit and a prism, is split up into its component colours. Fraunhofer, in 1815, proved that this spectrum, or coloured ribbon, viewed with more perfect appliances than Newton employed, is crossed by fine dark lines; in other words, that certain very definite kinds of refrangibility, or colours of light, are wanting in the solar spectrum. Fraunhofer actually measured the position in the spectrum of 600 of these lines, but their significance remained a mystery until 1859, when the explanation was found by Kirchhoff and Bunsen. They showed that substances in a state of incandescent vapour absorb rays of the same refrangibility as they themselves, when sufficiently heated, emit, and that the dark lines in the solar spectrum are produced by the absorption of vapours of metals, &c., which exist in the solar atmosphere, many of them being the same as those with which we are familiar; such as iron, calcium, sodium, magnesium, hydrogen, &c.

With this discovery the new astronomy sprang into life. Sir William Huggins, the president of the Royal Society, was the first to apply in a really crucial and scientific manner this new engine of research to other systems than our own. With infinite labour and ingenuity he designed and had constructed a spectroscope applicable to analysis of the light of celestial objects. It was requisite that this spectroscope should be mounted on a telescope, so that the comparatively faint light of a star might be collected by the object-glass and be projected at its focus on a slit of one or two-thousandth parts of an inch in width, and be retained steadily on that slit in spite of the diurnal motion of the earth. Further, it was necessary to provide means by which the infinitely small point of light formed by the star's image should be widened, so that there should be seen in the field of view not a mere coloured line, but a coloured ribbon of appreciable width. Finally, means had to be contrived for introducing into the slit, just as if it had come from the star, the light given off by terrestrial substances in a state of incandescence, so that the dark lines in the spectrum of the star might be compared with the bright lines of the spectra of terrestrial substances. The labour of overcoming all these difficulties was great, but great also was the reward. To use Huggins's own words:—"The time was indeed one of strained expectation and of scientific exaltation for the astronomer almost without parallel, for nearly every observation revealed a new fact, and almost every night's work was red-lettered by some discovery."

Time does not allow me to proceed in the order of history, nor to classify the work done by Huggins and his successors. The spectra of vast numbers of the stars were shown to be identical with those of the sun, the spectra of others were less complex, of others more so, but all contained evidence of the existence of chemical substances which are contained in our globe. As powerful telescopes had shown many objects, previously supposed to be only nebulous, to consist of separate stars, the belief naturally began to be held that all nebulae were in reality distant systems of stars which would be seen as such if only adequate optical means and sufficiently clear and steady atmospheric conditions were available. But Huggins's spectroscope showed that many nebulae were not stars at all, that many well-condensed nebulae, as well as vast patches of nebulous light in the sky, gave only bright lines in the spectroscope—lines which proved that such nebulae were not stars at all, but inchoate masses of luminous gas.

Evidence upon evidence has accumulated to show that such nebulae consist of the matter out of which stars (*i.e.* suns) have been and are being evolved. The different types of star spectra form such a complete and gradual sequence (from simple spectra resembling those of nebulae, onward through types of gradually increasing complexity), as to suggest that we have before us, written in the cryptograms of these spectra, the complete story of the evolution of suns from the inchoate nebulae onwards to the most active sun (like our own), and then downwards to the almost heatless and invisible ball.

The period during which human life—nay even life of any kind—has existed on our globe is probably too short to afford observational proof of such a cycle of change in any particular star, but the fact of such evolution, with the evidence before us, can hardly be doubted. I most fully believe that when we

have further studied the modifications of terrestrial spectra under sufficiently varied conditions of temperature, pressure and environment, our certainty of the fact will be greatly increased. But in this study we must also have regard to the spectra of the stars themselves. The stars are the crucibles of the Creator; there we see matter under conditions of temperature and pressure, the variety of which we can hardly hope to emulate in our laboratories, and on a scale of magnitude beside which the scale of our greatest experiment is less than that of the drop in the ocean.

I believe also that we must look to the new astronomy for aid in the solution of many great chemical problems. The astronomer of the new school has to thank the physicist and the chemist for the foundations of his science, but the time is coming—we almost see it now—when the astronomer will repay the debt by wide-reaching contributions to the very fundamentals of chemical science. Thirty years ago there was first observed in the spectrum of the sun's chromosphere a very remarkable bright yellow line, near the position of the well-known D lines of sodium. So distinctive was this line, and so certainly not due to any known terrestrial substance, that it was called the helium line. In 1894 Lord Rayleigh, who was engaged in determining the densities of the principal gases, found what was then to him an inexplicable difference between the weight of a volume of nitrogen prepared from atmospheric air and the weight of the same volume of nitrogen prepared from ammonia or by any other chemical means. Repeated experiment showed that the weight of the constant volume of atmospheric nitrogen was about 1.200 part greater than that of the chemically-prepared gas. After exhausting all means of testing the purity of the chemically-prepared nitrogen, Lord Rayleigh and Professor Ramsay, in January 1895, finally traced the cause of their perplexity to a hitherto unknown gas present in our atmosphere, which they named argon. Here was a great chemical discovery due to the co-operation of the physicist and the chemist. On the publication of this paper, Mr. Meirs, of the British Museum, directed Ramsay's attention to a paper by Hillebrand in which the author had found that the mineral uraninite contained nitrogen, and Ramsay naturally was desirous of examining every source of nitrogen. Accordingly he boiled cleveite—a uranite of lead containing rare earths—with weak sulphuric acid, and, after collecting the evolved gas, he found that its spectrum gave not only the now known argon lines but also new lines, one of which, to Ramsay's intense surprise and delight, absolutely coincided with the helium line, which had been known for twenty-six years in the spectrum of the solar chromosphere. Of course, as soon as helium was prepared its spectrum was thoroughly studied, and then Lockyer and McClean were quick to show that many of the lines, which occurred in the spectra of a large class of stars, were due to this same helium. Here was another chemical discovery in which the astronomer and the chemist were mutually helpful—a discovery also that is yet destined to throw much light on the evolution of stars.

One more illustration and I am done.

The study of the phenomena of light has compelled the conviction that light is the result of vibrations or waves in ether, as sound is the result of vibrations in air; and that just as slow and rapid vibrations of air produce respectively low and high pitched notes, so do slow and rapid vibrations of ether produce red and yellow or blue and violet light respectively. If now one imagines one's self standing beside a railway track and that an engine comes along sounding its whistle, it is clear that as the engine approaches the bystander more waves of sound of the whistle would reach the ear in a second of time than if the engine were at rest. As a consequence of this, if the engine is travelling at a rate in any way comparable with the velocity of sound a sharper note will be heard than if the engine were at rest; on the other hand, if the engine is running away from the bystander the pitch of the whistle will for a like reason be lowered. The matter is easily put to the test by anyone who chances to be beside a railway track when an engine blowing its whistle is approaching at high speed; the instant that the engine passes a sudden lowering of the whistle-note will be perceived. If one had a tuning-fork emitting the exact note given by the railway-whistle when at rest, it would be possible with the aid of another suitable fork that could be tuned to the note of the moving whistle, to determine the velocity of approach or recession of the train from the difference of the number of vibrations per second between the two forks. Just in the same way, if one knew the exact wave-length of a particular line in the spectrum of a star, and if we observe the wave-length of the same ray as it reaches the earth we have a means of determining the velocity of approach or recession of the star, provided that the velocity of the star's motion has a measurable relation to the velocity of light. Doppler pointed out this possibility in 1841, but it was not until Huggins had begun stellar spectroscopy that about 1865 his attention was directed by Clerk Maxwell to this possibility of the new astronomy, and that in 1866 Huggins made the first

attempts to determine motions in the line of sight. Such a task was, of course, impossible until the lines in the star spectra had been identified with those of known terrestrial substances, and as it would have been impossible for an observer to determine the velocity of a railway train at any moment by means of the note of the whistle that reached his ear, unless the observer also had a tuning-fork emitting the same note as the whistle of the engine when at rest. But Huggins had already identified many star lines with those of terrestrial spectra, and so far was in a position to attempt the task. He showed in 1866 that such work was possible, but it required the application of photography (first used for this purpose by Vogel), an exhaustive study of the theory of the spectroscope, and the greatest refinement in its construction and its use, to give the new engine of research the requisite reliability. These preliminary difficulties are now overcome, and daily results of the greatest importance are being added to our storehouse of knowledge.

It would occupy too long were I to enter on the numerous problems to which this branch of the new astronomy is applicable, but it will be evident how great an advantage to astronomy must be this new power to determine, not, as formerly, only angular velocity at right angles to the line of sight, but the actual linear velocity of motion in the line of sight itself. These examples, which I fear I have quoted at too great length, enable me to explain in a few words the full significance of the ceremony which we have assembled to-day to witness.

Until the year 1894 there existed, neither at the Cape nor at any observatory of the Southern Hemisphere, any adequate equipment for pursuit of the new astronomy, nor was there apparently much hope of the need being supplied. For forty years the new astronomy had been vigorously prosecuted in the Northern Hemisphere; the first great harvest of results, obtainable with moderate means, had been reaped and great establishments were founded for research in the new field of work. It became thus obvious that, if anything was to be done to equalise the possibilities of research in both hemispheres, no small outlay would be required. On my appointment as Her Majesty's Astronomer in 1879, Mr. Newall, who then possessed the largest telescope in England, offered the loan of it for a period of years to prosecute research in the new astronomy at the Cape, but it was considered by the authorities at home that the cost of its transport and the erection of a suitable building and dome could not be entertained unless the telescope might remain permanently the property of the Observatory. Mr. Newall had good reason for limiting his offer to loan, for his son, then a young man, gave promise of scientific tastes, and he is now using that instrument at Cambridge, and obtaining with it the most refined spectroscopic results that have yet been secured in England.

The busy years rolled on, and I had almost resigned myself to the idea that, during the period of my directorate, at least, the Royal Observatory at the Cape must limit itself to the pursuit of the old astronomy, for which purpose it was well equipped. But in 1894 arrived a letter from Mr. Frank McClean offering to present for use in the Southern Hemisphere, and preferably to the Cape, a telescope and observatory, the specification for which corresponds with the instrument now before us and the building in which we are now assembled. Mr. McClean further stated that the optical part of the instrument had been for some time under construction by Sir Howard Grubb, of Dublin, and the whole would probably be completed before the end of 1896. The new instrument was also to be fitted with object-glass prism, spectroscopes, &c., so that upon the completion of all the Cape Observatory might enter on the pursuit of the new astronomy with every advantage possible in the way of equipment. Here was indeed a revival of hopes almost dead, of ambitions almost abandoned. The value of the gift was, if possible, enhanced by the fact that Mr. McClean is himself a distinguished worker in astrophysics. One had seen his splendid photographs of terrestrial spectra, one knew something, but not all, of the great work on which he was then engaged, viz. of obtaining inter-comparable spectra of all the stars to the $3\frac{1}{2}$ order of magnitude, and one felt that his gift was due solely to a clear and well-founded perception of the needs of science and of an earnest and helpful desire to fulfil them. The Lords Commissioners of the Admiralty accepted with warm appreciation of Mr. McClean's generosity the offer of this splendid instrument, and expressed the view that its possession would greatly increase the utility of the Cape Observatory, and might be expected to result in considerable advancement to science.

The year 1896 saw the observatory building ready for reception of the telescope and the dome erected. In the following year Mr. McClean visited the Cape, attached his object-glass prism to our photographic telescope in the adjoining building, and was thus enabled to complete that remaining portion of his spectroscopic survey of the whole heavens which could not be completed from his own observatory in Kent. His work at the Cape was also memorable by his discovery of the

existence of oxygen in the spectra of a certain class of stars, and for this discovery and his spectroscopic labours generally he was awarded the gold medal of the Royal Astronomical Society of London in 1899.

With the fullest expectation that the instrument would be erected during 1897, Mr. McClean had ordered the inscription stone which your Excellency is about to uncover to be cut. It was not until April 1898 that forty-four cases containing the telescope arrived from Dublin, nor until November of the same year that all was complete and ready for testing. Then another disappointment was in store. The large object-glass was, after exhaustive trials, found to be defective in some particulars, and at the request of Sir Howard Grubb it was sent to Dublin in October 1899 for correction, and was not returned to the Cape until early in the current year. The insertion of the inscription-stone had been delayed until the telescope might be regarded as complete, and it is only within the past two or three months that the final tests have assured us that this may now be regarded as the case. It remained only to wait for a fitting time and occasion to perform the ceremony of uncovering the stone, a gracious office, which you, sir, have kindly undertaken to perform to-day. It will be found, when you have done so, that the stone bears the inscription "The Victoria Telescope," and the date 1897, the year when the donor intended that the telescope should be completed and this ceremony performed. It is named the Victoria Telescope in honour of the great and good Queen whose jubilee it was intended to celebrate, and to whose beloved memory only it must now stand. I venture to hope it will long remain to honour that memory, and to fulfil, by useful work, the noble intentions of its large-minded donor.

ST. BARTHOLOMEW'S HOSPITAL AND CHRIST'S HOSPITAL.

A SPECIAL general court of the governors of St. Bartholomew's Hospital, summoned by the treasurer and the almoners, was held on the 25th ult. at the institution. Sir Trevor Lawrence, the treasurer, occupied the chair, and there was a very large attendance, nearly 120 members of the governing body being present. The proceedings were private, but a correspondent has furnished the following report to the *Times* :—

On the motion of the Lord Mayor, seconded by Sir T. Lawrence, a resolution was passed electing the Duke of Cornwall and York a governor, and subsequently His Royal Highness was elected president of the hospital in succession to the king, an office which he had held for thirty-four years, and which he only relinquished on his accession to the Throne. His Majesty afterwards honoured the institution by becoming its patron, a position which had never previously existed.

The court next proceeded to consider a circular letter of the members of the medical staff advocating the purchase of the entire site of Christ's Hospital, about five acres in extent, which the governors of that institution have stated that they value at about 700,000*l.*

The question of the acquisition of this site or a part of it has given rise to much controversy, and a lengthy memorandum bearing on the financial aspect of the proposal was circulated among the governors by the treasurer and almoners. In the last Session of Parliament compulsory powers were conferred on the governors to acquire a portion of the site, consisting of about an acre and a half, adjoining the boundary of the hospital and extending from Little Britain into Giltspur Street; but the purchase of the whole of the site has been urged by the medical staff, who contend that the area proposed to be brought under the Act referred to is altogether inadequate to the requirements of the hospital. The governing body, it is stated, have been and are in accord with the views of the medical staff in desiring to obtain possession of as much additional land as the funds of the institution will allow them to purchase, but they have felt that they could not prudently undertake any further responsibility than that involved in buying the acre and a half referred to and in erecting certain buildings thereon. They state that this would mean an expenditure of from 250,000*l.* to 300,000*l.* at least, and that the whole of the hospital's prospective increase of rental for more than thirty years would thus be absorbed.

Alderman Sir H. E. Knight proposed and Mr. John Hill seconded the following motion :—

"That a special committee be now appointed and that they be instructed to make careful inquiry in regard to the resources and financial position of the hospital, and also as to the alterations and additions and other improvements now urgently needed in regard to the accommodation afforded by the present site and buildings in order to place the hospital in the best position to meet the requirements of the day as to the proper treatment of all patients; and having regard to such improvements and additions to which attention may be directed by the

medical staff, and all others which are urgently needed in order to make the hospital in every respect efficient for the treatment of patients and otherwise. And, further, to make full inquiry as to all matters appertaining to the extension of the site of the hospital, with the object of reporting to the governors and affording them such information as will enable them to consider and decide as to the purchase of the site of Christ's Hospital or any part thereof, with any suggestions and plans they may think it expedient to submit on the whole matter referred to them, and that they be authorised to require the services of all the officers of the hospital, and to confer with the medical staff and others, to enable them to report to the governors fully and authoritatively, and to incur such necessary expenses as may be approved by the treasurer, not exceeding a total of 300*l*."

The resolution was declared carried unanimously, with an addition appointing the treasurer, the four almoners and seven other governors to act as the committee.

A letter has been addressed by Sir Trevor Lawrence to the governors of St. Bartholomew's Hospital apropos of the issue to them by Sir Sydney Waterlow, the former treasurer of the institution, of copies of five letters which were written by the latter last autumn to Sir Trevor Lawrence. To these communications Sir Trevor states that he sent replies at the time, but he explains in the present letter why they were "mostly brief and imperfect, and certainly not such" as he would have written for communication to the governors. Sir Trevor Lawrence criticises at some length Sir Sydney Waterlow's method of arriving at the result he "wishes to prove, that the funds at the governors' disposal are sufficient to enable them to purchase the whole site of Christ's Hospital." The following are the concluding passages of Sir Trevor Lawrence's letter:—

"Sir Sydney estimates the value of the site of Christ's Hospital at 600,000*l*., but he seems to think that it might be obtained at an arbitration price of 570,000*l*.. The governors of this hospital have power, under their Act of last session, to acquire 1½ acres at a price to be fixed by arbitration; but there is no reason to believe that the governors of Christ's Hospital would consent to arbitrate as to the price of the remainder. Their statement on oath before the committee of the House of Lords was that they had declined an offer of 700,000*l*., and had subsequently received another offer of 720,000*l*.. . . As to the necessity for increased space, in addition to the 1½ acres which the hospital has the power of acquiring, there can be no doubt that it would be highly beneficial to obtain as large an area as possible. Open space attached to hospitals is always desirable, and it cannot be denied that the greater the space available the more thoroughly and satisfactorily can the hospital requirements be met. But one of the reasons urged by Sir Sydney as a need for rebuilding cannot be supported, namely, that the buildings 'must be more or less saturated with disease arising from occupation by persons suffering from all kinds of illnesses.' Indeed, it should be stated that the senior physician not long ago informed the treasurer and almoners that, in his opinion, our medical wards are of the best in London. Besides which, if the insanitary condition suggested by Sir Sydney existed, it would be shown in the condition of the patients. The statistical results entirely negative Sir Sydney's suggestion. The question of extended site really resolves itself into one of money. . . . Sir Sydney is of opinion that the public will respond to an appeal for funds for the purchase of the entire site, and his confidence in the success of such an appeal is such that he considers the hospital would be 'justified in taking some risk'—a risk, be it observed, involving an outlay, according to his own estimate, of 600,000*l*.. He believes that, because the public have contributed largely to other hospitals, and notably to the London Hospital, they would therefore subscribe to a fund for the extension for this hospital's site. Contributions from the public would be gladly welcomed and greatly appreciated, but it is impossible to lose sight of the fact that the circumstances of this hospital, and those of other hospitals, are widely different. With the single exception of St. Bartholomew's, every hospital in London is constantly obliged to put forward appeals for money to meet pressing needs and prevent the immediate closing of beds. Such appeals meet in some instances, but by no means in all, with a ready response. What the public would say to an application from this hospital, on such pleas as are now put forward, can be the subject of very speculative opinions only. But if they should fail to respond satisfactorily after the governors were committed to the payment of no less a sum than 600,000*l*., the hospital would be landed in grave financial disaster. If the public are willing to subscribe money for this purpose their help will be most gratefully accepted, and additional land can be bought to the extent of their contributions. When Sir Sydney Waterlow states that 'the redemption money to replace the purchase-money at the end of fifty years would at 3 per cent. compound interest amount to only 886*l* 11*s*. per annum for each 100,000*l*.,' he omits to mention that, in addition to this 'redemption money,' interest to the amount of 3,000*l*. per annum would have to be

paid, making a total of 3,886*l*. per annum for each 100,000*l*. It is said (October 12, 1901, page 10) that the hospital is so rich that 'a large part' of its annual income has been accumulated. The value of this statement may be gauged by the fact that since the year 1888, when the governors resolved to provide as far as possible for the purchase of a portion of the site of Christ's Hospital by carrying from time to time to a 'reserve fund' all surplus income beyond that required for current expenditure, the total sum saved, with its accumulated interest, has amounted to 44,695*l*., equivalent in these 13 years to 3,438*l*. per annum. This is the only provision that it has been possible to make towards an expenditure, to which the hospital is now committed, of probably upwards of 300,000*l*. It must be added that it was Sir Sydney Waterlow himself who, at the special general court on July 4, 1900, moved the resolution, which was carried unanimously, adopting the report of the treasurer and almoners recommending the purchase of only an acre and a half of the site. In that report, which was issued to every governor before the meeting, the views of the medical staff regarding the purchase of the entire site were fully set forth in their own words, and an explanation was given why the treasurer and almoners considered the acquisition of the whole site impracticable on financial grounds. It was also Sir Sydney Waterlow who, when as treasurer he was responsible for the financial affairs of the hospital, settled and drew the line defining 'the strip of land' extending from Little Britain to Giltspur Street, which he thought it desirable for this hospital to acquire from Christ's Hospital, which 'strip of land' is practically identical with the acre and a half for the acquisition whereof compulsory powers have just been obtained from Parliament."

ST. SAVIOUR'S CHAPTER-HOUSE, SOUTHWARK.

ON Monday last the Bishop of Rochester opened a chapter-house for St. Saviour's, Southwark. The building which has been acquired for the purposes of the Chapter was originally the chapel of St. Thomas the Martyr, which was founded in 1213. It is situated in St. Thomas Street, Southwark, in the neighbourhood of Guy's Hospital. Since the building has been taken over by St. Saviour's it has undergone several alterations, and has been thoroughly cleaned and decorated. A feature of the house is a fine old oak gallery which runs round the northern and western walls. The reredos and communion-table, also of oak, have been allowed to remain, and the old chapel seats have been broken up and utilised for the purpose of panelling the walls. The building is fitted with the electric light, and is amply furnished with new chairs.

The Bishop of Southwark, in asking the Bishop of Rochester to open the chapter-house, said that it was some years ago that the Chapter of their collegiate church entrusted him with the task of adapting the building to the purposes of a chapter-house, to serve not only as their meeting-room, but also as a central hall for other diocesan gatherings. This had not been accomplished without hindrances. They had to obtain their Act of Parliament, and church Acts were not readily passed, besides which they had had other difficulties. The origin of the building was interesting. The present structure was erected in the first year of Queen Anne as a chapel for St. Thomas's Hospital and the precincts by the celebrated treasurer, Clayton, whose residence was now their collegiate house. It was a great question whether the chapter-house was ever a consecrated building. In all their negotiations the Hospital of St. Thomas, as represented mainly by Mr. Wainwright, had treated them with the utmost consideration. One of their many little difficulties arose from the unwillingness of the Post Office at first to part with the space under the gallery which now formed the corridor leading into the Foster Hall. In that case Mr. Watson Smythe showed that officials had human kindness behind their red tape. The most interesting history of the house was anterior to the days of Queen Anne, and it was in more remote ages that its first connection existed with the collegiate church. St. Saviour's, or St. Marie Overie, had, as was usual, a building within its precincts devoted to hospital work. In 1207 the church was nearly destroyed by fire, and negotiations were opened with the Abbot of Bermondsey for the purchase of a plot to the east of London Bridge for their accommodation. They were now on that spot. When the brethren went back to their restored church they turned their temporary quarters into a hospital and dedicated it to the then fashionable saint, St. Thomas à Becket. That was the origin of St. Thomas's Hospital, and when they came to rearrange the chapter-house they found some portions of the wall which the Southwark canons had built in those past days. The purchase of the chapter-house and the acquisition of the building restored the ancient connection between that place and St. Saviour's, which had been interrupted by the confiscation of Henry VIII. The Church of England was the most ancient corporation in the

realm, but it must live in modern days and fit itself in London to the moving problems of twentieth-century life, and he hoped that that ancient house, which dated its connection with St. Saviour's back to the days of the Crusades, would throb with new vigour and be the centre for many movements for the ennoblement of South London life. Another interesting point to those who were endeavouring to form a worthy cathedral library, the nucleus of which was to be seen in the gallery, was that in 1527 the Southwark clergy encouraged James Nycolson, who had signed the contract for the magnificent series of windows at King's College, Cambridge, to print a Bible dedicated to the king by Miles Coverdale. That early printing press was set up within the precincts, just as Caxton's had been at Westminster. There and at Bishop's house should centre all their diocesan gatherings. They ought no longer to go into the diocese of London to find a council-chamber. The munificence of Mr. Forster had given them the long room next to the chapter-house for smaller meetings. There was another small room upstairs for committees, and when their councils were over there was the great church in which to sanctify their labours by prayer and praise. In conclusion, he referred to the labours of Mr. Arthur Bartlett, the architect, and Mr. Morgan, the treasurer; to the donors, Sir Frederick Wigan, Mr. Forster, Lord Llangattock, Mr. H. Lloyd and others who had made the work possible; and to the Ecclesiastical Commissioners, especially Mr. Porter, who had made the building theirs.

The Bishop of Rochester, in declaring the chapter-house open, said that the day was a happy one in the history of the building up of a cathedral centre for South London. That history had a starting-point in the past, and he was of opinion that it had a goal in the future. At the outset they had the work of that good and great man, Bishop Thorold. Certain names were prominent in the progress of the work in connection with the chapter-house, and to those which the Bishop of Southwark had already mentioned he would add that of Mr. Robert Barclay. They owed a great deal to Canon Taylor, and he was expressing what they all wished to say when he said that the name of the Bishop of Southwark was most prominent on account of his care and diligence, perseverance and tact, in carrying the work to completion. He had proved the value and the necessity of a central church for South London. The work which had been done in the building was simple, and they wanted simplicity and strength in their labours in South London. It was a pleasure to him to think that next week they were to hold their diocesan conference there. The building was to be used for chapter-house purposes and as a place for Church advice and counsel. A feature of the Chapter which they had formed in the cathedral church was that they had included lay members. There was strength in the support of lay members, and he trusted that in the work of the diocese and the Church they would be able to increasingly secure the common action of clergy and laity.

On the proposition of Mr. P. J. Waldram, seconded by Mr. A. H. Tyler, a motion was passed authorising the Council to make arrangements to further the speedy exchange of technical information between the members themselves and between the members and the discussion section of the Architectural Association. Mr. H. B. Vorley brought forward a motion in favour of the creation of a reserve fund, but after some discussion it was withdrawn.

TESSERÆ.

Indian Pottery.

IN the best Indian pottery we always find the reverent subjection of colour and ornamentation to form, and it is in attaining this result that the Indian potter has shown the true artistic feeling and skill of all Indian workmasters in his handiwork. The correlation of his forms, colours and details of ornamentation are perfect and without seeming premeditation, as if his work were rather a creation of nature than of art, and this is recognised, even in the most homely objects, as the highest achievement of artifice. The great secret of his mastery is the almost intuitive habit of the natives of India of representing natural objects in decoration in a strictly conventional manner; that is to say, symmetrically and without shadow. In this way the outline of the form ornamented is never broken. The decoration is kept in subordination to the form also by the monotonous repetition of the design applied to it, or by the simple alteration of two or, at the most, three designs. Also, never more than two or three colours are used, and when three colours are used, as a rule two of them are merely lighter and darker shades of the same colour. It is thus that the Indian potter maintains inviolate the integrity of form and harmony of colouring, and the perfect unity of purpose and homogeneity of effect of all his work. The mystery of his consummate work is a dead tradition now; he understands only the application of its process, but not the less must it have been inspired in its origin by the subtlest interpretation of nature. The potter's art is of the highest antiquity in India, and the unglazed water-vessels made in every Hindu village are still thrown from the wheel in the same antique forms represented on the ancient Buddhistic sculptures and paintings. Some of this primitive pottery is identical in character with the painted vases found in the tombs of Etruria, dating from about B.C. 1000. It is interesting to find that pottery is still made all over India for daily use which is in reality older than the oldest remains we possess of the ceramic art of ancient Greece and Italy. None of the fancy pottery made in India is equal in beauty of form to this primitive village pottery, and most of it is utterly insignificant and worthless.

Anachronisms in Pictures.

Great objections have been urged against the earlier painters, and also against Raphael, for introducing in their representations of the Madonna and Child the portraits of people living in their own times. But whatever appearance of anachronism there may be in such a practice, in reality there is none. The representation of the divine characters in the picture is not that of the real, but solely of their ideal presence, as they are supposed to have appeared in the minds of the human persons introduced; and if it be objected that they are not shadowy enough to fulfil this idea of their nature, it must be remembered that the creations of fancy, whether in the waking thoughts or in the dreams of sleep (especially the latter) take the actual form and colour of living nature; and the introduction complained of serves to strengthen the impression which the artist sought to convey, namely, that the sacred presence is a vision and not a reality. The charge of anachronism against the Venetian painters cannot be so easily removed, but forget the mere title of the subject, and their works possess every quality necessary for the embodiment of the truth and beauty of nature in its highest state of perfection. Nor were the ideal qualities wanting in Titian, whilst Tintoretto in this respect almost surpassed every other artist of whatever school. Amongst the innumerable martyrdoms of saints which oppress us in Italian and Spanish art there is no picture which can be compared with the *Massacre of St. Peter Martyr*, by Titian; it may be almost pronounced perfect, and it shows that the artist was eminent in all the qualities that combine to make a great painter.

Variety in Art.

When the painter and sculptor had advanced so far in their art as to be able to imitate exactly the form of the human body, it could not well be long before they applied themselves to particular imitations of it. Some forms are beautiful, others not. They would study therefore to imitate the former, and perhaps endeavour to investigate what circumstances constituted the difference between such cases. The imitation of the beautiful, from the imitation of mere form, was itself a great step in the art, but was of still greater consequence in leading

THE INSTITUTION OF JUNIOR ENGINEERS.

THE annual general meeting of this Institution was held on Friday night at the Westminster Palace Hotel. Mr. Percival Marshall occupied the chair. The secretary (Mr. Walter T. Dunn) read the annual report of the Council, which stated that the total membership at the close of the session was 652 as compared with 594 for the previous year, an increase of 58. The number of elections had been 103, which was the largest figure yet recorded. During the year the deaths had taken place of Professor G. F. Fitzgerald, an honorary member, Mr. L. F. Awde, a member of the Council, and Mr. E. H. S. Cooper, a member who had served as a Volunteer in the South African war, and after recovering from severe wounds had died from enteric fever. The Institution premium had been gained by Mr. Samuel Cutler, jun., and a special prize offered by Mr. W. H. Northcott for a paper dealing with the relations of employers and employed had been awarded to Mr. William Powrie. The third series of lectures organised by the Institution had been given, the subject being the management of engineering workshops. New offices had been taken at 39 Victoria Street, Westminster, where the accommodation included a library and reading and writing-rooms. Eleven visits to engineering works in London and the neighbourhood had taken place during the session. Sir John Jackson had consented to serve as President of the Institution. The income for the past year had amounted to 495*l.* 7*s.* 7*d.*, and the expenditure to 475*l.* 0*s.* 1*d.*, leaving a credit balance on the year's working of 20*l.* 7*s.* 6*d.* The balance-sheet showed a balance of 150*l.* 9*s.* 10*d.* in favour of the Institution. The report and statement of accounts were adopted. The following officers were elected:—Chairman, Mr. Percival Marshall; vice-chairman, Mr. Kenneth Gray; hon. librarian, Mr. Lewis H. Rugg; hon. auditors, Mr. H. B. Vorley and Mr. W. H. de Ritter; secretary and treasurer, Mr. W. T. Dunn.

to another. Beautiful forms were more beautiful in one attitude than in another, under the influence of some passions or affections than under the influence of others. To imitate such objects, therefore, it was necessary to study not only the general beauty of form, but such attitudes and expressions as were the signs of such passions or affections. The most beautiful forms in real life were still in some respects deficient, and it was difficult to find instances where such forms might display the most beautiful attitudes or expressions. The imagination of the painter or the sculptor could alone supply this want; he would endeavour by degrees, therefore, to unite the beauty of form with the beauty of expression, and would thus gradually ascend to the conception of ideal beauty, and to the production of form and of attitude, more beautiful than any that were to be found in nature itself. In these various steps the uniformity of the earlier ages would insensibly be deserted. Beautiful attitudes have little uniformity, and in the expression of passion or affection every variety of form must be introduced which takes place in real life. The artist, therefore, would not only be under the necessity of introducing variety, but the admiration of the spectator would necessarily keep pace with its introduction; both because the expression which his forms now assumed was of itself much more pleasing and interesting than the mere expression of design, and because this variety was in fact now significant of greater skill and dexterity in the artist than the mere uniformity of the former age. In those arts, therefore, variety of form would not only be considered as expressive of design, but, as what distinguished the old and the modern school was the uniformity of the one and the variety of the other, it would be considered as the peculiar sign of elegant or of improved design.

Ancient Porphyry Quarries.

At Gebel Dokhán, in Egypt, are those vast quarries from which Rome took so many superb pieces of porphyry to adorn her baths and porticos. The chief difficulty in working these quarries was the want of water. It was removed by sinking two wells, one of which must have cost immense labour, being a shaft of about 15 feet in diameter, sunk in a solid porphyry rock. It is now impossible to judge of its depth, being much filled up with earth, but there is still some distance to the spring; the actual depth of that part where it is solid rock is 38 feet, and much more must be allowed for a good supply of water. It has a cistern attached to it, from which are led troughs for the cattle. The other well is more filled up, being altogether only 22 feet deep, with a diameter of 15 feet; that part which is still visible is cased with stone. It is placed on one side of a circular space, which was perhaps once covered in by means of a roof supported on pillars, five of which still remain. On them are scratched boats and various figures, also a few Greek letters above a cross. This last is near the town which the Arabs call Bélet Kebeer, or the large village; the other is a ten minutes' walk distant, and in another valley.



Memorial to the late James Brooks.

SIR,—From several quarters it has been brought to my notice that a feeling exists that steps should be taken to raise some memorial to the late Mr. James Brooks, F.R.I.B.A. This on account of the work he has done for the Church at large in many localities. I am led to indite this on account of what he did for St. Faith's—a church designed by the late Mr. Burges, at whose death Mr. Brooks completed on his own responsibility its western portion, and under his immediate care or that of his son, Mr. Martin Brooks, he carried out many additions and improvements, e.g. vestries, porch, &c., and at the time of his death he was erecting the lady chapel.

For the last twelve years, with one single intermission, he has acted as churchwarden of St. Faith's, and for the last six continuously as vicar's warden.

It seems therefore natural that the memorial should be erected in St. Faith's. Various objects have been mentioned, e.g. chancel-screen, west window to be filled with stained glass, screen between the church and the chapel, also an institute with caretaker's house. I should be glad to have the views of your readers on the subject, but I feel the selection of the object must depend very much on the amount of subscriptions received, and, secondly, on the wishes of Mr. Brooks's own family.

Subscriptions may be sent either to Mr. W. Jenkinson, 147 Albion Road, the parish warden, or to myself.

C. H. V. PIXELL.

St. Faith's Vicarage, Stoke Newington.

GENERAL.

The Opening Meeting of the Royal Institute of British Architects will be held on Monday next. During the session the following papers will be read:—"Mosaics," by R. Anning Bell; "The Palace of Knossos, Crete," by A. Evans; "The Architectural Discoveries of 1901 at Stonehenge," by D. J. Blow; "Baldassare Peruzzi," by F. W. Bedford; "The Planning of some recent Library Buildings in the United States," by S. K. Greenslade; "Inlay and Marquetry," by W. Aumonier and Heywood Sumner; "Tradition in Architecture: its Function and Value," by A. N. Paterson, M.A.

Mr. R. G. Hetherington, M.A., will read a paper before the Society of Engineers on Monday next, the subject being "The Main Drainage of Ilford."

Prof. Wm. E. Ware, of Columbia University, has been retained by the Pennsylvania Capitol Commission to advise it in matters relating to new plans for the State capitol.

The Edinburgh Dean Guild, in granting a warrant for erecting buildings in London, complimented the architect, Mr. Alexander Law, on the accuracy and completeness in detail of the plan he had presented to the Court, and said it would be a great convenience were all architects to take the same pains in drawing plans.

The Emperor of Germany has sent an envoy extraordinary to the Pope in order to present the first volume of the history of the Sistine Chapel, by Professor Steinmann.

Professor P. Geddes will deliver to-morrow a lecture before the Dundee Institute of Architecture on "The Glasgow Exhibition: its Results and Lessons."

Mr. B. W. Leader, R.A., and his works will be the subject of the Christmas number of the *Art Journal*.

A New Church will shortly be commenced in Berlin for the use of Americans. The fund has now reached ten thousand pounds.

The Italian Council of Public Works has authorised the municipalities of Florence and Pisa to utilise for the supply of drinking water to those cities sources belonging to private persons, declaring them to be of public utility.

A Royal Palace of the Mycenaean period has been discovered at Phaistos in Crete. As yet few relics have been found in the explorations.

A New Church for Bible Christians is to be erected in the Old Shoreham Road, Brighton. A site has been secured.

Tenders for the proposed Cardiff Asylum are not likely to be invited until September, 1902.

The Parish Church of Lyminster, near Arundel, is about to be repaired at a cost of 400*l*. The north wall of the nave is in a very unsafe condition, and the tower is also in need of restoration.

The Truro Cathedral Building Committee have reported to the Diocesan Conference that serious anxiety had been caused by signs of fracture in eight of the bases of the nave piers, and before undertaking a reparation recommend that an expert should be called in.

Professor R. A. Smart has resigned his appointment in Purdue University, to become head of the department of experimental engineering recently established by the B. F. Sturtevant Company, Boston, to investigate problems relating to blower practice.

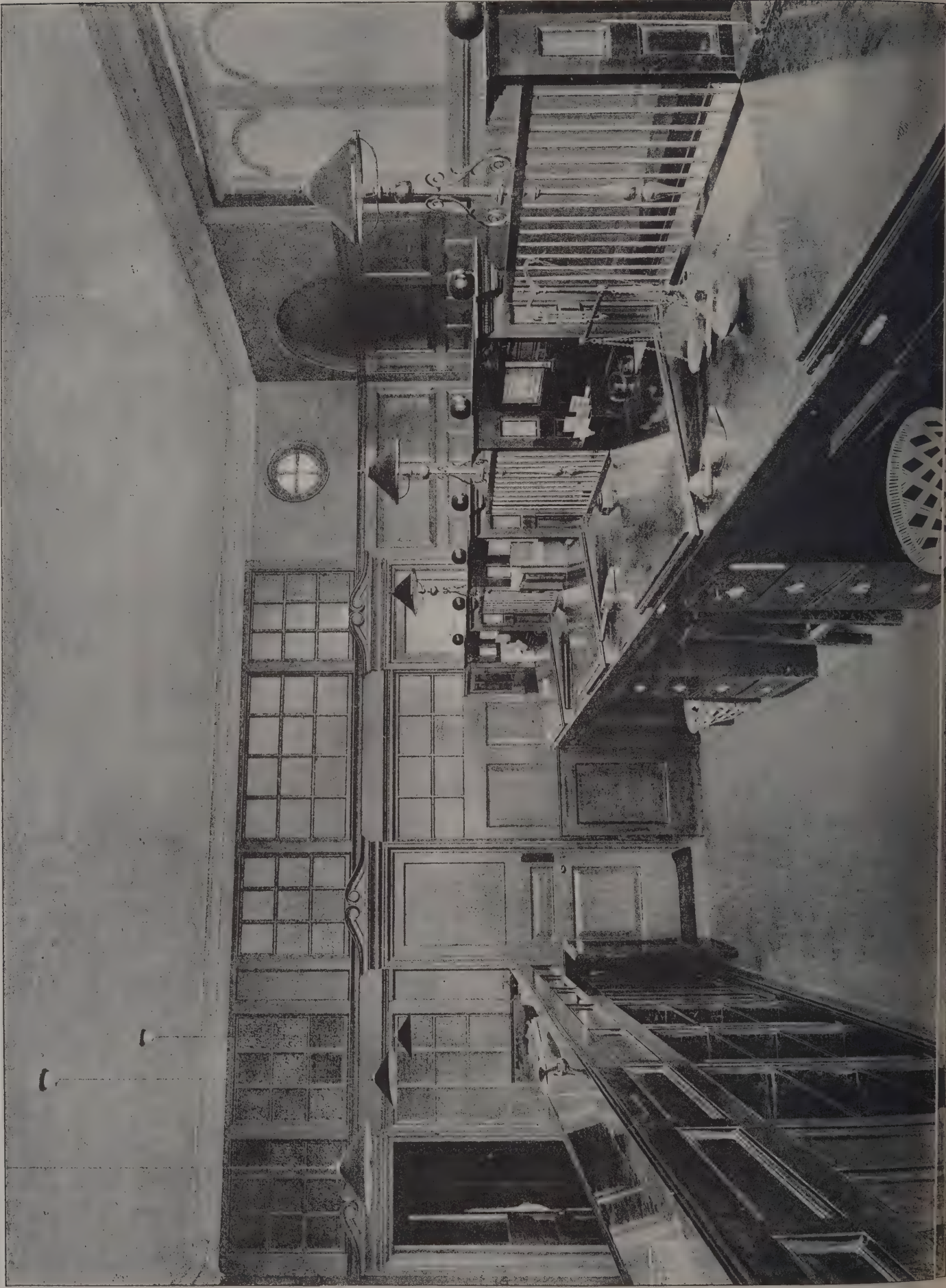
The General Purposes Committee of the Surrey County Council, having considered the proposed allocation of the cost of 72,000*l*. for purchasing Marble Hill to save the view from Richmond Hill, have agreed to the suggested payment of 10,000*l*. by their Council, but have decided to recommend that this shall only be done subject to the adoption of the scheme for securing Petersham Meadows to the public for ever, which is also mentioned in the circular letter of the central committee.

A Monument has been erected at Eamont Bridge, near Penrith, in memory of Troopers Hudson and Todd, of the Imperial Yeomanry, who were killed in action at Faber's Pont. It was designed by Mr. W. Grant Stevenson, R.S.A., of Edinburgh, and consists of a carved stone Celtic cross with bronze portraits of Hudson and Todd on the shaft.

The Ceremony of turning on the water at Annan in connection with the completion of the laying of a duplicate pipe from the reservoir to the filters was performed on the 24th ult. by Lady Reid. This scheme, which cost 8,000*l*., provides for the better water supply to the burgh and district. Mr. Copland, C.E., Glasgow, was the engineer, and Messrs. J. S. Millar & Son, Annan, were the contractors.

Mr. John H. Genn, town clerk of Falmouth, died on the morning of the 25th ult. The deceased gentleman held several public offices in the town, including those of magistrates' clerk, clerk to the Board of Guardians, and superintendent-registrar of births and deaths for the district. The late Mr. Genn was well known throughout the West as a keen sportsman, and at one time captained the Cornwall football team.

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CATHEDRAL SERIES, No. 363.—CHICHESTER: CHAPEL OF S. CLEMENT.

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CATHEDRAL SERIES, No. 364.—CHICHESTER: LOOKING INTO SOUTH AISLE OF NAVE.

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CATHEDRAL SERIES, No. 365.—CHICHESTER: ONE BAY OF NAVE TRIFORIUM.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BARNSELY.—Nov. 22.—Competitive drawings are invited for the adaptation of property situate in Pitt Street, Barnsley, for union and relief offices, &c. A premium of 20*l.* will be awarded for the accepted design. Mr. C. J. Tyas, clerk, 17 and 19 Regent Street, Barnsley.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 25*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BURSLEM.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded to the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes

upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

KINGSTON-UPON-THAMES.—Nov. 14.—Designs are invited for a new public library. Mr. Harold A. Winser, town clerk, Kingston-upon-Thames.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be, subject to certain stipulations, paid to each competitor, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

STOCKPORT.—Nov. 4.—Designs for the municipal buildings which the Corporation propose to erect are invited. Mr. Robert Hyde, town clerk, Stockport.

CONTRACTS OPEN.

ABRAM.—Nov. 5.—For laying and jointing about two miles of 7-inch and 6-inch cast-iron water-mains at Abram, near Wigan, Lancs. Messrs. Heaton, Ralph & Heaton, civil engineers, Wigan.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ASHTON-UNDER-LYNE.—Nov. 12.—For supply, delivery, laying and connecting of tramway feeder cables, test wires, feeder and section boxes, and other work connected therewith, for the Hurst Urban District Council. Mr. Edward Garside, engineer, Town Hall Chambers, Ashton-under-Lyne.

ASKAM-IN-FURNESS.—Nov. 28.—For erection of new Primitive Methodist Sunday schools, and heating same and existing chapel. Rev. W. Carr, minister, Slater Terrace, Dalton-in-Furness.

ASTON MANOR.—Nov. 4.—For main buildings, offices, foundations, chimney-shaft flues, &c., required for their proposed electric-power station, for the Aston Manor Urban District Council. Council Offices, Aston Manor.

AXMINSTER.—Nov. 5.—For restoration in panelled oak covered with lead of the north aisle roof of the parish church. Mr. E. H. Harbottle, architect, County Chambers, Exeter.

BARKING.—Nov. 12.—For supply of an electrically driven locomotive and the permanent-way in connection therewith, at the wharf, Gascoigne Road, Barking. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BARNSELY.—Nov. 11.—For erection of a church and schools, &c., at Wombwell, near Barnsley. Mr. J. P. Earle, architect, Norfolk Chambers, Norfolk Row, Sheffield.

BARROW-IN-FURNESS.—Nov. 4.—For heating the new school at Vickerstown. Mr. H. E. T. Fowler, architect, Ramsden Square.

BATLEY.—For erection of chimney, about 100 feet high. Mr. Andrew Jackson, manager, Honley Park Colliery, Batley.

BATLEY.—Nov. 8.—For erection of two blocks of houses near Mount Street, Batley Carr. Mr. Harry B. Buckley, architect, 85 Commercial Street, Batley.

BIRMINGHAM.—Nov. 4.—For erection of carpenters' shop at the infirmary, Dudley Road. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BERKHAMSTEAD.—Nov. 6.—For laying-down septic tanks (and other works incidental thereto) at the sewage farm, Broadway. Mr. Edward H. Adey, surveyor, Montague Road, Berkhamstead.



Fig. 1.

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BOURNEMOUTH.—Nov. 11.—For erection of car sheds, repairing shops, &c. Mr. F. W. Lacey, engineer, Municipal Offices, Bournemouth.

BRADFORD.—Nov. 5.—For erection of workshop and stabling at Havelock Street, Great Horton. Mr. Sam Spencer, architect, &c., 344 Great Horton Road, Bradford.

BRADFORD.—Nov. 9.—For erection of two dwelling-houses at Hatfield Road, Undercliffe. Mr. F. E. P. Edwards, city architect, Chapel Lane, Bradford.

BRENTFORD.—Nov. 6.—For erection of an isolation hospital, with administrative buildings, &c.; at Claypolds Lane, Brentford. Mr. Arthur Ramsden, surveyor, Town Hall, Chiswick.

BURY.—Nov. 18.—For supply and delivery at Bury, Lancashire, of fourteen 69-passenger electric tramcars and fourteen 48-passenger electric tramcars. Messrs. Lacey, Clirehugh & Sillar, engineers, 78 King Street, Manchester.

CHESTERFIELD.—For erection of five separate pairs of semi-detached houses at Bolsover. Mr. W. H. Wagstaff, architect, Chesterfield.

CLEATOR MOOR.—Nov. 12.—For erection of a new butcher's shop, slaughter-house, hanging sheds, &c., at Cleator Moor. The Central Office of the Cleator Moor Co-operative Society, Ltd.

CLITHEROE.—Nov. 30.—For excavating and building two new settling tanks, with channels, sluice valves, &c., on the sewage farm at Henthorne, Clitheroe, Lancs. Mr. Arthur R. Bleavard, borough surveyor, Church Street, Clitheroe.

CONISBOROUGH.—For erection of Board schools and caretaker's house, Conisborough, Yorks. Mr. Geo. White, architect, Mexborough.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

CORNWALL.—Nov. 6.—For new joinery and renovating the Wesleyan chapel, Portreath. Mr. Sampson Hill, architect, Redruth.

DARTFORD.—Nov. 12.—For the supply and erection at the sewage pumping station at Dartford of two sets of steam-engines and vertical three-throw piston pumps, and the removal of the present engines and pumps. Mr. W. Harston, surveyor, High Street, Dartford.

DEAL.—Nov. 13.—For construction of an additional engine-house, boiler-house and coal store at their pumping station,

Upper Deal, for the Deal and Walmer Joint Water Board. Messrs. T. & C. Hawksley, civil engineers, 30 Great George Street, Westminster, S.W.

DEVIZES.—Nov. 5.—For building hospital (twenty-two beds in all), for the Devizes joint isolation committee. Messrs. Bell, Withers & Meredith, 3 Salters' Hall Court, Cannon Street, London.

DOVER.—Nov. 12.—For erection of an infirmary and nurses' home at the workhouse, Dover. Messrs. Creswell & Newman, architects, Castle Street, Dover.

DROXFORD.—Nov. 9.—For fixing laundry drying closet and ironing stove at the workhouse, Droxford, Hants. Mr. Francis Clark, clerk, Bishop's Waltham.

DUBLIN.—Nov. 4.—For girder bridges; one double-line bridge, 41 feet 6 inches span, carrying main line over public road close to Dunleer station, and one single-line bridge 4 feet 8 inches span, carrying Oldcastle branch over public road near Drogheda, Ireland, for the Great Northern Railway Company. Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

EASINGWOLD.—Nov. 21.—For construction of a covered concrete reservoir, holding 120,000 gallons, at Kilburn, Yorks. Mr. F. J. H. Robinson, clerk to the Rural District Council, Easingwold.

FARNBOROUGH.—For erection of a residence and stabling in the Farnborough Road. Mr. W. E. Trevena, architect, Ridgemoor, Southampton Road, Farnborough.

FLIMBY.—For extension of buildings at St. Helens farm, near Flimby, Cumberland. Mr. J. S. Moffat, architect, Church Street, Whitehaven.

GRIMSEY.—Nov. 8.—For erection of seven dwelling-houses in Rutland Street, Great Grimsby. Mr. A. Gooseman, architect, 112 Cleethorpe Road, Grimsby.

HORWICH.—Nov. 25.—For erection of an infectious diseases hospital in Fall Birch Lane, Horwich, Lancs. Messrs. Cressey & Keighley, architects, Morecambe.

HULL.—Nov. 5.—For erection of offices, King Edward Street and Savile Street, Hull, for the Lancashire and Yorkshire Railway Company. Mr. Henry Shelmerdine, architect, Hunt's Bank, Manchester.

HULL.—Dec. 6.—For construction of a new dock, with a water area of about 50 acres, and a lock and entrance from the river Humber, river embankments, drains, outfalls, &c. Sir

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HUNTON.—Nov. 9.—For alterations to the cloakroom at Hunton Board school, Bedale, Yorks. Mr. Thomas Firbank King, Edgley, Leyburn.

HUNSTANTON.—Nov. 8.—For completion of a terrace of six houses and of three pairs of houses, and for erection of three pairs of houses, in Victoria Avenue, Glebe estate, Hunstanton. Mr. W. Wren, surveyor, Pleasant Villa, Mount Pleasant, Cambridge.

ILFORD.—Nov. 12.—For erection of tramway car-sheds, workshops, &c., for the Ilford Urban District Council. Mr. H. Shaw, 7 Cranbrook Road, Ilford.

IRELAND.—Nov. 4.—For erection of three houses at Nassau Street, Londonderry. Mr. J. P. M'Grath, C.E., architect, 28 Carlisle Road, Londonderry.

IRELAND.—Nov. 4.—For alterations to premises, Carroll's Quay, Cork. Mr. James F. M'Mullen, architect, 30 South Mall, Cork.

IRELAND.—Nov. 9.—For erection of a suitable building which will contain a disinfecting chamber, Kilkenny. Mr. P. O'Grady, executive sanitary officer, Kilkenny.

IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

IRELAND.—Dec. 16.—For erection of a viaduct for a single line of railway over the river Barrow, in the South of Ireland, consisting of thirteen fixed spans of 140 feet and two opening spans of 80 feet each in the clear, together 2,131 feet between abutments, and containing about 2,000 tons steel girderwork and 2,400 tons cast-iron cylinder pieces, with timber-protecting dolphins, electric-operating plant, &c., for the Fishguard and Rosslare Railways and Harbours Co. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, S.W.

LANCASTER.—Nov. 4.—For erection of an isolation hospital, for the Lancashire Asylums Board. Messrs. Willink & Thicknesse, architects, 14 Castle Street, Liverpool.

LEEDS.—For erection of a stone-built billiard-room to The Woodlands, Burley, Leeds. Messrs. Thos. Winn & Sons, architects, 92 Albion Street, Leeds.

LEEDS.—Nov. 18.—For various works required in erection of a new engine-house, stabling and boundary wall at the

central fire station, Park Street. Mr. Percy Robinson, 72 Albion Street.

LEEDS.—Nov. 18.—For erection of an engine-house, stabling and boundary wall at the central fire station, Park Street. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

LEEDS.—Nov. 23.—For erection of the free library at the junction of Nineveh Road and Marshall Street, Holbeck. Mr. William Bakewell, architect, 38 Park Square, Leeds.

LIVERPOOL.—Nov. 4.—For supply and laying of high and low-tension insulated cables. Messrs. Kincaid, Waller & Manville, consulting engineers, 29 Great George Street, Westminster.

LIVERPOOL.—Nov. 25.—For overhead electrical equipment of tramway lines and car depôt. Messrs. Kincaid, Waller & Manville, consulting engineers, 29 Great George Street, Westminster.

LONDON.—Nov. 6.—For erection of a receiving-house and cottages for children and alterations to existing buildings on the Newlands, Peckham Rye, S.E. Mr. A. E. Mullins, architect, 16 Church Street, Camberwell, S.E.

LONDON.—Nov. 15.—For erection of a plain iron mission church to seat about 250. Rev. J. Ferguson, 10 New Cross Road, S.E.

LUTON.—Nov. 7.—For supply and fixing a pump and motor capable of raising 6,000 gallons of water per hour. Mr. A. T. Snell, engineer at the works, St. Mary's Road, Luton.

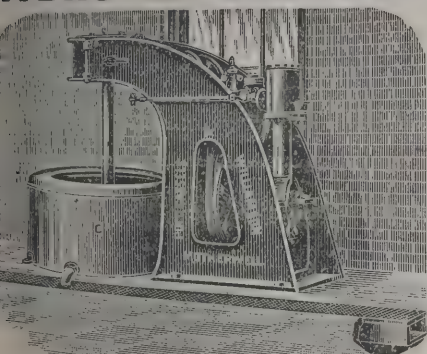
MALLOW.—Nov. 6.—For erection of labourers' cottages, out-offices, with piers and gates, in various electoral divisions in the district, for the Mallow Rural District Council, according to plan and specification of their engineer. Mr. Maurice Regan, clerk.

MANCHESTER.—Nov. 5.—For construction of a reservoir (to hold about 22,000,000 gallons) at Crow-Trees farm, Radcliffe, near Manchester. Messrs. James Sellers & Son, surveyors, &c., Union Chambers, Bury.

MANCHESTER.—Nov. 6.—For erection of an electricity sub-station at the Polygon, Ardwick. Specification may be seen at the office of the City Surveyor, Town Hall.

MANCHESTER.—Nov. 6.—For supply of electric plant at the Stuart Street generating station and sub-stations. Mr. G. F. Metzger, engineer, Electricity Works, Dickinson Street, Manchester.

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MANSFIELD.—Nov. 11.—For erection of the municipal electricity and refuse-destroyer works, inclined roadways and chimney-stack on land adjoining the gasworks, Mansfield. Messrs. Vallance & Westwick, architects, Mansfield.

NELSON.—Nov. 11.—For erection of Whitefield schools, for the Nelson School Board, Lancs. Mr. T. Bell, Grimshawe Street, Burnley.

NEWTON ABBOT.—Nov. 5.—For alterations to the urinals, plastering the dining-rooms and other work at the workhouse. Mr. S. Segar, architect, Union Street, Newton Abbot, Devon.

OLDHAM.—Nov. 5.—For supply of concentric feeder cable, pilot cable, joint-boxes, &c., motor-booster, motor-generators, switch gear, &c. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

OXFORDSHIRE.—Nov. 9.—For repairing the Streatley and Goring bridge. Mr. Francis E. Hedges, clerk to the Commissioners, Market Place, Wallingford.

PECKHAM RYE.—Nov. 6.—For erection of a receiving-house and cottages for children, also alterations to existing buildings on the Newlands, Peckham Rye, S.E. Mr. A. E. Mullins, 16 Church Street, Camberwell, S.E.

PENRITH.—Nov. 4.—For sinking a well at High Hesket. Mr. J. W. Smith, clerk, Penrith.

PLYMOUTH.—Nov. 12.—For additions and alterations at the Laira Green school, Laira, Plymouth. Mr. H. J. Snell, architect, 11 The Crescent, Plymouth.

PLYMOUTH.—Nov. 12.—For painting, mason's work plumbing, &c., at the dispensary, 13 North Street. Mr. W. Adams, clerk to the Guardians, 13 Princess Square, Plymouth.

ROCHDALE.—Nov. 8.—For supply and erection of three Lancashire boilers, economiser and mechanical stokers, and for two ejector condensers and circulating pumps, one feed pump, one grease extractor and the extensions to the present steam, exhaust, condenser and feed pipes, &c., at the electricity works. Messrs. Lacey, Clirehugh & Sillar, engineers, 78 King Street, Manchester.

ROTHERHAM.—Nov. 12.—For wiring of the Rotherham hospital, preparatory to a supply of electricity from the Corporation mains. Mr. Edward Cross, engineer, Rawmarsh Road, Rotherham.

ROTHWELL.—Nov. 12.—For supply of 250 tons of cast-iron pipes and special castings, varying in size from 4 inches to 7 inches, delivered at Desborough and Rothwell station;

valves and fittings, and the supply and delivery of hydrants, valves, floating arms, surface boxes, wall plates and other fittings required in carrying out water-supply scheme. Mr. W. T. Pearson, surveyor, Bank Chambers, Rothwell, Northants.

SCOTLAND.—Nov. 4.—For erection of a dwelling-house and alteration and repair of the steading for Cranhill Farm, Aberdeen. Messrs. Walker & Duncan, architects, &c., 3 Golden Square, Aberdeen.

SCOTLAND.—Nov. 6.—For extension of the post-office at Dunfermline. Specification and copy of conditions may be seen on application at H.M. Office of Works, Edinburgh.

SCOTLAND.—Nov. 6.—For erection of station buildings, Glasgow, for the Glasgow and Renfrew District Railway Company. Mr. Ralph Dundas, secretary, 16 St. Andrew Square, Edinburgh.

SCOTLAND.—Nov. 7.—For erection of a cottage at Crofts, Rothes. Mr. John Smith, Estate Office, Elgin.

SCOTLAND.—Nov. 8.—For erection of halls, library and police office in the Kingston district. Mr. J. Lindsay, interim clerk, City Chambers, Glasgow.

SCOTLAND.—Nov. 11.—For additions to Stotfield hotel, Lossiemouth. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

SCOTLAND.—Nov. 12.—For construction of sewage-tanks and filter-beds, and laying-off of land filters in connection with sewage-disposal works, Linlithgow. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

SCOTLAND.—Nov. 18.—For constructing a storage reservoir, with relative works, on the Pinnacher Burn, and for providing and laying about 1½ mile of cast-iron piping between Glendrishaig and Pinnacher reservoirs, Girvan. Mr. James Smith, town clerk, Girvan.

SHOREDITCH.—Dec. 3.—For boring an artesian well at the public baths, Pitfield Street, N., and providing a pump for same. Mr. H. Mansfield Robinson, town clerk, Town Hall, Old Street, E.C.

SHOREHAM.—For erection of a pair of cottages and other works on land adjoining the new workhouse at Kingston, Sussex. Messrs. Clayton & Black, architects, 152 North Street, Brighton.

SOUTHEND-ON-SEA.—For proposed erection of twelve small houses on the Avenue Estate. Mr. Frampton A. Knight, surveyor, 2 Wetherby Terrace, Earl's Court, S.W.

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- 163 STRAND -

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SOUTHEND-ON-SEA.—Nov. 12.—For an addition to the Sutton and Shopland National schools. Mr. W. Vendall Hobbiss, architect, 57 High Street, Southend-on-Sea.

SOUTHTAWTON.—For erection of a farm bailiff's house and other work at Wood, Southtawton, Devon. Mr. James Jerman, architect, 5 Bedford Circus, Exeter.

SWINDON.—Nov. 12.—For supply, delivery and erection of electrical machinery and plant. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

SWINDON.—Nov. 12.—For supply of electric machinery and plant as follows:—Contract No. 2, comprising three Lancashire boilers and economiser, two jet condensers, feed pumps, pipework and accessories; (3) water-cooling tower; (4) 10-ton overhead travelling crane. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

WALES.—Nov. 12.—For reconstruction of bridges and other works at Newtown goods yard, Cardiff, for the Great Western Railway Co. Mr. G. K. Mills, secretary, Paddington Station, W.

WALES.—For additions to warehouses in Millicent Street, Cardiff. Mr. Edgar G. C. Down, architect, 31 High Street, Cardiff.

WALES.—Nov. 19.—For erection of new sliding glazed partitions, new desks and sundry other works at the Garn schools, Blaenavon. Messrs. Lansdowne & Giggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysmeudw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Nov. 22.—For erection of house, out-offices and boundary walls, &c., at Newbridge, near Ruabon. Mr. W. H. Johns, Vroncyssyllte, Llangollen.

WASHINGTON.—For alteration to the Railway tavern, Washington, co. Durham. Mr. Geo. Stephenson, 20 Collingwood Street, Newcastle.

WHITBY.—Nov. 6.—For erection of a church and school at Whitby. Mr. W. G. Smithson, architect, 13 Bond Street, Leeds.

WILLESDEN.—Nov. 12.—For supply and erection of complete electric plant. Mr. E. T. Ruthven-Murray, electrical engineer to the Willesden Urban Council, Public Offices, Dyne Road, Kilburn, N.W.

WIMBLEDON.—Nov. 20.—For construction of new concrete sewage precipitation sludge and storm-water tanks, sludge pumps, cast-iron mains, valves, floating arms, penstocks, &c., at the sewage works, Durnsford Road. Plans and specifications can be seen and bill of quantities obtained at the Council Offices, Broadway, Wimbledon.

WOOLWICH.—Nov. 6.—For erection of a gardener's cottage upon the site abutting on Cemetery Road, Wickham Lane, Plumstead. Messrs. Church, Quick & Whincop, architects, William Street, Woolwich.

MARYPORT Harbour Commissioners find it impossible to promote a Bill in Parliament during the forthcoming session to carry out the harbour improvement scheme, as the consent of the Court of Chancery cannot be obtained in time.

WITH a view to avoiding a future water famine, such as has only narrowly been escaped this year, the Bradford authorities propose to erect a storage reservoir at Angram, and the water-works engineer, in explaining the position, states that the normal consumption of water per day in the city and out-towns may be set down at 14 million gallons, and assuming that the rainfall and gathering ground would, under usual and ordinary circumstances taken over the year, give this quantity, then in order to be able to secure and distribute it over all the days of the year, a storage capacity of 2,520 million gallons is needed. As a matter of fact, however, the aggregate storage capacity of all the reservoirs, impounding and service, is only 1,660 million gallons, a deficiency of 760 million gallons. It is therefore plain that no time should be lost in adding to the storage capacity of the works. The Nidd Valley scheme provides for the construction of three large storage reservoirs on the river Nidd at High Woodale, Lodge and Angram, with a total storage capacity of 2,596 million gallons, and it is desirable that the first of them, viz Angram reservoir, should be gone on with as quickly as possible. This would add 810 million gallons to existing storage, and when completed would comprise nearly one-third of the total storage provided for the Nidd Valley scheme. The Angram reservoir and the works connected with it will take seven or eight years to construct, and at the end of that time, most likely before it, Bradford will be using to the full the direct supply from the Nidd, and ready to utilise the further increased supply which the Angram reservoir will afford.

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TENDERS.**BARKING.**

For erection of an entrance lodge, tool-house, building and cart-shed at the recreation-ground, Longbridge Road, Barking, Essex. Mr. C. E. DAWSON, surveyor.

Lodge.			
Robey	£868	0	0
T. Garbett	830	0	0
S. KIND, Leytonstone (accepted)	672	0	0

Tool-house.

T. Garbett	255	0	0
Robey	247	0	0
S. KIND (accepted)	236	0	0

Cart-shed.

T. Garbett	130	0	0
S. KIND (accepted)	90	0	0
Robey	79	10	0

BRISTOL.

For an extension of shed "M" at Avonmouth Dock, the length of the extension being about 210 feet.

R. F. RIDD, 18 Wilder Street (accepted).

BROCKBRIDGE.

For erection of hotel at Brockbridge, Hants. Mr. ALBERT G. J. GUY, architect, 79 Albert Road, Southsea.

J. Crockerell	£4,300	0	0
S. Salter	4,267	0	0
H. Meredith	3,987	19	9
H. C. Dove	3,950	0	0

Amended tenders.

H. C. Dove	2,670	0	0
H. MEREDITH, Hambledon (accepted)	2,397	10	9

For erection of the Crown public-house, Somers Road. Mr. ALBERT G. J. GUY, architect, 79 Albert Road, Southsea.

S. Salter	£435	0	0
J. Harding	399	0	0
Clark & Son	389	0	0
H. JONES, Southsea (accepted)	375	0	0

CANTERBURY.

For repairs and renewals to the laundry and wash-house at the workhouse. Mr. G. SMITH, architect, Station Road, St. Dunstan's, Canterbury.

J. J. Dodds	£105	19	0
W. J. Adcock	105	0	0
H. J. Belsey	99	8	0
H. B. Wilson	96	0	0
W. Hayes	96	0	0
C. Mount	95	0	0
H. L. BATEMAN, St. Dunstan's (accepted)	85	17	6

CARNARVON.

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COCKERMOUTH.

For widening the south side of the road leading from Grange village to Grange school. Mr. J. B. WILSON, surveyor, Court Buildings, Cockermouth.

Dawson	£491	0	0
Smithson	377	10	0
WATSON, Oughterside, Maryport (accepted)	372	2	10

For sewerage and sewage disposal works at Dovenby, near Cockermouth. Mr. J. B. WILSON, surveyor, Court Buildings, Cockermouth.

T. WALKER, Grange, Borrowdale, Keswick (accepted)	48	12	8
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CROYDON.

For erection of cottage homes at Shirley Lodge Farm, Woodside, for the Guardians of the St. Olave's Union. Messrs. NEWMAN & NEWMAN, architects, 31 Tooley Street, London Bridge, S.E.

Bulled & Co.	£160,000	0	0
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Willcox & Co.	141,845	0	0
Bowyer & Co.	141,810	0	0
Colls & Sons	141,500	0	0
Goddard	138,500	0	0
Holloway	134,000	0	0
Patrick	129,900	0	0
CHAS. WALL, Chelsea (accepted)	128,630	0	0
Saunders	123,164	0	0

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CLAYTON.
For painting the imbecile wards at the workhouse, Clayton, Yorks.
J. VARLEY & SONS, Thornton (*accepted*) . . . £35 0 0

DARLINGTON.
For construction of two public urinals in Hopetown Lane and North Road.
T. RENSRAW, Darlington (*accepted*).
Note.—One other tender.

EASTBOURNE.
For erection of public conveniences on Grand Parade.
John Peattie . . . £3,700 0 0
J. Johnson & Son . . . 3,660 0 0
B. Finch & Co . . . 3,558 0 0
G. Jennings & Co. . . . 3,516 0 0
J. C Lacey (Finch's, Doulton's, or Jennings's sanitary fittings to be used) . . . 3,150 0 0
For erection of branch library and baths, Seaside.
Martin, Wells & Co. . . . £2,450 0 0
C. Peerless-Dennis & Co.. . . 2,348 0 0
F Rich . . . 2,324 0 0
M. Hookham . . . 2,248 0 0
W. & E. NOAKES (*accepted*) . . . 2,188 0 0

ELGIN.
For addition and repairs to dwelling-house at Elgin gasworks.
J. George & Son, carpenter . . . £31 15 0
A. Garrow, builder . . . 23 14 0
Mackenzie & Russell, plumber . . . 15 8 8
G. Gray, plasterer . . . 11 18 0
J. James, painter . . . 8 17 6
W. & W. Ogilvie, slater . . . 6 7 6

GREENOCK.
For sewerage works in Upper Inchgreen Street.
W. Kirkwood . . . £276 2 0
D. K. McPherson . . . 204 8 5
W. Pollock . . . 199 15 7
E. AITKENHEAD & SONS, Greenock (*accepted*) . . 171 11 5

HALE.
For sewerage works. Mr. FRANK J. LOBLEY, engineer, Albert Road, Hale, Cheshire.
J. Dale . . . £6,129 7 0
G. Bozson . . . 5,738 6 0
Bennie & Thompson . . . 5,481 14 0
Hamilton & Son . . . 4,781 0 0
T. J. Hawkins & Co. . . . 4,383 3 8
C. E. Carden . . . 4,332 2 0
H. Morecroft . . . 4,292 0 0
M. NAYLOR & SON, Mytton Street, Hulme, Manchester (*accepted*) . . . 4,180 0 0
S. Johnson . . . 4,084 9 6
Gosling & Stafford . . . 3,643 2 6
J. Pickthall & Son . . . 3,195 8 0

HARROGATE.
For erection of steam laundry at Starbeck. Mr. BAGSHAW, borough surveyor.
Accepted tenders.
A. Brown, mason, &c. . . £1,650 3 10
Abbott & Co, ironfounder . . . 540 10 5
G. H. Carrick, joiner . . . 320 0 0
J. M. Pratt, plumber . . . 227 10 0
W. H. & E. Walton, slater . . . 120 0 0
J. W. Gill, painter . . . 35 4 10
M. Bartholomew, plasterer . . . 10 19 4

For street works in various streets.
Accepted tenders.
B. Oxley, back road rear of east side Stonefall Avenue, Starbeck, £409 4s. 2d; back road rear of Russell and Mount streets, Oatlands, £129 14s. 4d
J Frost, back road rear of north side of Belmont Road, £203 13s. 5d; Springfield Avenue, £1,628 3s. 3d.
J. Buckley, back Gladstone Street, Oatlands, £143 1s. 8d.

ILFRACOMBE.
For sewerage works in High Street, Portland Street, Fore Street, Castle Hill and Coronation Terrace.
G. Parkin . . . £1,635 0 0
Britton & Pickett . . . 1,627 12 0
R. FRY, Ilfracombe (*accepted*) . . . 1,050 0 0

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IRELAND.

For erecting a culvert at the entrance to labourer's cottage at Damma, Kilkenny.

E. MADIGAN, Kilkenny (*accepted*) £4 0 0

For water-supply works, for the Monaghan Urban District Council.

J. Hemmingway £8,889 16 10

W. Baird 7,840 16 2

McNally & McKee 7,750 19 1

A. Whelan & D. Neary 7,671 13 7

Heggarty & Gault 7,617 3 4

G. L. Johnston 7,591 4 4

Grisenthwaite & Newton 7,405 16 3

W. McMahon 6,745 3 7

P. NOLAN, Hill Street, Monaghan (*accepted*) 6,646 19 6

P. Ritchie 6,639 7 8

For erection of a Protestant chapel on the asylum grounds. Sir THOMAS N. DEANE & SON, architects. Quantities by Mr. D. W. MORRIS, Harcourt Street, Dublin.

Denis McLynn £1,100 10 0

Chas. Connolly 1,012 15 5

John Clarence 798 0 0

ISLE OF WIGHT.

For works in connection with the Shalfleet water-supply. Mr. S. E. TOMKINS, engineer, Newport.

Contract A

G. Hayles £1,956 0 0

J. & M. Patrick 1,800 0 0

Cochrane & Co. 1,675 18 1

D. Young 1,640 0 0

Rowland, Carr & Co. 1,575 1 11

T. Spittle, Ltd. 1,532 12 0

J. Gibbs & Co. 1,525 0 0

W. Jones & Sons 1,507 7 6

Biggs, Wall & Co. 1,463 13 0

J. Abbot & Co. 1,453 12 7

N. MacLaren & Co. 1,436 8 7

Cochrane, Grove & Co. 1,395 9 1

R. Laidlaw & Son 1,388 7 3

J. & R. Ritchie 1,363 0 0

J. C. MACEWAN & Co., Glasgow (*accepted*) 1,357 10 0

A. G. Cloake 1,289 6 0

ISLE OF WIGHT—continued.

Contract B.

E. W. Payne & Co. £2,899 7 1

D. Young 2,394 6 0

J. & M. Patrick 2,129 0 0

G. Hayles 1,938 0 0

R. Buckett & Son 1,725 7 7

W. Jones & Son 1,678 4 0

H. LININGTON, Wroxall, Isle of Wight (*accepted*) 1,587 13 0

KENT.

For sewerage and street works, Bromley.

Jafray Road.

J. Mowlem & Co. £802 2 1

Lawrence & Thacker 761 12 0

Fry Bros. 713 0 1

E. Peill & Sons, Bromley, Kent * 663 6 0

Bourne Road.

Lawrence & Thacker 334 7 10

J. Mowlem & Co. 333 2 10

Fry Bros. 302 13 0

E. Peill & Sons * 275 12 1

Vale Cottages.

Fry Bros. 822 15 8

E. Peill & Sons 427 7 0

J. Mowlem & Co. 348 17 0

Lawrence & Thacker * 326 5 8

* Recommended for acceptance.

LEEDS.

For ironwork in connection with the extension of the Burmantofts car-shed.

W. HORSFALL & Co., Camp Road (*accepted*) £280 3 4

For extension of the Burmantofts car-shed.

W. H. DEWS & Co., Skinner Lane (*accepted*) £2,299 5 0

For cleaning-down, painting, &c., the interiors of the Upper Wortley, Kirkstall and Headingley branch libraries.

C. HIRST, 41A Cemetery Road, Beeston Hill

(*accepted*) £20 8 0

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CLEETHORPES.

LUTON.		
For street works in Moor Street, Crawley Road, Peache Street, Tennyson Road and Harcourt Street. Mr. A. J. L. EVANS, borough surveyor.		
<i>Peache Street.</i>		
G. Powdrill	£634	10 0
Free & Sons	623	4 8
PATENT VICTORIA STONE CO., London (accepted)	618	11 8
A. Henman (informal)	604	0 0
<i>Tennyson Road.</i>		
Free & Sons	214	0 0
G. POWDRILL (accepted)	188	0 0
<i>Harcourt Street.</i>		
G. Powdrill	610	6 0
Free & Sons	586	18 6
PATENT VICTORIA STONE CO. (accepted)	578	17 6
<i>Crawley Road.</i>		
Free & Sons	171	14 0
Patent Victoria Stone Co.	166	0 0
G. Powdrill	162	0 0
G. W. PRYER, Luton (accepted)	138	0 0
A. Henman (informal)	111	3 4
<i>Moor Street.</i>		
Free & Sons	471	0 0
Patent Victoria Stone Co.	464	0 0
G. Powdrill	419	0 0
G. W. PRYER (accepted)	385	0 0
A. Henman (informal)	355	5 8

MANCHESTER.		
For supply and laying electricity mains.		
W. T. GLOVER & Co. (accepted)	About	£130,000

NORTH SUNDERLAND.		
For erection of house, shop, bakehouse, &c, at Sea Houses, Northumberland. Mr. GEORGE REAVELL, jun, architect, Alnwick.		
J. DAVIDSON, North Sunderland *	£8,092	0 0
* Accepted exclusive of oven, which will be built by C. Melven & Sons, St. Rollox Ironworks, Glasgow.		

PONTEFRACT.		
For erection of two houses in Linden Terrace, Pontefract. Mr. CHAS. KEYWORTH, architect, Bank Chambers, Pontefract.		
<i>All trades except joiner.</i>		
W. H. Illingworth	£495	0 0
<i>Bricklayer.</i>		
G. Spurr	346	0 0
W. H. Illingworth	335	0 0
H. Taylor	330	0 0
H. GUNDILL (accepted)	278	10 0
A. Askam	273	0 0
<i>Slater.</i>		
G. Spurr	38	17 0
G. STEWART & SON (accepted)	29	0 0
<i>Plumber.</i>		
C. England	98	17 4
W. Pearson	93	0 0
T. LENG (accepted)	91	3 6
<i>Plasterer.</i>		
J. Shaw	39	10 0
T. W. SENIOR (accepted)	35	10 0
<i>Painter.</i>		
W. Thrace	18	0 0
T. BARTON & SON (accepted)	16	0 0

PORTSMOUTH.		
For alterations and additions to the Church Street Board school, Landport, for the Portsmouth School Board. Mr. A. H. BONE, architect, Cambridge Junction.		
H. Clark & Sons	£3,700	0 0
M. Coltherup	3,515	0 0
W. W. Learmouth	3,509	12 0
H. H. Hall	3,449	0 0
S. Salter	3,288	0 0
W. T. Dugan	3,201	19 0
H. Jones	3,176	0 0
J. W. Perkins	3,149	0 0
C. M. Dash	3,089	0 0
J. COCKERELL, Southsea (accepted)	2,977	0 0

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A. Willis & Sons	£7,575	6	0
Jesty & Baker	7,561	0	0
Pedrette & Co.	6,323	0	0
J. A. Bartlett	5,700	8	1
B. Cooke & Co.	4,187	0	0

Note.—The Council have decided to do the work with their own staff.

SCOTLAND.

For additions to and alterations on the schoolmaster's house and school at Ballintuim.

Accepted tenders.

J. Reid, Ballintuim, Blairgowrie, joiner	£107	0	0
J. Gordon, Kirkmichael, Perth, mason	75	10	0
J. Bell, Blairgowrie, plasterer	24	0	0
R. Craigie, Blairgowrie, slater	19	0	0
R. Kidd, Blairgowrie, plumber	12	0	0

SHEFFIELD.

For erection of public baths and library at Duke Street, Park. Mr. C. F. WIKE, city surveyor.

Accepted tenders.

C. Portass, Sheffield, joiner and carpenter	£1,357	15	5
T. W. Ward, Sheffield, ironfounder	811	10	0
C. Chadwick, Sheffield, slater	700	0	0
H. Braithwaite & Co., plumber and glazier	450	15	5
C. Chadwick, plasterer	215	0	0

SHEERNESS.

For erection of toll-houses at Sheerness Pier. Mr. T. F. BERRY, surveyor.

J. Brown	£396	0	0
J. Lodder	379	0	0
C. F. Hughes	378	0	0
J. R. BLIGH, Sheerness (accepted)	347	0	0

STONE.

For additions to the workhouse infirmary and enlargement of the board-room. Mr. J. J. CHAPMAN, architect, Stone, Staffs.

H. J. Merrick	£891	1	9
H. P. Embrey	887	0	0
J. Wilcox	814	0	0
W. WHITFIELD, Stone (accepted)	790	0	0

STOCKPORT.

For sewerage Selby Street, near the Ash inn. Mr. JOHN ATKINSON, borough surveyor.
HAYES BROS., Old Road (accepted) £84 1 6

SWANSEA.

For erection of new harbour offices at Swansea, for the Swansea Harbour trustees.
LLOYD BROS., Swansea (accepted) £14,567 0 0

SWINDON.

For erection of buildings and chimney shaft, for the Corporation electricity works in Corporation Street.

T. & J. Binns	£9,500	0	0
H. & C. Spackman	5,902	19	0
F. G. Minter	5,860	0	0
C. Williams	5,692	14	3
C. Wilkins	5,621	8	5
A. J. COLBORNE, Swindon (accepted)	5,174	1	0

TIPTON.

For forming, making, metalling, kerbing, channelling and sewerage of Brown Street, Tipton. Mr. W. H. JUKES, surveyor.

J. Mackay	£135	0	0
E. Boore	112	5	4
J. Bateman	100	15	0
T. Allsopp*	90	0	0

* Recommended for acceptance.

WALES.

For widening and reconstructing the portion of Cathedral Road within the parish of Llandaff. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.

F. Small	£625	15	2
Barry Building Co.	606	6	9
E. Osmond	595	13	7
C. Davies	578	15	6
E. Rees	578	6	9
J. Rees	569	18	9
F. ASHLEY, 28 Conway Road, Cardiff (accepted)	529	9	6

For repairing, painting and colouring, both internally and externally, Llanfoist Brewery, the brewery-house, &c. Mr. B. J. FRANCIS, architect, Abergavenny.
GWATKIN BROS., Abergavenny (accepted).Telegrams,
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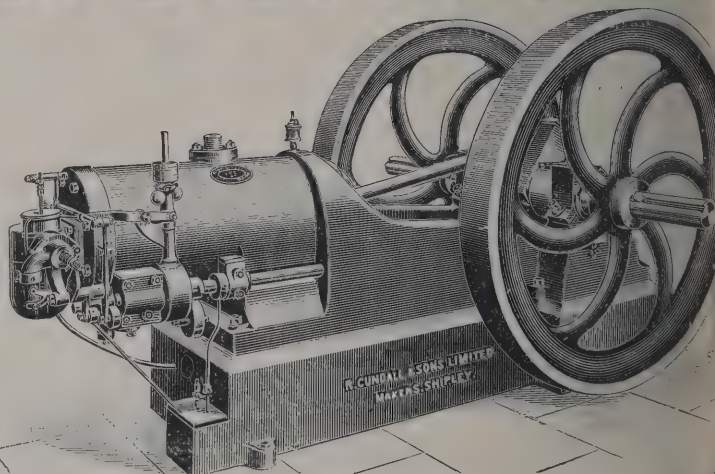
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WALES—continued.

For repairs to and painting of Christ Church, Cantreff, Aber-
gavenny. Mr. B. J. FRANCIS, architect, Lion Street,
Abergavenny.

GWATKIN BROS, Abergavenny (accepted).

WEST HAM.

For erection of forty double-tenement houses for the working-
classes in Eve Road, Plaistow. Mr. J. G. MORLEY, borough
engineer.

F. & E. Davey	£23,885	0	0
General Builders, Ltd.	21,797	0	0
F. G. Minter	21,591	0	0
Martin, Wells & Co.	20,850	0	0
Thomas & Edge	20,314	0	0
J. W. Jerram	18,678	0	0
Herbert Bros.	18,129	0	0
A. T. Haines & Co.	17,635	19	2
Gregar & Son	17,580	0	0
G. Wise, works manager, West Ham	16,899	0	0
Barker & Co., Ltd.	16,320	0	0
H. J. CARTER, Grays (accepted)	15,740	0	0

WHEATLEY.

For construction of sewers, settling tanks, &c. Mr. G.
WINSHIP, engineer, 21 St. Michael Street, Oxford.

A. & A. Streeter	£3,540	0	0
W. Lee & Son	2,777	10	0
H. Roberts	2,495	0	0
McC. E. Fitt	2,476	0	0
Johnson Bros.	2,450	0	0
G. R. MANN, Edgware (accepted)	2,141	8	0
R. W. Swaker	2,050	0	0

WITHAM.

For erection of an infants' school to accommodate 100 at
Chipping Hill, Witham, Essex, for the Witham School
Board. Mr. W. P. PERKINS, surveyor.

M. Richards & Sons	£1,345	5	0
Cracknell & Baker	1,230	12	0
E. West	1,087	0	0
F. Johnson	1,059	0	0
H. Potter	1,050	0	0
J. McKay	1,050	0	0
J. SMITH & SON, Witham (accepted)	1,015	0	0

WOOLWICH.

For erection of a mortuary. Mr. FRANK SUMNER, borough
surveyor.

Foster Bros.	£455	0	0
Whistler & Worge	452	0	0
E. Proctor	375	0	0
R. A. Lowe	359	0	0
Thomas & Edge	355	0	0
C. Kitley	350	0	0
Soper & Son	349	0	0
WHITE & SON, Camden Terrace, Chislehurst (accepted)	325	0	0

YORKS.

For adding a laundry and boiler-house to Storches Hall
Lunatic Asylum, for the County Council of the West
Riding.NICHOLSON & SONS, Leeds (accepted as
revised) £44,531 0 0

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For refitting boys, girls and infants' water-closets with sepa-
rate pans and traps, &c., and connecting them to existing
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Martin, Wells & Co.	£899	15	0
J. & C. Bowyer	888	0	0
Lathey Bros.	846	0	0
Maxwell Bros., Ltd.	828	0	0
R. P. Beattie*	670	10	0

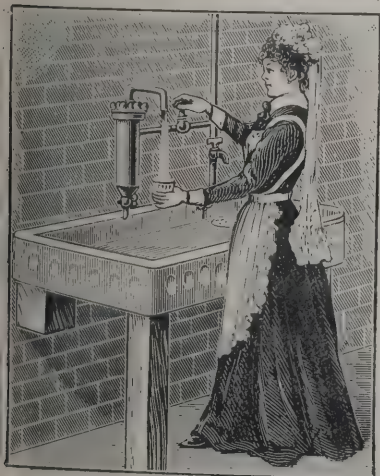
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LONDON SCHOOL BOARD—continued.

For special school for sixty children and manual training centre for forty, Upper Hornsey Road.

W. King & Son	£5,920	0	0
Willmott & Sons	5,696	0	0
C. Dearing & Son	5,567	0	0
G. S. S. Williams & Son	5,536	0	0
W. Gregar & Son	5,429	0	0
McCormick & Sons	5,410	0	0
W. M. Dabbs	5,271	0	0
H. Wall & Co.	5,219	0	0
Treasure & Son	5,214	0	0
C. Cox	5,190	0	0
L. H. & R. Roberts	5,143	0	0
J. Outhwaite & Son	4,989	0	0
E. Lawrance & Sons*	4,988	0	0

For enlargement, Addison Gardens.

H. Wall & Co.	£7,180	0	0
General Builders, Ltd.	7,156	0	0
E. P. Bulled & Co.	7,130	0	0
Leslie & Co., Ltd.	7,024	9	0
J. & M. Patrick	6,855	0	0
Treasure & Son	6,457	0	0
J. Simpson & Son	6,450	0	0
Stimpson & Co.	6,445	0	0
Spencer, Santo & Co., Ltd.	6,422	8	11
E. Triggs	6,419	0	0
W. Johnson & Co., Ltd.*	6,262	0	0

For improvements, Park Walk.

J. Allen & Sons, Ltd.	£12,906	0	0
T. L. Green	12,794	0	0
Lathey Bros.	12,629	0	0
E. Lawrance & Sons	12,449	0	0
J. & C. Bowyer	11,833	0	0
Leslie & Co., Ltd.	11,765	0	0
W. Johnson & Co., Ltd.	11,690	0	0
J. Simpson & Son	11,594	0	0
C. Cox	11,568	0	0
Treasure & Son	11,544	0	0
Kirk & Randall	11,448	0	0
Stimpson & Co.	11,380	0	0
J. & M. Patrick*	11,329	0	0
C. Wall	11,165	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For removing two iron buildings and appurtenances from the Brandlehow Road site, and one iron building (infants'), &c., from the Holbeach Road site, and re-erecting them on the Telferscot Road site.

T. Cruwys	£1,660	0	0
T. J. Hawkins & Co.	1,399	0	0
Humphreys, Ltd.	1,261	0	0
W. Harbrow	1,240	0	0
J. & W. T. Hunter	1,225	0	0
C. Leather & Sons	1,162	0	0
F. Smith & Co.*	1,160	0	0

* Recommended for acceptance.

For providing and fixing steam boiler, low-pressure steam cooking apparatus and hot-water services, &c., Ponton Road day industrial school.

Wippell Bros. & Row	£1,305	0	0
Brightside Foundry and Engineering Co., Ltd.	1,034	0	0
W. G. Cannon & Sons	1,016	0	0
J. & F. May	920	0	0
J. Wontner-Smith, Gray & Co.	898	0	0
M. DUFFIELD & SONS (accepted)	870	0	0

For re-erecting two iron buildings removed from Montem Street site on Greenwich Road site.

T. Cruwys	£1,285	0	0
J. Mitson & Co.	1,100	0	0
T. J. Hawkins & Co.	1,005	0	0
J. & W. T. Hunter	975	0	0
W. Harbrow (accepted)	774	0	0

For heating, Fulham Palace Road.

J. & F. May	£865	0	0
Purcell & Nobbs	723	0	0
Wenham & Waters, Ltd.	709	0	0
J. Williams & Sons, Ltd.	686	0	0
G. & E. Bradley	585	0	0
J. Esson	570	0	0
M. DUFFIELD & SONS (accepted)	550	0	0

THE new sewage works at Halifax were officially opened on the 29th ult. by the mayor (Alderman W. Brear). The scheme, which is capable of dealing with over 4,000,000 gallons of sewage per day, has so far cost close upon 50,000l. It is estimated that when complete the cost will reach 80,000l.

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St. Dunstan's Church has just been seriously burned, and it may be the turn of St. Paul's or Westminster Abbey next. Serious injury by fire is now unpardonable. The May-Oatway Fire Alarm insures discovery in time to prevent loss or fatal consequences. It detects the fire, calls the nearest Fire Brigade, and all helpers, and points out the seat, extent, and course of the fire automatically, whether the building is occupied or not. Architects and builders invited to inspect.

SIR EYRE M. SHAW (late London Fire Brigade), Chairman.

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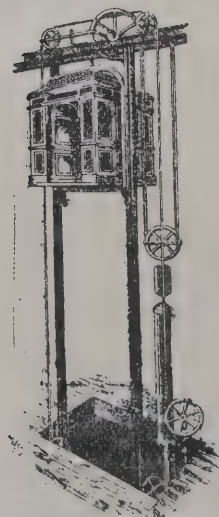
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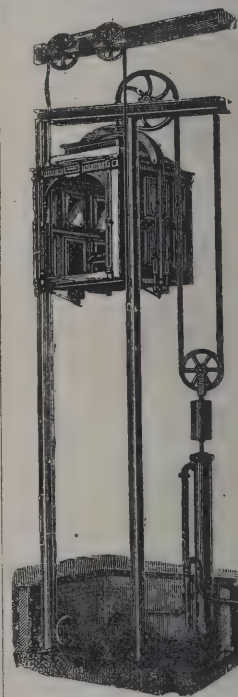
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BUILDING AND BUILDERS.

THE Archbishop of Dublin has laid the foundation-stone of St. Catherine's National Schools, which are to be erected at Donore Avenue, South Circular Road, Dublin.

FOUNDATION-STONES of cottage homes and schools for the children of the Medway Union have been laid at Chatham. The buildings will cost between 25,000*l.* and 30,000*l.*

THE foundation-stones of a new Primitive Methodist Sunday school in the Linthorpe district, Middlesbrough, were laid on the 23rd ult.

At a special meeting of the Oswestry Town Council on the 28th ult. the resignation of Mr. J. Perry Jones, the town clerk, was accepted, and Mr. S. Pryce Parry, solicitor, of Oswestry, was elected to fill the vacancy. On November 9 the Town Council will elect their late town clerk to the mayoral chair. It is understood that the mayoralty of Welshpool is to be offered to the Earl of Powis.

THOMAS WRIGHT, 342 Bristol Road, Birmingham, was summoned on the 25th ult. for not complying with the by-laws. Mr. Nadin stated that the offence was that defendant failed within a reasonable time after the completion of a building in Moor Street to send a written notice to the surveyor of the completion of the erection of such building. Fined 20*s.* and costs, and a similar amount for occupying the premises.

THE Bradford City Council confirmed, on the 29th ult., a resolution passed by the health committee accepting the offer of Mr. Douglas, on behalf of Jowett's trustees, to sell to the Corporation 25,142 square yards of land at Faxfleet Street, Manchester Road, at 3*s.* 6*d.* per yard, for the erection of dwellings to accommodate persons intended to be displaced from the Longlands district. A plan prepared by the city architect making provision for the erection of 114 houses was also adopted.

THE foundation-stone of the new nave of Awsworth parish church was laid on the 19th ult. The ceremony marked the commencement of another stage in the active work of church extension and rebuilding carried out during the ten years' incumbency of the present vicar, the Rev. Vincent J. Higgins. The proposed church is to be of red sandstone brick, with dressings of Coxbench stone. The seating accommodation will be for 600 persons—about double the accommodation of the former structure—and though the new edifice will not be

of much architectural pretension, it will possess an appearance of neatness and dignity in keeping with the sanctity of its purpose. The eastern portion of the old nave is being retained, and will be adapted as the chancel of the new church. The architects are Messrs. Naylor & Sale, of Derby, and the general contractors Messrs. Walker & Slater, of Derby. The cost of rebuilding is estimated at 1,800*l.*

THE foundation-stone of the new masonic temple to be erected in Bathgate was laid on Saturday. The present hall is being built on the site of the hall used by the Hopetoun Lodge, now dormant, that property having been acquired for the purpose. The new building is being constructed from plans by Mr. Peter L. Henderson, architect, Edinburgh, and is two storeys in height, having club premises and a caretaker's house on the ground floor and the hall or lodge-room on the upper floor, which is approached by a wide and open staircase, lighted by a large window in the back wall, and consists of a hall 37 feet long by 21 feet broad, and suitable retiring-rooms and lavatories. The hall is lighted by a row of five windows to Jarvie Street, the centre one being an oriel window projecting over the entrance doorway, and supported by the key-stone of same. Externally these windows are separated by carved Ionic columns, after the German Renaissance style of architecture. The entrance doorway is very massive, with deeply moulded jambs and archivolt, the latter broken by moulded rusticated voussoirs and keystone.

ELECTRIC NOTES.

At a meeting of the Bootle electric-lighting committee Mr. T. D. Clothier, of Hull, was appointed borough electrical engineer at a starting salary of 350*l.*, in succession to Mr. W. R. Wright, who has received a high appointment at Wellington, New Zealand.

ELECTRICAL appliances in use in the United States to-day are estimated to be worth 3,975,000,000 dols. The capital of the Magnetic Telegraph Company, the first to introduce the use of electricity for industrial purposes (in 1846), was 15,000 dols. Electrical industries have bounded forward at the rate of 53 per cent advance annually for fifty-four years, until to-day 600,000 persons in the country earn a living in the various lines of electrical business.

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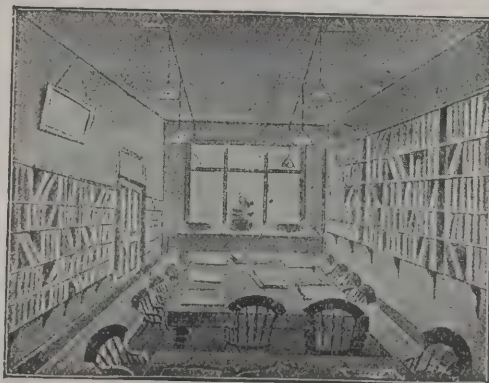
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THE health committee of the Birmingham City Council have, in conjunction with the Drainage Board, a project on hand for the construction of a new refuse destructor on part of the sewage farm near Saltley, which shall also become a station for the generation of electricity to be used for the lighting of the various buildings and offices connected with the Drainage Board at Tyburn. Under the Parliamentary Bill which is to be promoted next session, the health committee are inserting a clause to enable them to acquire from the Drainage Board the necessary site.

VARIETIES.

A NEW church at Blackridge, in Linlithgowshire, was opened on Friday last.

A NEW Wesleyan chapel, which has just been completed in Darlington Street, Wolverhampton, has been opened.

A BEAUTIFUL east window, which has been placed in Cumnor Church, near Oxford, in memory of Sir William Wilson Hunter, K.C.S.I., was unveiled on Saturday morning in the presence of a large congregation.

ON Saturday last the Bishop of Ripon reopened the ancient and beautiful church at Methley, which has been thoroughly renovated at a cost of 3,000. A new heating apparatus has been fixed, and the incandescent gaslight introduced.

THE President of the Board of Education has appointed Professor Hugh L. Callendar, F.R.S., to the Professorship of Physics in the Royal College of Science, vacant by the resignation of Professor Rücker, who has become Principal of the University of London.

THE new Volunteer drill hall, Bilston (Staffs), was opened on Friday afternoon by the Earl of Dartmouth in the presence of a large assemblage. The site for the building was given by Sir A. Hickman, M.P. The plans were prepared by Mr. H. T. Hare, London, and the work has been carried out by Mr. T. Tildesley, Willenhall.

A NEW steeple has just been added to the parish church, Fooks Cray, Kent. It has been dedicated by the Dean of Norwich "To the glory of God and in commemoration of Her late Most Gracious Majesty Queen Victoria." As long ago as 1700 the steeple of the church was condemned as unsafe, but it was still standing when the present rector, the Rev. C. Birch,

entered upon his charge in 1861. It was then stayed and strengthened, and so made to serve for another forty years. But within the past few months the condition of the structure had become so dangerous that it was found absolutely necessary to demolish it and erect a new one. The old Kentish timber and shingle style of steeple which has been associated with the church for hundreds of years has been reproduced. Advantage was also taken of the occasion to have the peal of five bells retuned by Messrs. Gillett & Johnson, of Croydon, and rehung in the steeple. The work has cost altogether 6000.

LYNG parish church, Norfolk, has been reopened for public worship, after restoration. The south wall has been taken down and rebuilt. While this work was in progress, the stones forming a former chancel arch were discovered embedded in the wall. These, with a few new stones, have been utilised in building the new arch. New buttresses have been erected with Weldon stone quoins and flint facings, the gable end rebuilt and surmounted by a cross. The new roof is of open-timbered pitch-pine, with hammer-beams, covered with felt and permanent green slates, with Broseley ridge tiles. The south windows have been reglazed with cathedral glass, the chancel floor relaid with Minton tiles, and the reading desk moved to a more convenient place in the chancel. The small galleries at the west end have also been removed. The architect was Mr. A. J. Lacey, of Norwich, and the contractors Messrs. Springall & Sons, of Swanton Morley. The total cost has been upwards of 7000.

THE members of the Midland District of the Incorporated Association of Municipal and County Engineers held a meeting at Nuneaton on the 12th ult., about 150 members being present. They were officially received by Mr. T. Horton, C.C. (vice-chairman of the Nuneaton and Chilvers Coton Urban District Council, with whom were most of the members of that body, and the usual meeting was held, with Mr. E. George Mawbey, M.I.C.E. (president), in the chair. A paper on "Municipal Work in Nuneaton" was read by Mr. J. S. Pickering (hon. district secretary, and surveyor and engineer to the Nuneaton Council), a discussion following, amongst those who took part therein being the chairman, Dr. Bostock Hill (Birmingham), Messrs R. C. W. Berrington (president of the Birmingham Association of Students of Civil Engineering), Price (Birmingham), Dawson (Banbury), Lockley (Hanley), Eyres (Birmingham), Smith (Kettering), Watson (Birmingham), Lacey (Oswestry), Griffiths, Lowcock, &c. Afterwards the party visited the brick and tile-works of Messrs

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tanley Brothers at Stockingford, where they were entertained to luncheon. They also visited the Council's sewage and electricity works.

THE opening meeting of the Auctioneers' Institute (session 1901-2) took place on Wednesday evening in the Examination Hall, Savoy Street, Strand. There was a large assemblage of members under the presidency of Mr. W. Bennett Rogers, who in his inaugural address congratulated the members on the progress of the Institute. The benevolent fund now, he said, amounted to 1,250/. Their examinations were proceeding, he was glad to say, upon solid lines, and were showing hopeful results. The number of entries had increased to the extent of over 100 per cent., and the percentage of passes was now 84 per cent. These facts were eminently satisfactory. All the prizes offered by the Institute had been won this year, and the gold medal had been awarded for the first time.

TRADE NOTES.

THE new Co-operative Stores, &c., at Dartford, have lately been fitted with improved hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool.

THE directors of the London and Lancashire Fire Insurance Company have declared an interim dividend of 4s. per share (being at the same rate as the last interim dividend), payable on November 8, 1901.

THE Isolation Hospital, Skipton, is being warmed and ventilated by Messrs. E. H. Shorland & Brother, of Manchester, by means of Shorland's patent Manchester stoves, some double-fronted and some single-fronted, with descending smoke flues.

MESSRS. BOYES & CO., LTD., of Scarborough, have had a large illuminated turret clock, showing the time upon four external dials, with all the latest improvements, Lord Grimthorpe's double three-legged gravity escapement and compensation pendulum, &c., fixed at their new warehouse. The work was executed by Messrs. Wm. Potts & Sons, clock manufacturers, Guildford Street, Leeds, and Newcastle-on-Tyne.

THE ancient quarries of Verde Antico in Thessaly (discovered by Mr. Brindley), from which the whole of this choice green marble was obtained for the beautifying of Rome and Constantinople, are now in full work, and the marble, being drawn directly from the solid rock, is free from shakes. Messrs.

Farmer & Brindley have just received the largest consignment of blocks quarried since the building of Sta Sofia, Constantinople. Twenty of these of choice quality may be seen at their depôt, Westminster Bridge Road, most of them being nearly 14 feet in length. One block alone is large enough, if cut into wall slab, to cover 1,250 feet of surface, the whole of it uniform in colour.

NEW CATALOGUES.

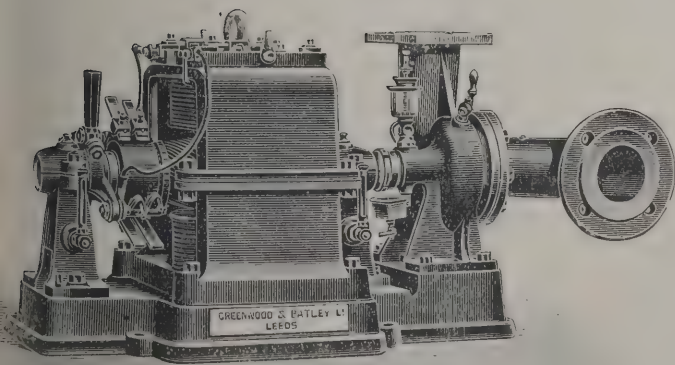
THE British Power, Traction and Lighting Co., Ltd., of York have sent us their new illustrated price list of water and air heaters, which they manufacture in considerable variety, adapted to numerous purposes. Conspicuous among these for its utility is their Paul's patent P.T.L. exhaust steam feed water heaters, of which they manufacture several types designed to utilise the exhaust steam from non-condensing engines (usually blown into the atmosphere and lost) for heating the feed water of steam boilers, and their adoption for this purpose has, it is claimed, in most cases resulted in very appreciable reductions in coal consumption, varying from 15 per cent. to 25 per cent., which is equivalent to an annual saving which would probably more than cover the original outlay. Among other types illustrated is Paul's patent waste steam economiser, a useful apparatus for producing large volumes of hot water by the utilisation of exhaust steam, and thereby avoiding recourse to the employment of live steam.

ANOTHER price list has reached us from Messrs. Smithson, Sharpe & Co., electrical and mechanical engineers, Chase Street, Red Bank, Manchester, the principal novelty in which is perhaps their inverted differential arc lamp, which is identical with the vertical lamps both in price and also in construction, with the following exceptions:—(1) The carbons are inverted, *i.e.* the large (positive) carbon is placed at the bottom and the small (negative) carbon is placed at the top; (2) a metal reflector is substituted for the ordinary globe. This lamp, which is made for both direct and alternating currents, will be found of great utility where a good diffused light is required, and one which gives no shadows, and is especially suitable in places such as weaving sheds, where fine threads have to be joined up, and in large offices and warerooms with nice white ceilings. By means of the inverted lamp the rays of light are thrown up by the large reflector on to the ceiling, and are thence diffused and thrown down equally all round.

GREENWOOD & BATLEY, LIM.,

ALBION WORKS, LEEDS.

ELECTRICAL AND GENERAL ENGINEERS.



No. 6177, DE LAVAL PATENT ELECTRIC MOTOR PUMP.

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DYNAMOS.

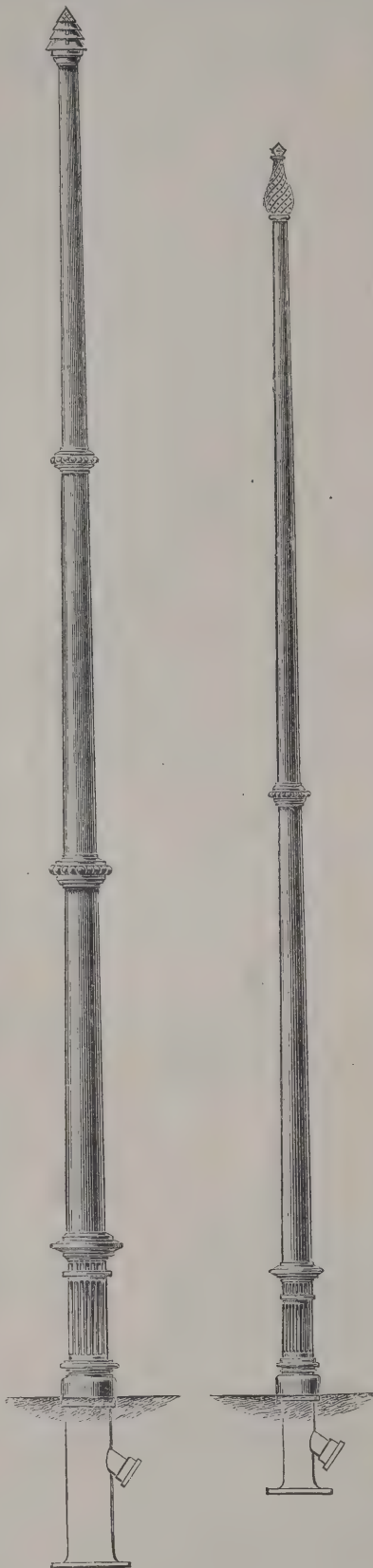
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TURBINE MOTORS,
TURBINE DYNAMOS,
PUMPS and FANS.

SEND FOR CATALOGUES.

TUBULAR VENTILATING STANDARDS.

ONE of the reasons for the indifference to sanitary appliances is the unsatisfactory appearance of so many of them, although they may be efficient as aids against danger. The ventilating shafts especially are disagreeable to look on. Sanitarians will therefore at a glance perceive the advantages of the new Tubular Ventilating Standards, which are manufactured by Mr. Joseph Aird, of the Wellington Tube Works, Great Bridge, Staffordshire. They are not only graceful in appearance, but as they are constructed of tough materials they can resist wind power and atmospheric influences. The upper portion consists of Mr. Aird's specialty, viz wrought-iron or mild steel tubing. As the standard can be built up of sections, it will be evident there is more economy than is found when one section is continuous. By the arrangement the standard can be built up to whatever height is desired, and the junctions of the tubes are covered with ornamental rings which enhance the effect. The base is of cast-iron and is of graceful form, and beneath the casting has a connecting branch for junction with the sewer.

We understand that large quantities of the Tubular Ventilating Standards have been supplied to local boards, urban district councils and other authorities. The standards are no less well adapted for use as telephone or telegraph posts without any diminution of their efficiency as ventilators. Mr. Aird's latest adaptation of his well-known tubes has met a sanitary requirement which engineers and others have long desired.



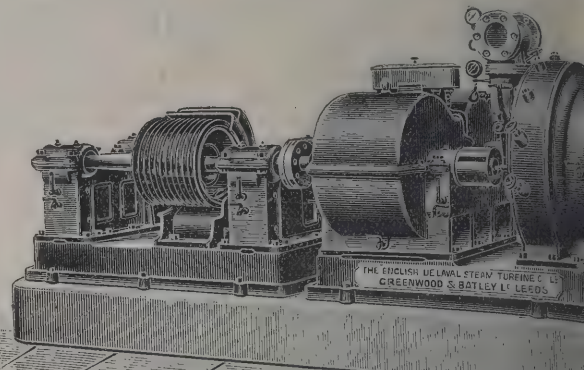
STEAM TURBINES.

By F. J. WARDEN-STEVENS, A.M.I.M.E., A.M.I.E.E.

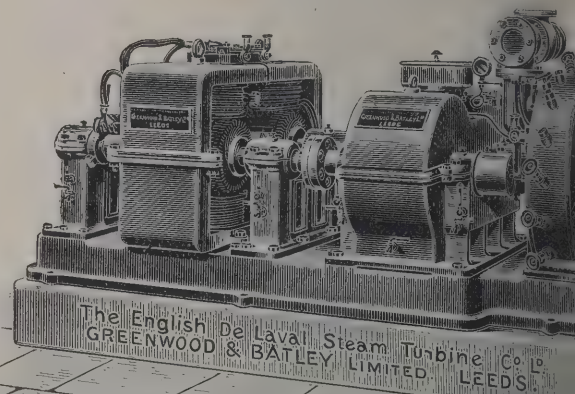
THE steam turbine is the outcome of many attempts to devise a practical steam-engine producing direct rotary motion. Such attempts may be said to date from the time of Hero, who it is generally admitted was the first to invent a machine to utilise the power of steam.

Inventors in this direction have endeavoured to dispense with the transformation of the ordinary reciprocating motion of the steam piston to a rotary motion, which is mostly acquired by means of the crank shaft. The chief difficulty with attempts to devise practical rotary steam-engines has been to make the moving parts steam-tight. The forms which these

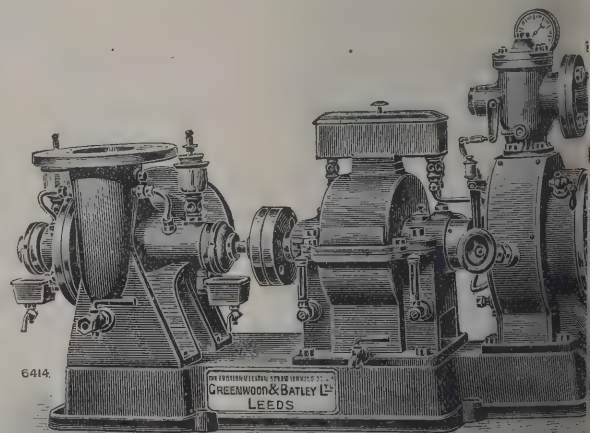
inventions have taken are numerous, but the only present-day forms which are really practical machines are steam turbines which act either by the expansive effect of the steam, or by the velocity and weight of the steam, in a manner similar to the two classes of water turbines, the reaction and impulse types respectively. It is to the latter type of steam turbine I propose to refer herein, the former having received full attention by several writers.



No. 6412. DE LAVAL PATENT STEAM TURBINE M.
Type M.M.T. 225 B.H.P.



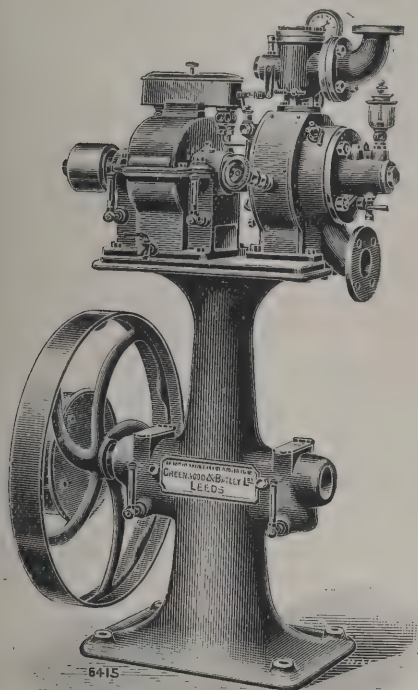
No. 6395. 100 B.H.P. TURBINE DYNAMO. TYPE I



No. 6414. DE LAVAL PATENT STEAM TURBINE PUM.
5 B.H.P. TYPE B.P.

The De Laval steam turbine originates from Sweden and is due to the careful investigations of an engineer whose name it bears. This turbine practically consists of a wheel carrying vanes or buckets on its periphery, somewhat similar to a Pelton water-wheel. This wheel revolves in a steam case through which pass nozzles in a radial form. Steam of high pressure is admitted through these nozzles and expands; then, all its energy being converted into kinetic energy of energy of motion; it then acts against the buckets of the v

The steam is allowed to reach its limit of expansion before it reaches the buckets by means of the internal form of the nozzles; thus the steam when it comes into contact with the



6415. DE LAVAL PATENT STEAM TURBINE MOTOR ON STAND.
5 B.H.P. TYPE B.T.S.

buckets has a considerable increased velocity over and above that when it leaves the boiler. It can thus be seen that the De Laval steam turbine is a high-speed engine, as it is necessary to insure efficiency that the velocity of the steam be great, therefore the periphery of the wheel must revolve at a high

velocity. The constructive design of this turbine has been most carefully worked out to insure sufficiency of strength, in view of the high speed, without unnecessary weight of material.

One of the chief points in the construction of this turbine is the flexible shaft, the bearings of which are placed at a distance from the revolving wheel to allow of slight displacement of the same, enabling it to obtain its proper line of rotation, and thus obviate the hammer action of the shaft upon the bearings. As the speed increases the vibrations of the shaft increase, and it is found that the shaft vibrates and the line of rotation approaches the centre of gravity after a certain normal speed, when the vibrations cease. The reduction of speed is effected by special machine-cut helical gear, and the control of speed by a very sensitive form of centrifugal governor, acting through a lever motion to a balanced valve.

A further special feature of this turbine is the arrangement for altering the power; this can be effected without adjustment of the stop-valve, as with an ordinary steam-engine, by means of stoppers (or valves) on the several nozzles, which may be closed or opened as desired.

The steam turbine is essentially a machine producing power without vibration, and therefore requiring practically no foundation. It occupies small space and is comparatively noiseless; it is also efficient and inexpensive. For small power purposes the steam turbine has many advantages, and it may be obtained as small as 3 horse-power or as large as 300 horse-power.

Amongst the many uses for which it is adapted are direct coupling to centrifugal pumps, fans or blowers and dynamos.

As giving some particulars regarding the efficiency of these steam turbines direct coupled to dynamos, the following test made on two sets of plant may be of interest. These machines were manufactured for the Poplar Guardians to the requirements of the writer, acting as consulting engineer.

Speed of turbine 22,000 revolutions per minute.

Speed of dynamo 2,200 revolutions per minute.

Output, 20 kilowatts.

The steam consumptions were as follows:—

Load.	Condensing.		Non-Condensing.
Full	•	Vacuum 25 Inches. 38 lbs. per unit	61 lbs. per unit.
$\frac{3}{4}$ load	•	37.6 lbs. per unit	59.5 lbs. per unit.
$\frac{1}{2}$ load	•	40.5 lbs. per unit	84 lbs. per unit.

Taking the efficiency of the dynamos at 90 per cent., these

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results are equivalent to about 25 lbs. of steam per brake horse-power working condensing at any load down to half load. This is certainly as good a result as any obtained in practice with ordinary engines, the remarkable feature being the sustained economy at low loads.

Very good reports of the reliability and durability of these turbines are available, practically the only wearing parts being the bearings and the gearing, but even with regard to these a case might be mentioned of a 100 horse-power steam turbine working in a mill not requiring any renewal of these parts after two years' continuous running day and night.

Several thousand horse-power of these turbines are in use, so that their adoption does not involve the risk of experiment; it is, however, only comparatively recently that they have been introduced into this country, and I think it speaks well for their future here to know that their manufacture has been undertaken at Leeds by the well known engineers, Greenwood & Batley, Limited.

Amongst those in this country who have already adopted this form of steam motor may be mentioned:—Messrs. J. Bartram & Son, London and Melbourne; Messrs. S. Williams & Sons, Ltd., Dagenham, Essex; Messrs. Humphreys & Glasgow, London; Messrs. Lister & Co., Manningham Mills, Bradford; the Colne Corporation; Messrs. A. G. Enock & Co., London; the Poplar Union, London, and the Nelson Corporation.

Its existence, if not its qualities, are known to most engineers in this country, but the writer feels that the De Laval steam turbines are capable of being of service in other directions than amongst engineers, and it is his endeavour to direct the attention of architects, builders and contractors to its special uses with which they are connected. Foundations for steam-engines are without doubt in many cases of considerable concern to them, whether in relation to pumping, ventilation, machine driving or electric lighting, and whether for temporary or permanent works, and a steam motor necessitating only slight, if any, foundation is in many cases of great advantage. Further, durable, reliable and at the same time inexpensive plant requiring small space is not always or generally obtainable. As giving an idea of the size and weight of these steam motors, it might be mentioned that one of 10 horse-power weighs 5 cwt., and occupies a space of 3 feet 1 inch by 1 foot 8 inches by 2 feet 11½ inches, and one of 50 horse-power weighs 29 cwt., being 5 feet 8 inches by 3 feet 1 inch by 4 feet 1 inch.

For pumping, advantages are gained by increase of the

speed of centrifugal pumps, and the arrangement of coupling two pumps to one turbine shaft. Thus, by connecting pumps in series a greater pressure can be obtained than by one large pump, or by connecting the pumps in parallel double the quantity may be dealt with at a lower pressure as may be desired.

As showing the steam consumption of various sizes of these turbines, it may be mentioned that one of 20 horse-power working at a steam pressure of 90 lbs. per square inch requires 45.5 lbs. of steam per brake horse-power working non-condensing. This is decreased to 25.4 lbs. working condensing; by increasing the pressure of steam to 120 lbs. per square inch the steam consumption is reduced to 41.8 lbs. from 45.5 lbs. working non-condensing, and to 24.4 lbs. from 25.4 lbs. working condensing.

The speed of the turbine wheel of a 5 horse-power machine is 30,000 revolutions per minute, and of a 100 horse-power machine 13,000, the reduction gear being usually 10 to 1.

The result of test of a 50 horse-power "Duplex" steam turbine pump coupled in parallel gave a delivery 32.8 feet, the output being 3,810 gallons per minute; the efficiency of the plant was thus 75.39 per cent.

Builders and contractors should find these turbine pump of great use in connection with excavating, as they may be erected almost anywhere, and, further, the advantages of working condensing can always be easily obtained by means of, say, 20 feet of water. A small portion of the water pumped can be returned to the sump through the condenser, all the advantages of condensing being obtained without an expense or trouble.

CORDWAINERS' HALL, CANNON STREET.

THE hall of the Cordwainers' Company, one of the most ancient of the City Guilds (the Cordwainers being named from the trade in Cordovan leather, which was manufactured in Cordova in Spain), which is situated on the north side of Cannon Street, has during the last few months had extensive decorative work executed to it. The internal decorations of the large hall of the first floor, and the lower hall and court-room on the ground floor, were originally executed in the Adams style, but beyond simple friezes the walls and ceilings were left with plain surfaces. The Court have long felt that rooms of such proportions required more decoration to complete them, and

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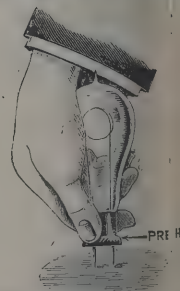
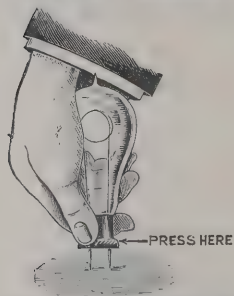
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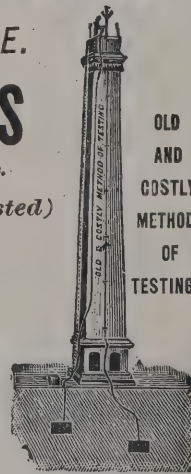
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during the recent vacation they have had the lower hall and the court-room ceilings decorated with Adams's plasterwork, and have had a selected series of oval medallions fixed to the walls, thus breaking up their bareness underneath the enriched frieze which already existed. An Adams dado has been fixed in enriched material round the two rooms, and the whole of the rooms have been decorated throughout in a rich buff colour, relieved and picked out with gold. Both the new ceilings have also been gilded in their enriched portions, and care has been taken that the rooms shall be effective, not only in daylight, but in artificial light, under which they are largely used. The ceilings have been supplied and fixed by Messrs. Jackson & Sons, of Rathbone Place, the painting and gilding works being executed by Messrs. Colls & Sons, of Coleman Street. The whole of the works were designed and have been carried out under the personal direction of Mr. Howard Chatfeild Clarke, of Bishopsgate Street Within, the Company's surveyor.

RUBEROID ROOFING.

SEEING that roofs are such an important factor in perfecting buildings, it is necessary for those who have anything to do with their construction to find a suitable material for a covering. Many roofings have of late years been brought on the market to meet the requirements of the users, but some are of very doubtful qualities, as they have to be frequently tarred to keep them from rotting, consequently such materials become more expensive in the end than slates, &c. To obviate all these difficulties a roofing called the Ruberoid roofing has been in general use for some years, and wherever employed as a covering has given entire satisfaction. It is not far to seek for the cause of the success of this material, inasmuch as it is a roofing suitable for all climates and atmospheres, being light and very durable, waterproof and odourless, acid and alkali proof, easy to lay, and needs neither painting nor coating, and, above all, vermin will not attack it.

To show its non-conductive qualities, we give the following temperature test made by the Marshall's Paddington Brewery, Oxford Street, Sydney, against their roof of galvanised iron:—

Jan. 29.—Noon. Hot day. Ruberoid 86°. Iron 112°.
Feb. 3.—11.30. Hot and bright. Ruberoid 90°. Iron 105°.
Feb. 4.—11.30. No sun. Ruberoid 75°. Iron 78°.
Feb. 5.—11.30. Hot day. Ruberoid 84°. Iron 108°.

It will be seen from this that where an even temperature is required Ruberoid should be used in place of iron.

It would take too much space to name all the buildings in the various countries covered with Ruberoid roofing, but to prove the high estimation in which Ruberoid is held by Government officials and others, we are told that the German barracks in China was covered with it, as also was the annexe building at the Government House, Sydney; and Mr. Baldwin, of the Baldwin-Ziegler Polar Expedition, knowing that it resisted the cold as well as heat, took with him to the North Pole 30,000 square feet. The material will be used for housing the forty men, the hundreds of dogs and other animals, and the ship itself. In Java the Ruberoid is used extensively for sugar factories and the awning of ships during the great heat. In America it has been used for railway stations and buildings of all kinds. Coming nearer home, Ruberoid has been employed on buildings of large estates, gunpowder works, engine sheds, &c., and the entire buildings of Messrs. George F. Milnes & Co., Ltd., new car-building works at Hadley, Salop, have been covered with this material, as also the Electrolytic Alkali Company's works at Middlewich, Cheshire. The latter are extending their works and are so satisfied with the roofing that they are covering the new buildings with it as well. We learn that the gold medal has been awarded Ruberoid against all competitors at the Pan-American Exposition at Buffalo, U.S.A.

We think sufficient has been said to show that Ruberoid is a valuable roofing material, and the sceptical only want to give it a trial to test its efficacy.

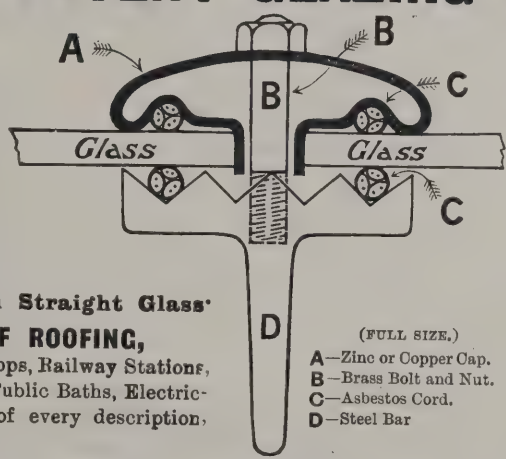
SINCE the conference of delegates of local authorities in Worcestershire the executive committee appointed have been taking into consideration sites and plans for an establishment in Worcestershire for the open-air treatment of consumption. One plan submitted to the committee would provide forty-eight beds at an estimated cost of 10,000l. A smaller alternative scheme would provide twenty beds at an estimated cost of 5,000l. The executive are appointing local committees throughout the county to invite subscriptions. An ideal site for such an institution, at Romsley, near Clent, has been offered on generous terms by Lord Cobham, who is taking keen interest in the movement.

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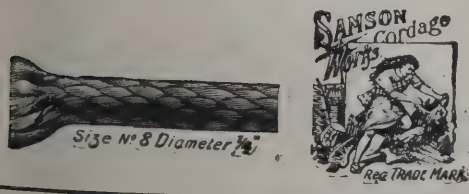
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MUNICIPAL FIRE INSURANCE.

A PETITION from the members of the fire protection committee of the wards of Cripplegate Within and Without is in preparation for presentation to the City Corporation in favour of a scheme of municipal fire insurance. They complain that they have not been fairly treated by the fire offices, which, after the great conflagration in Cripplegate in November 1897, imposed an exceedingly heavy "block" rate of insurance, it being understood by the petitioners that the largely increased rate was only of a temporary character, and that it would be removed when the tariff offices had recouped themselves to some extent for the losses they sustained through that disastrous fire. The fire protection committee have presented a memorial to the fire offices committee asking for a reduction in the high premiums at present demanded, and pointing out that the area covered by Cripplegate Within and Without cannot now be regarded as specially hazardous, as the means of fire prevention and extinction have been largely increased, while in the new buildings which have been erected in the place of those destroyed stone staircases have replaced wooden ones, skylights have been largely eliminated, and means have been taken for enabling firemen to operate from the roofs of the buildings. The answer returned to the petitioners was an unsatisfactory one, they being informed that in the opinion of the fire insurance offices the area was still a dangerous one so far as risks from fire are concerned, and also that the improvements that had been made in warehouses were individual in character. Regret was expressed that the proper authorities did not seize the advantage afforded after the great fire in Cripplegate four years ago of widening the streets of the area and effecting other improvements. The petitioners will ask the City Corporation to consider a scheme of municipal fire insurance in order that the great disadvantages under which inhabitants of the area suffer owing to the greatly increased fire premiums may be removed.

SAFETY OF THEATRES.

ON Wednesday, October 30, a meeting of the O. P. Club was held in the Victoria hall of the Criterion Restaurant in order to hear a paper by Mr. Edwin O. Sachs, entitled "The London County Council and Theatre Safety." It was admitted in the paper that as far as the primary essentials of such protection

were concerned, the world's experts were by no means agreed. There was no uniformity in legislation for theatre safety, not even in its elementary principles.

Mr. Sachs held that clear planning in a theatre was of greater importance to the audience than clever fire-resisting construction, and the regular attendance of reliable fire-watches day and night, and especially during the performances, was more essential than any amount of surprise inspection. He considered the order of precedence for theatre safety to be:—(1) Straightforward planning; (2) regular watching; (3) skilled inspection; (4) good construction. The protection of life by means of rapid exit should always have the first place.

In conclusion Mr. Sachs tendered the proposal that the Lord Chamberlain, who had always enjoyed so much confidence, should appoint a special commission, which, after due personal inspection of existing theatres, both at home and abroad, and due examination of the rules and regulations in Great Britain, in the colonies, and in foreign countries, should draft some practical scheme by which the essentials of theatre safety might be obtained, and some practical scheme for control and administration be formulated. Given this investigation on thoroughly practical lines, it would rest with the Lord Chamberlain or the Government to recommend such changes in the existing state of affairs as might be necessary. Such an independent commission should comprise at least an architect, a surveyor, an engineer, a fire expert, a lawyer, a business man, a theatre manager and an actor. Such commissions had been created, both in the United States and on the Continent, after great theatre catastrophes, and had done excellent work.

A DISCUSSION arose at last week's meeting of the Cardiff public works committee over a notice of motion given by Councillor S. O. Williams, who proposed that West Bute Street, Docks, should be paved with wood blocks. It was agreed that Mr. Harpur (borough engineer) should submit an estimate of the cost of laying down several kinds of pavement. The Chairman explained that the Council had once decided against the need of carrying-out such expensive work in this street. Mr. Harpur said that on the initiative of Alderman Sir Thomas Morel he had prepared an estimate a few months ago, and that the total cost then worked out at 2,920*l.*, including the cost of substituting the present footway, a work which would be necessary if the road was to be wood-blocked.



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The Architect.

THE WEEK.

It was fitting that a memorial of the late Sir JOSEPH W. BAZALGETTE should be set up on a pedestal of the Thames Embankment, which was one of the colossal works he executed whilst holding office as engineer to the Metropolitan Board of Works. The majority of people who use the roadway along the river are not aware of the impediments which had to be overcome before a region of mud could be superseded. For many years various projects were brought forward for embanking the Thames, and among the men who prepared them were Sir CHRISTOPHER WREN and JOHN MARTIN, the painter of scenes of imaginative architecture. But the expense and the trouble always daunted those whose approval was necessary. BAZALGETTE was of foreign extraction, and like his contemporary, the younger BRUNEL, he was endowed with more imagination than the majority of English engineers. In mind, as in body, he was lithe and active, and when he had resolved upon an undertaking he was indifferent to opposition. On his acceptance of the appointment of Metropolitan Engineer it was expected by his friends that as he would have to encounter the worst class of vestrymen he was certain to send in his resignation after a very brief tenure of office. But he realised there were great works before him, and instead of a servant he became the master of the Board. He was sure of the support of the chairman of the Board, JOHN THWAITES, an honourable and devoted man, whose statue should also be set up on the Embankment, and to the opposition of the rest of the members BAZALGETTE was indifferent. He was an excellent witness in Parliamentary committee-rooms, and he was fortunate in obtaining more attention for his schemes from Lords and Commons than was usual at an earlier time. Once an effort was made to charge him with showing favour to a particular contractor, but on inquiry it was found that instead of supporting the supposed favourite he had advised the Board against accepting his tender. His main drainage of London and Thames Embankment should be enough to keep up his reputation. But the committee of friends, consisting mainly of engineers, were acting rightly in contributing towards the expense of a memorial to a man who was a credit to English civil engineering.

On February 25, 1897, a contract was entered into between the Roedean School Site and Buildings, Ltd., and Messrs. PETERS & SON for the erection of a school at Brighton, the amount being 48,589*l.* Mr. J. W. SIMPSON was the architect. It was provided by Clause 4 of the contract deed that the works must be completed to the architect's satisfaction on or before September 1, 1898, provision being made for penalties for delay. Clause 16 provided for the payment of the contract price by instalments upon the architect's certificate, and provision was also made for the determination of the contract in the case of the bankruptcy of the contractors, &c. Clause 26 provided for a full reference of all disputes and matters which might arise between the building owners and the builders to the architect, Mr. SIMPSON. On September 1, 1898, the buildings were very far from completion, and the builders were obliged to obtain loans from a Mr. BELCHER and other people on the credit of the contract. Notice was given of these advances, and the lenders got a charge on the contract. On January 27, 1899, the architect gave the contractors notice to proceed with the work under the twentieth clause of the contract, and on their failure to proceed according to his satisfaction on February 1, 1899, the building owners served notice to determine the contract. On the same day a petition in bankruptcy was presented by the contractors, which was followed by a receiving order. Then the work was taken over in accordance with the terms of the contract by the building owners, and completed under the inspection of the architect. On June 27, 1901, the architect issued his final certificate, which showed a balance due to the contractors

above the amounts paid to them of 350*l.* 18*s.* 5*d.* This was sent to the trustee in bankruptcy of the contractors, accompanied by a statement of accounts by the Roedean School Site and Buildings, Ltd., in which they showed that in consequence of the non-completion of the works in accordance with the contract, there was a balance due to the company of 1,255*l.* 7*s.* 5*d.*, after deducting the 350*l.* 18*s.* 5*d.* due to the contractors on the architect's final certificate. On July 6, 1901, the solicitors to the company wrote to Mr. SIMPSON, asking him to make an appointment as arbitrator under the contract, but both Mr. BELCHER and the trustee refused to acquiesce in the reference to Mr. SIMPSON. On July 23 the arbitrator held a sitting, but as only the company appeared he adjourned it. On the same day Mr. BELCHER issued a writ against Mr. SIMPSON, the architect, claiming damages for misrepresentation on the ground that Mr. SIMPSON had given him wrong information when he (Mr. BELCHER) called upon him in order to see if he might safely advance money to the contractors. A summons was then taken out before the Judge for an injunction to prevent the arbitration proceeding, and this was granted, and at the same time the submission to arbitration of the architect was revoked by Mr. Justice LAWRENCE. It was contended by counsel that the action against Mr. SIMPSON was brought for the purpose of bringing the case within the decision of *BARING v. DOULTON & Co.*, and so preventing the architect from acting as arbitrator. Accordingly an application was made on Monday last in the Court of Appeal by the Roedean Company. After hearing the arguments on both sides, their lordships came to the conclusion that there was no ground for removing the architect from his position as arbitrator, and reinstated him in his position. The appeal was accordingly allowed, with costs. The judgment is most important in establishing the position of the architect as arbitrator. The case was complicated by the action of other parties, and, indeed, the apparent cause of the decision of Mr. Justice LAWRENCE was the circumstance that there was litigation between the architect and one of them.

THE river Wansbeck nearly surrounds the town of Morpeth, and it is to be assumed that a bridge must have been erected there at an early date. TELFORD constructed one of three arches, which is an excellent work, and its success may have helped to make people indifferent to the history of the earlier bridges. During the works for the intercepting sewers which are now in progress masonry has been encountered which is assumed to be a part of the foundation of one of the ancient abutments. The work is of excellent construction, and it was pierced with difficulty. Morpeth obtained a charter for a fair and market from King JOHN in 1199, but a few years afterwards he destroyed the town. The church is believed to be a work of the fourteenth century. It is therefore possible that about the same date a bridge may have been constructed, although apparently there is no record of its existence except the abutment we have mentioned.

THE committee of the Commons and Footpaths Preservation Society are endeavouring to obtain the removal of the barbed wire and other enclosures which were recently set up around Stonehenge, and with that object legal advice has been obtained. Several clearly-defined tracks leading to the monument have been obstructed by the erection of a barbed wire fence, and the Society were advised that *prima facie* there is a strong case for the existence of public rights of way over these tracks. The committee have resolved to petition the local authorities to protect the public rights involved. Letters from eminent archaeologists have been received protesting against the enclosure of Stonehenge, on the ground that the character of the monument has been entirely altered by the wire fence. It is further pointed out that the stones could be amply protected from injury without enclosure by means of the Ancient Monument Protection Acts. There are several other places where public rights have been ignored, and at the present time no less than 150 cases are under the consideration of the committee.

UGLINESS IN ART.

WHEN we find there were esoteric doctrines among the Greeks, we are permitted to conclude they were not altogether unknown to the artists. If so, there is less difficulty in understanding why some forms which could not be described as beautiful were adopted for representation. We are puzzled to account for the existence of a deformed being like VULCAN among the principal deities of Olympus, but we can suppose there was an explanation which was known to some initiated persons, and which was more plausible than the statement that the son of ZEUS and HERA was born a cripple, or was lamed by his fall from high Olympus to the island of Lemnos. Deformity or ugliness possibly had a meaning in ancient Greece which has not come down to us. The Minotaur was another subject which seemed to be beyond the range of art, and the philosophers in Athens possibly never accepted it as a mere legend about the son of MINOS and of PASIPHAË. What can be uglier than the earliest representations of the MEDUSA, such as that seen in one of the metopes of the Selinuntine Temple? For it took a long period before the sculptors ventured on the pathetic beauty we see in the Ronandini head of the Gorgon. There were other forms which also prove to us that with the Greeks there was a use found for ugly and horrible creatures in their works of art.

It cannot be true, as some writers maintain, that ugliness was only employed for the sake of contrast in order to heighten the beauty of other parts of the same composition. Examples of single figures as well as large works are proofs that the thoughts of the artists were occasionally concentrated on ugly rather than on more pleasing forms. The Greeks in such cases may have derived their inspiration from foreign works, and it must be acknowledged that ugliness seemed to be entirely out of keeping with the Greek spirit. But whatever were the sources, ugliness was utilised in literature as well as art, and we have no means of knowing for what reason. Although PLATO has much to say upon beauty, it is remarkable that he is silent about its negation or the peculiarities of ugliness as an independent quality.

The old tradition of the contests between ORMUZD and AHRIMAN, or the spirits of good and evil, light and darkness, would be enough to explain much of the ugliness which is to be seen in Eastern works. When Christianity began to illuminate the earth, and to keep believers as a race apart, there were still stronger reasons to make it appear that whatever was bad was essentially ugly. In Mediæval philosophy it was accepted, according to the biblical statement, that all that was made was good, and there was no place in the world as it was created for any being that was not beautiful. The beautiful and the good were assumed to be identical. But while such doctrines were taught in the cloisters and monastic schools, the designers of cathedrals and churches, who for a long time were monks, did not hesitate to introduce figures in parts of the buildings which to ordinary eyes were hideous. They were intended to represent demons, heretics and excommunicated sinners; and they opened a field, as it were, for the creation and employment of ugliness which was of much larger extent than in any preceding age. The devil and his angels for centuries were depicted and modelled as beings whose appearance was enough to defeat any attempts at the temptation of men. Indeed, it was not until GOETHE made the experiment that the world was able to suppose that MEPHISTOPHELES, or the arch-deceiver, could assume the form of an experienced man of the world. But even in his great poem a concession had to be made to Mediæval prejudices, and some of the characters have an instinctive fear of the being to whom the venerable FAUST had subjected himself.

Everything that GOETHE did or said gave rise to controversy, and his adoption of a legend in which the Tempter, who heretofore was regarded as the most debased of all forms of ugliness, stood forth as if he bore resemblance to mankind, was the cause of much cavilling. The subject of ugliness in art was discussed as it had never been in a more philosophic age, and one of the SCHLEGELS insisted that ugliness had laws which deserved consideration. Various other writers of the time took up the subject and treated it with

true German exhaustiveness. It was not long before treatises appeared on the æsthetics of the ugly.

It is a remarkable fact that theories which arise in Germany, and which are imprisoned in the pages of books, are acted upon in France regardless of all risks. The realisation of volumes of conclusions about the importance of ugliness in respect of art will be found in the works of VICTOR HUGO and of numerous writers who followed him down to our time. When VICTOR HUGO introduced such characters as appear in "Notre-Dame," "Lucretia Borgia," "Angelo," "Le Roi s'amuse," he was paying tribute to German psychologists, and was expanding their theories throughout the world with a force which was unknown to the originators. The Romantic School was founded, and it became unquestionable that one of its aims was to have consideration given to physical and moral ugliness or monstrosities in many forms. HUGO afterwards was subjected to sobering vicissitudes, but he remained faithful to the convictions of his prime, and in "Travailleurs de la Mer" and "L'homme que rit" we have a testimony to the influence which ugliness in physical and in mental forms still exerted over him, and, as he believed, over the world also.

In painting there was likewise a revolution of the same kind in France. Both domestic scenes and classic scenes in the spirit of DAVID ceased to be attractive. Murders, executions and criminal deeds became the delight of Frenchmen. DELACROIX, who was morose in disposition, might be excused for being captivated by the dark deeds of history. But we find such a man as the placid PAUL DELAROCHE was also allured, and in his smooth way painted scenes like "Cromwell gazing on the Corpse of Charles I.," "The Murder of the Princes in the Tower," "The Execution of Lady Jane Gray," "The Murder of the Duc de Guise," "Cinq-Mars a Prisoner," "Queen Elizabeth Dying on the Floor," &c. In these we have indications of a change which was not in keeping with the painter's nature, for, as HEINE said of him, he was without any love of antiquity. DELAROCHE, like many other artists, had not the strength to resist the spirit of the time. That spirit was also observable in the abundance of caricatures. It was necessary to have new prints every day in the shop windows by which ministers and other notabilities were degraded. Unfortunately the fashion has been enduring. Paris is still notorious for its efforts to make ugliness supreme, not only in miserable caricatures, but in the various forms of Impressionism adopted by painters: in whose works humanity is brought down to a level as low as that of the caricaturists. The ancient artists who first devised hydras and chimeras dire could not have anticipated the consequences of their works as manifested by artists in Paris. There was a time when BOILEAU expressed the prevailing belief in France, according to which ugliness could not be touched by the artist's hands without being transformed, for, as he said:—

Il n'est point de serpent ni de monstre odieux
Qui, par l'art imité, ne puisse plaire aux yeux.

It is not so now, for French art can make objects become odious which for generations were held as sacred.

Although ugliness was never so commonly produced as in Paris, it cannot be denied that it has held sway upon great artists. All who have looked at drawings by DA VINCI, than whom there was no greater lover of beauty, or at reproductions of them, must be aware of the fascination ugliness exercised over him. He must have taxed his inventive powers to produce hideous faces. One of his earliest recorded works is a *rotella*, on which he painted a monster that was said to inspire fear in most of those who looked on it. He also busied himself in repulsive imitations of living things. But in the few pictures which we have from his hand he avoided whatever was ugly, although in the mysterious *Vierge aux Rochers* it would have been easy to introduce fantastic beings amongst his icy crags. ALBERT DÜRER, who was also a great master, did not hesitate in one of his etchings to represent a monkey as chained to the chair in which the Virgin and Child are seated; it is entirely inapposite, for it does not serve as a contrast, and can only be supposed to be the whim of a moment. Our own HOGARTH engraved so many displeasing figures that some critics have even doubted whether he could draw a handsome

man or woman. He was cynical, and like DIOGENES must have found it difficult to discover anyone who was really honest. His ugly characters are therefore legitimate. The contortions of the youth possessed by the Devil in RAPHAEL'S *Transfiguration*, and the maimed figures we see in some of his great wall-paintings, were called for by the nature of the scene. SCHELLING, in fact, maintains that an idea cannot be completely represented without the aid of ugliness in some form, and he could point to several of RAPHAEL'S greatest works and to MICHEL ANGELO'S *Last Judgment* in support of his theory. REYNOLDS, in some of his compositions, evidently favoured the principle, but the neglect of such work testifies to the love of prettiness which is inherent among English people.

When we speak of ugliness and beauty it is not easy to draw the line which separates one from the other, and all those who talk as if there were a definite line of demarcation are in error. RUSKIN, for example, says "there is not a single object in nature which is not capable of conveying ideas of beauty," and we suppose he was as industrious and keen-sighted an observer as ever lived. But PROCLUS, who belonged to the fifth century, and who was likely to have known a great deal about the principles employed by the Greek artists, is quoted by REYNOLDS as an authority for the saying that "the works of nature are full of disproportion," and REYNOLDS, emboldened by the words, declares that "all the objects which are exhibited to our view by nature, upon close examination will be found to have their blemishes and defects. The most beautiful forms have something about them like weakness, minuteness, or imperfection." This is only another way of saying that all natural objects are ugly. Assuming that to be the case, ugliness becomes another name for realism, and those who intend to represent forms as they are created can claim to be inspired by a love of truth. Is it not preferable to show things as they are as the results of the operations of an immense number of natural laws, than to attempt a re-creation which in the eyes of those who are competent to judge can only be an exhibition of weakness? Unfortunately, however, realism generally descends below nature and magnifies defects. Ordinary nature does not deserve to be considered ugly, a word which means something frightful or dreadful, and has its equivalent in the German *hässlich*.

An attempt was made about forty years ago by ROSENKRANZ in his "*Ästhetik des Hässlichen*" to divide ugliness into classes. The first he termed *Formlosigkeit*, or formlessness, and which was subdivided into amorphousness, asymmetry, and discord. The second class was in correctness, either in general, or in departure from styles, or from special rules applicable to an art. The third class was *Verbildung*, or malformation, including repulsive things and caricatures, and much else until we arrive finally at the Satanic. In other words, the German metaphysician confirms the old Persian belief, and the worst possible form of ugliness is concluded to be inspired by AHRIMAN.

We have only touched upon a subject which is as old as art. It is remarkable that in all which has been written about it by ancients or moderns, little attention was given to architecture. Undoubtedly there have been ugly buildings, or at least they offended against ROSENKRANZ'S laws about correctness of styles and need of symmetry, but it cannot be said of the worst of them that the offence was committed by men who could have done better. Architecture may have been "adorned" by unpleasing paintings or sculpture, but it will generally be found that such ornament could be eliminated without loss to the building. All that is said, therefore, concerning diabolic influence does not touch architecture. There is no certainty that architecture will always be free from the reproach. In France, where ugliness is so often condoned under the name of realism, attempts have been lately made to design buildings in a spirit of revolt against all the old canons. The topsy-turvy building which was created for the last International Exhibition was only a manifestation on a very large scale of the boldness that is seeking outlets for the display of its license. The buildings, however, are likely to be looked upon as fantastic, bizarre or novel, and they at least will be more in keeping with some modern pictures, statues and novels in France than if they had been designed by aid of the observance of academic rules.

NEW BOOKS.

THE approach of winter inspires publishers with the belief that they must provide books for the long hours when artificial light has to be used. They complain in summer about the out-of-doors attractions, which allow only of a study of nature. Books have to be substituted in winter for all that can gratify the eye on summer evenings, and it must be allowed that they are now presented under appearances that remove many of the difficulties which made reading irksome some years ago. Technical books have also been vastly improved, and those especially which relate to architecture are rarely suggestive of the obstacles which have to be encountered by all who take up the study of the art in earnest. If type, illustrations and binding of improved descriptions could make a royal road to learning, ignorance would soon be overcome.

A third edition has appeared of "The Chemistry of Paints and Painting," by Professor A. H. CHURCH, F.R.S. (SEELEY & Co., LTD., London). From his relations with artists as a Professor of the Royal Academy, there is no chemist in England who is so qualified to speak of paints, and their effects when laid on canvas, plaster and paper, as the author of this book. In his hands the science seems to be very different from what is usually found in books on colour, inasmuch as he is able to utilise the experience of many painters. From the manner of treating the subject, amateurs can also find pleasure, as well as instruction, in the pages. There are artists who undervalue chemistry as an aid. The author was once asked:—"TITIAN managed pretty well without chemistry, did he not?" But, as Professor CHURCH says, in TITIAN'S time "grounds, paints, oils and varnishes were generally prepared in the studios of the artists and under their own superintendence, so that the chances of going wrong were comparatively limited." The book is divided into four parts, which treat of painting-grounds, vehicles and varnishes, pigments, methods and results, and the various chapters show not only knowledge of chemistry, but of the painter's art. All who use Indian ink in architects' offices may not be aware that a treatise on its manufacture by a Chinese author dates from 1398. Old sticks are sought after by Chinese amateurs, who pay for them not less than their weight in gold. They are not, however, intended for use. The Japanese rub the ink in straight lines backwards and forwards, and the ink slab is of dark slate. Professor CHURCH says that no colour prepared from cochineal should be found on the palette of an artist, and he cites a case where a strong wash of crimson lake lost 8 per cent. of its original intensity on an April day; but lake somehow lasts long when used in architects' drawings. It is a curious fact that sepia derived from fossil cuttle-fish has the same hue and chemical character as what is derived from the cuttle-fish of to-day. Prussian blue fades under exposure to strong light, but "a brief sojourn in darkness generally suffices to restore the hue almost to its original depth and quality." Gamboge is described as losing more than half its original intensity when used from the cake, while moist gamboge only lost a tenth. In offices cake gamboge finds little favour. A piece of a pipe bought from a druggist is generally found to yield a more enduring colour. Every one who uses water-colours or oil-colours will find it advantageous to make an attentive study of Professor CHURCH'S manual. It is, however, hardly fair that painting alone should monopolise his ability as a chemical lecturer. His services should be utilised by the Royal Academy for other lectures in addition to those on colour, for both students of sculpture and architecture would be gainers if Professor CHURCH were able to address them every year.

Although books relating to the history of sculpture are to be found in most languages, there is a singular dearth of treatises on the practice of the art. The new book entitled "Modelling, a Guide for Teachers and Students," by Professor LANTERI (CHAPMAN & HALL, LTD.), meets a want which has long perplexed students. Nowadays a great many of them are eager to learn the rudiments of a science or art from a book, for having the *mauvais honte* of Englishmen they do not care to expose their ignorance or awkwardness before those who may jeer at them. Embryo sculptors cannot find a better primer than the new guide, the object of which, as Mr. ONSLOW FORD says, "is to teach the

student how to begin," and he adds:—"Had such a book been obtainable when I was in the twenties I would not have rested a moment until I possessed a copy, and when possessed of it, it would have been my constant companion. Professor LANTERI has put in very comprehensive language everything that is needful for the young sculptor to know. The result of very careful thought and observation of years is set forth in a manner so clear that it may appear to some readers that, after learning Professor LANTERI's book by heart, they will then know how to model." The student is advised to begin copying from a cast all the features separately of the face of MICHEL ANGELO'S *David*. Next, the head as a whole is explained. The student then is shown how to model the features from life, and in the third division the different parts of the figure are dealt with. Instructions are given in general anatomy as the course proceeds and the language is as simple as possible—in fact, the instructions are a development of the notes which the author uses in his demonstration classes at the Royal College of Art. Professor LANTERI is a believer in individuality, and he is careful to avoid everything which could be looked upon as imposing his own style on students. The beauty of the contours in the human figure and in famous statues is insisted on, as well as the relation between the parts and the whole body. Thus, he says in one place, "every study ought from the beginning to be considered as a composition. You must, therefore, at once block in the extremities, whose position will determine the action of the rest of the body. You cannot possibly model an arm properly without having carefully modelled the hands, in which you find the insertions or terminal points of most of the muscles of the forearm. It is, therefore, the natural continuation of the shape of the arm. The same rule applies to the legs and feet." There are a great many illustrations from the author's drawings, but what best sustain the character of the book are the photographic reproductions. By their aid the progressive stages in modelling busts and figures are clearly exhibited, and the student is enabled to realise the great difference which can be made by a few strokes, or by the addition or subtraction of clay. The plates are, in fact, almost equal to a demonstration by a clever sculptor. Modelling is now more generally taught than formerly, and for many purposes it is preferable to drawing. Professor LANTERI's book is hardly sufficient by itself to make a GIBSON or a FOLEY; but for those who are unable to attend classes of sculpture in schools it ought to be equal to instructing them in the processes required for modelling for ornament and other applications of industrial art.

Two more volumes have been added to the useful "*The Builder Student's Series*" (D. FOURDRINIER). "*Sanitary Fittings and Plumbing*," by Mr. G. LISTER SUTCLIFFE, describes in a limited space the latest apparatus connected with the drainage of houses, and as there are over two hundred illustrations the varieties can be easily imagined. The author is impartial, and what he says about apparatus can be relied on. Among the most ingenious of the new appliances is the surgical laboratory fitted up by Messrs. SHANKS & Co. in the Western Infirmary, Glasgow. The supply of hot and cold water is obtained, and in fact all action is controlled, by means of treadles. It is not necessary for an operator to touch a tap or any part with his fingers, which may be on account of disease germs in a dangerous state. All parts are easily cleaned, and the slabs are of thick glass. The lavatory suggests the thought which is now bestowed on sanitary affairs by manufacturers. "*Roads, their Construction and Maintenance*," by Messrs. GREENWELL and ELSDEN, is a treatise which, unlike most of those on the subject, has little which can be called empiric in the pages. The first part describes the lithology of the subject, and in that way the relative importance of various materials can be realised. Roman roads are remarkable, and some of them have endured to our time. But barely more than a century has elapsed since in England and France a lesson was taken from the Romans and applied under altered circumstances. At the present time there is still divergence between the opinions of engineers about what constitutes a thoroughly serviceable road. Much depends on cost, and it must be allowed that in this country the road surveyor has not an easy office. Two of the

latest forms of pavement, for example, are the indiarubber pavement and the cork pavement. In an ideal town both would be largely laid down, but owing to their costliness they are now applicable only to very favoured spots. In London, where all problems in engineering construction should be tried, it seems useless to bestow much thought on the question of road construction. So long as gas companies and water companies can in turn tear up the most compact surface for a trivial purpose, it is only waste of money to adopt improved systems. In the Metropolis roadways can only be looked upon as temporary constructions, and under such circumstances as prevail it is wonderful that so much care is exercised in their construction.

A great many of the papers which are read before the architectural societies deserve to be published in book form, but the expense is the main obstacle. Messrs. BARRY PARKER and RAYMOND UNWIN have endeavoured to get over the difficulty by adding illustrations from their architectural drawings to the papers, and combining the whole in a book with the attractive title "*The Art of Building a Home*" (LONGMANS, GREEN & Co.). The authors express the desire to provide middle-class houses and small houses and cottages which would not resemble those which are erected by the thousand, and in the illustrations there are many novel features. But we doubt if the ordinary occupier will care for a house in which drawing-room, library, hall and kitchen are combined to form one apartment, in which the kitchen range forms a pendant for the piano. That combination, however, in idea at least, corresponds with an ancient class of British residence, and we conclude there are some people who still hanker after it. In the drawing the arrangement has the appearance of novelty, but the servant-girl difficulty could not fail to be increased by it, for it would be a restriction on the liberty which is now enjoyed in kitchens. As experiments homes of the kind represented might be erected. The authors, however, do not enter into questions of finance, and we are therefore in the dark about the cost of those smaller middle-class houses and cottages and the rent which could be obtained for them. One of the authors says:—"In building a man's shell for him we certainly can influence very largely the life he will lead within it; and while it is our duty to make that shell fit the life as well as possible, it is surely also our privilege to make it conduce to the realisation of the best of which he is capable. In so far as we do this, we shall rise above the mere planner of houses and take our places in the work of planning and moulding the future life of the people." These words are expressive of a high aim, and as all the essays are in a similar spirit, the book may become popular with people who have grown weary of living in houses which bear a family likeness to those of their neighbours.

The edition of the London Building Act which the late Professor BANISTER FLETCHER prepared has gone through two editions, which is proof of its practical character. A third edition has been brought out by his sons, and is published by Mr. BATSFORD. There has been a rearrangement of some parts, more plates have been introduced, the revised regulations and drainage by-laws of the County Council are added, as well as those issued by the Public Health Department of the Corporation of the City of London. The latest edition is consequently more complete than its predecessors, and deserves as much success. A copy should be found not only in the office of every architect who undertakes work in the Metropolis, but also with builders and contractors. Mr. BATSFORD has issued a new edition by the same editors of Professor BANISTER FLETCHER'S text-book of valuations and compensations.

Mr. Raymond Unwin, architect, delivered a lecture at the Hall, Clifford's Inn, on "*The Housing of the Working Classes by Municipal and other Bodies*." Mr. Unwin advocated as a general policy that municipalities should try to build a large number of houses not only for the very poor, but for the general working classes in the suburbs, that every house should have a sunny aspect and that there should be something designed in the way of outlook. He advocated that the cottages should be arranged in quadrangles rather than in narrow streets.

NATIONAL MEMORIAL TO QUEEN VICTORIA.

WE publish this week illustrations of four of the designs submitted in the competition for the National Memorial, and the following are copies of the notes which accompanied of them:—

DESIGN BY SIR THOMAS DREW, P.R.H.A.

The monument to Queen Victoria is the central object of the whole scheme, to which all rearrangement of lines of approaches, architectonic surroundings, and its background as afforded by the Palace when seen from its principal line of approach, should conform and lead up to in study of effect.

The Line of the Mall from Spring Gardens to the Palace.

The Mall is now divided into three alleys by low rows of trees. The line of no one of these avenues is directed to the centre of the Palace. The trees as standing would obscure the monument and statue as a central object of the Mall until it was nearly approached.

The alignment of the Mall for its entire length has to be dealt with, its central axis being directed to the monument. I desire to make it a straight line without deflection from Charing Cross to the monument.

I propose its centre line as drawn from a point about 35 feet to the north of Drummond's Bank, so avoiding that valuable property. This would mean the acquirement of frontage properties to give 70 feet for a clear width of opening into Spring Gardens.

Having passed into the cleared space of Spring Gardens, the newly-aligned avenue would be of a clear width of 100 feet throughout.

Trees worth preservation can be moved back to afford this cleared approach.

The Entrance at Spring Gardens End.

Sufficient dignity for an architectural triumphal entrance to the Grand Avenue is not attainable in any design of arch or entrance brought forward to the frontage of buildings in Charing Cross incongruous with it.

My project of approach is, after passing from the street architecture of Charing Cross, to enter a forecourt of architectural dignity, named on my plan Spring Gardens Court. Its width is 110 feet. It is flanked by elevations of stately scale and monumental character, which lead up to a triumphal arch entrance to the great memorial avenue.

The creation of an architectonic effect and composition lends itself to the practical provision of sites for public offices in Spring Gardens.

By an alternative arrangement with Parliamentary powers an area might be acquired in connection with the London County Council premises sufficient for its permanent extension and home.

Improvements within the Entrance.

A first disfigurement at present met is the frontage of the low terrace in advance of the houses of Carlton House Terrace. It is suggested that by arrangement a palisade of architectural dignity, aligned to the Grand Avenue, might be substituted for the row of ugly "stump" columns which are such an eyesore. The details of an improved frontage flanking the avenue for a length of 1,000 feet need not be dwelt on.

A Procession of Sculptural Monuments.

Having designed such an avenue as lends itself to such a scheme, it is unnecessary to define a distribution of such monuments at this stage.

The Central Monument.

I fix the position for this at a central point 295 feet in advance of the façade of Buckingham Palace. I surround it with a circular plinth enclosure, without railings, 300 feet in diameter. I suggest no canopy or architectural shrine over the statue as being injurious to the lighting effect of the sculptor's work, and as being also an object necessarily of such scale as would eclipse the Palace front.

A Background for the Monument.

The front of Buckingham Palace, built in 1842, cannot be said to be a work of fine architecture or a background of dignity for the great memorial.

A memorial composition standing say 60 feet high would not eclipse the Palace front, but would somewhat subordinate the central entrance as its leading feature. My proposition is to recast the façade architecturally without changing its fenestration or altering the internal arrangement. I would raise a pavilion block at each end, advanced from the building, which would give cast shadow to break the monotony of the elevation. The front I would remodel—accepting the present levels and window spacing—by applying a Corinthian order elevated on a rusticated or coursed basement, as an improvement of the present lowest storey. I submit a detailed elevation for an architectural front.

The Avenues Surrounding the Memorial.

It is absolutely necessary for a sweep of avenue leading to Buckingham Palace Road and Victoria to rearrange the boundary of St. James's Park and borrow some room from it.

I propose an alteration of the ornamental water at this end. To give water area undiminished for boating purposes, I extend two bays into low ground on either side, which are prettily backed by wooded slopes, as an improvement in picturesque contour of the lake margin.

By the right-hand sweep (80 feet in width) approach to Constitution Hill is led up to.

An Approach from Piccadilly.

As a further development, but not necessarily an indispensable feature, I suggest an avenue of approach through the Green Park from Piccadilly at right angles to the Mall, and bearing down also on the memorial as its central object of view.

Auxiliary Sculptural Groups.

The placing of these seems to me to follow the consideration of the central memorial design, and a subject for agreement and collaboration between sculptor and architect at a future stage.

DESIGN BY MR. T. G. JACKSON, R.A.

I have assumed that the Mall will in any case be replanted on the lines shown in the official plan, but in other respects I have availed myself of the liberty allowed to the competitors to depart from the arrangement there laid down.

At the west end of the Mall in front of the Palace I form a regular square or "place" enclosed by colonnades, and partly occupied by gardens. It seems essential to the dignity of the scheme that this part should be laid out on formal lines, having relation to the façade of the Palace and the straight avenue of the Mall beyond. I have also thought it important, so far as it can be done without inconvenience, to divert all public carriage traffic from this area. The cross road from north to south in front of the Palace must of course remain, but I make the two public carriage roads which run east and west to pass entirely outside of the colonnades, which would screen the enclosed space from dust and noise, allow the monuments it contains to be enjoyed by the public without interruption and to add materially to the quiet of the Palace itself.

It will be seen from my plan that this makes the line of road by Constitution Hill considerably more direct than at present, and provides a second carriage road on the other side.

The enclosed square is shut off from the Mall by a screen of piers, railings and gates, which excludes public wheel traffic, but gives foot passengers free access to the gardens and enclosure. Gates, however, at each end of the screen would be opened for carriages going to the Palace at receptions, and the royal gate in the middle for the King when going in State to Westminster.

The Queen's monument would occupy the centre of the square. Right and left of it I have placed a fountain of bronze in a basin of stone, and round it are groups of statuary representing the principal colonies and dependencies of the Empire. The area would be gay with flowers and shrubs in grass plots, and the colonnades would afford shelter and shade, and would be admirably suited for spectators at State processions for whom the flat roof would also be available.

The back wall of the colonnades affords space for inscriptions and national memorials in sculptured relief to be added from time to time, for which there is at present no such place available in London.

The four pavilions at the angles would bear the royal arms and cypher, and be adorned with bronze figures representing arts and industries.

The central part of the square is left open to afford space for carriages at State receptions.

The Mall.

The Mall, planted as proposed by the official plan to which I have adhered, forms three avenues. The two outer are public carriage roads. The middle one, besides a 40-foot road in the middle, has a wide grass plot on each side, affording space for the contemplated avenue of statues. The central avenue would be open to the public by day, but I propose to enclose it by railings with gates to be locked at night for protection of the statues—a precaution which experience both at London and Berlin proves the necessity.

On State occasions the King would drive down this central avenue, but otherwise it would never be used by carriages.

The Arch.

At the east end is the great arch through which the royal carriages would pass on State occasions.

It seems better to place this at the entrance to the Mall proper than at the spot marked on the official plan. Eastwards of the spot where I have placed it the Mall expands

into several diverging thoroughfares, and its continuity is lost; and the arch would seem to lose its meaning unless it admitted specially and directly to the road leading to the Palace. The effect of it also in combination with the steps leading to the Duke of York's Column would, I think, be very good. The exact position of the arch, however, is not material.

In its design I have aimed mainly at simplicity and dignity, avoiding ornament except of the highest kind, and emphasising mass and proportion. In either of the positions suggested it will have to compete with the high buildings of Carlton House Terrace, and it must be on a grand scale, or it will be dwarfed by its surroundings. The Marble Arch, which is only 42 feet 8 inches high, or the Wellington Arch, which is 62 feet high, would in this case look quite insignificant. I have made my archway 60 feet high and 30 feet wide, the height to the top of the cornice of the main order 79 feet, to the top of the attic 93 feet, and to the top of the sculpture which crowns it 120 feet. The area of the structure is 68 feet by 34 feet, and, besides the simple colonnade which carries the vault, the only positive ornamental details are a bronze frieze of life-size figures, representing the Jubilee processions of 1887 and 1897, which runs round the outside above the podium, and the colossal group in bronze at the top consisting of Britannia and figures emblematic of her naval supremacy.

The following dimensions may be useful for comparison:—

Roman arch of Severus,	75 feet high	82 feet wide.
Roman arch at Rheims	110	"
Arc de Triomphe, Paris,	158 feet high to top of acroteria	150 "

General Scheme.

The whole scheme beginning with a stately arch, continuing with avenues of trees and statues along the Mall, and reaching a climax in the colonnades and gardens of the new Palace square at the west end would, I venture to hope, be a not unworthy expression of the nation's grateful remembrance of her Queen, and it would, I think, compare favourably with anything of the kind to be found in other European capitals.

In conclusion, it may be observed that the whole scheme is divisible into parts. The arch is quite distinct from the rest, and the series of statues in the Mall would, of course, be added one by one as occasion arose and means were found.

As no estimates were asked for, I have made the best design I could without considering expense, but I do not think any part of it is unduly costly. The most expensive feature would be the sculpture, of which, as I have said, the greater part can be carried out piecemeal.

The material I propose generally for the masonry is hard Portland stone, which is not only the most durable and best able to resist the climate, but is also the most beautiful material for London use, bleaching as it does with exposure to a more than marble-like brilliancy.

ART AND LIFE.

ON Monday last Sir William Martin Conway delivered his inaugural lecture as the Slade Professor of Fine Art in the University of Cambridge. He said it would be idle for him to pretend that in undertaking the duties of Slade Professor he was without misgiving. It was exactly ten years since the study of art-history ceased to be the main pre-occupation of his life, and was exchanged for the engrossing cares and excitements of a more active career. He could not, therefore, stand before them clothed in the panoply of complete knowledge of the latest discoveries in art-history or the finest nuances of recent art criticism; but art was wide as life itself, and whoso had once given himself to her never escaped her sweet enthrallment. Joy in life, that was what originated art; that was the end which it served. Where there was joy art must assuredly arise—in the life of action as in the life of contemplation, amongst the humble as amongst the rich, in the backward as in the most advanced races of mankind. It was only in the miserable dregs and equally miserable froth of humanity that art was unknown. Art might be defined as the manner in which a material was used for the production of beauty. The material might be language, or the movements of the body, or sound, or life itself, as well as stone, or plaster, or paint, or ink and paper. In the moulding of all these things art might arise, so that there lived no human being, how poor soever, who might not beautify his life by art. Whatever was done for the sake of giving pleasure to some one else belonged to the category of art. That which a man did solely to please himself was not art. Herein lay the distinction between art and sport. Art was not the mere exercise of skill, but it was the exercise of skill to a definite end, and that end was, in the strictest sense of the word, pleasure. He that could find beauty anywhere in the wide world of nature or man had the root of the artistic disposition within him, though the technical skill to realise it might be absent. He to whom any work of art had ever appealed, awakening in him the unmistakable thrill of joy, had

the capacity of artistic recipience, which time, opportunity and will were only needed to develop. When once the emotion of beauty had been quickened in a man he would enjoy a similar experience better next time; then one less similar. His delight would be spread over a whole category of experiences, and thus he would become receptive to one form of art. The two human faculties which a work of art implied, the creative and the receptive, were thus both capable of development. Where the faculty existed it could be developed. The conviction that this was so was shown by the multitude of art schools where, with civilised countries were now provided. But it was a remarkable fact that the perceptive faculty received hardly any attention at the hands of educationists. Governments and municipalities would spend money enough on making artists, who when made would be unable to live, unless each of them could find a considerable body of amateurs to buy his work. Yet the same Governments and municipalities which subsidised art schools were by no means correspondingly intent on developing the perceptive faculty in the purchasing public. They would hold an occasional exhibition, and even, perhaps, form a permanent gallery of paintings, as though pictures were the only art; whilst in the incompetent planning of new streets and erection of public monuments and buildings, in the obliteration of open spaces, the destruction of scenes of natural beauty, and such other perverse object-lessons they more than counteracted the educational effect of their vaunted exhibitions. For example, a body of public opinion was now forming in favour of what was called the taxation of site values. But neither its proposers nor its opponents seemed to have made the smallest attempt to consider what effect such taxation, in the form in which it was shadowed forth, was bound to have upon the beauty of our towns. Such a tax would fall with ruinous effect upon the owners of open spaces and plots of garden-ground not yet invaded by the flat-builder. Now one of the greatest glories of London was its little private gardens, remnants of the country engulfed in the great city. These little gardens were not merely a joy to their owners, but also to all the neighbours whose windows commanded a glimpse of them, and they formed valuable lungs even for houses that were out of sight. So far from garden-owners being penalised in a great city, they ought rather to be endowed. Whatever legislation tended to cover every inch of ground in a city with buildings was pernicious. Every scrap of ground kept as a garden in a city should be rated and taxed on the lowest scale. If land values were to be taxed, all gardens should be exempted from such taxation. Indeed, in the case of large and growing cities it might be justifiable, in the interests of the common weal, to set a limit to the amount of surface that might be built upon. Another social habit of ours that must blight nascent popular taste was the habit of confiding to committees of more or less eminent gentlemen the ordering of local or national monuments. In matters of taste committees were anathema. All that a committee had any power to do efficiently was to choose an artist for the work in hand and then to let him do it. Utterly detestable, too, were so-called competitions, when a selected or an unlimited number of artists were invited to submit designs. The great need, from the point of view of the production of fine art, was the education of the amateur, the purchaser. How was this to be accomplished? That was the problem that faced each occupant of the Slade chairs in the Universities of Oxford and Cambridge. For to answer that question was the end for which they were founded. It was not his function—Heaven be praised—to prepare any one for that vile modern ordeal, an examination. It was his duty to tell them that art was a necessary part of healthy human life, that there was nothing effeminate about it, nothing unhealthy, nothing ignoble. All art was based on joy and the man who had developed in himself this gift of joy was not thereby rendered less manly, less fit for the life of action less apt to noble deeds; rather was he the manlier man to whom the treasure-houses of life opened at his coming, and for whom mankind and the world of nature had been made so fair.

ARCHITECTURAL ASSOCIATION OF IRELAND

AN exhibition of drawings prepared by members of the Association has recently been held in the rooms of the Royal Institute of the Architects of Ireland, by the kind permission of the President and Council of that body. The drawings consisted of the competitive works of members for the various prizes offered during the past session, and were a remarkably creditable collection, and indicate a very decided improvement in the skill of the young architects of Dublin both as regards design and draughtsmanship. Prominent among the drawings were nine large sheets of accurate measured drawings of St. Patrick's Cathedral, Dublin, splendidly executed by Mr. T. A. Rockett, who won the prize—the Association Travelling Studentship—in competition for which they were prepared. Another extremely good set of measured drawings were shown

Mellifont Abbey, by Mr. A. C. Scott, of Drogheda. Seven sets of drawings were shown which had been prepared in competition for the prize offered by the Royal Institute of the Architects of Ireland for the best design for a technical school. The prize drawings, by Mr. Charles Powell, were executed in black, and showed a good honest plan. Three sketches of the campanile in the quadrangle at Trinity College were on view, one by Mr. L. O'Callaghan taking the Beckett prize. The class drawings which were exhibited demonstrated the fact that real hard work is done by the members, and that the object for which the Architectural Association of Ireland was founded is being very well held in view—that is, of providing a school wherein the younger members of the profession in Ireland may acquire knowledge of design and draughtsmanship. As an educational body for young architects this Association has become firmly established.

BRECHIN CATHEDRAL.

BRECHIN CATHEDRAL, surviving the vicissitudes of centuries, suffering much from the ravages of time and more from the hands of man, stands to-day, says the *Scotsman*, restored to something of its pristine beauty. Patience, labour and loving skill have had their perfect work. The old church will be reopened with the fitting solemnities as soon as the allocation of seats is made by the sheriff of the county. Without entering on the philological controversy which rages round the name "Brechin," it is not impossible that the site on which the cathedral stands was once the seat of the Druid worship. Succeeding the Druids came the Culdees, to whom we are probably indebted for the erection of the Round Tower, circa 1000 A.D. The belfry of this unique monument is obviously of later date, and may be put down to the period of the present church—probably about the middle of the thirteenth century. The cathedral was dedicated to the Holy Trinity, and had its origin in the founding of the diocese by King David I, that "sair sanct for the Crown."

The choir was long in ruins, the great arch between it and the nave having been filled up. Previous to the wonderful "restoration" of 1806 there were transepts, which were then removed. With the exception of the walls of the nave, its arches and pillars, the west gable and the massive square tower at the north-west corner, nothing was left of any previous work when the 1806 restorers rested from their sacrilegious labours. New aisles were built, and the whole edifice roofed over so as to enclose the quaint clerestory. Huge galleries were erected in the interior, and the whole building was decorated with plaster and whitewash and lighted by great windows in the most approved style of heritor's Gothic. It was long the ambition of the citizens of Brechin to restore the ancient cathedral, and with the examples of St. Giles and Dunblane before them, their case was not a hopeless one. Money of course was the prime need, but perhaps even a more formidable obstacle lay in the fact that any possible restoration would reduce the number of sittings below the standard required for the parish church. With the erection of a new church in the town that obstacle disappeared, and it was at the laying of the foundation-stone of the new church that the Right Hon. James A. Campbell, M.P., first mooted the restoration as a pressing and practical scheme. The consent of the heritors was obtained, and at a public meeting resolutions were carried commending the scheme, and a committee was appointed to raise funds. The plans adopted were those which were prepared some years ago by Mr. John Honeyman, R.S.A., at the instance of the late Rev. Alexander Gardner. With some modifications the plan carried out is practically the original scheme. The subscription list was headed by the Right Hon. James Campbell, who gave 1,000*l.*, and by an anonymous donor since known to be Mr. David Jamie, a native of Brechin, now residing in Edinburgh, who gave a like sum. The heritors, the citizens and the congregation contributed liberally, and money came in from all parts of the kingdom and the Colonies, to what was properly regarded not as a parochial but a national work. With a quota from the Heritor Trust—that golden reserve of the Church—the committee justified in proceeding, and operations were begun in January 1900. The memorial-stone was laid in September of the same year with all Masonic honours, by the Hon. James Mackenzie, M.P., Grand Master Mason of Scotland. The first step was to pull down the galleries and strip the plaster from the walls and pillars. It was then that the full iniquity of vandalism was revealed. The masonry in many places was ruthlessly, not to say wantonly, hacked and chipped. The old aisles were pulled down, and new aisles erected. Two transepts and a porch were added, and, crowning glory, the ruined choir was rebuilt on the old foundations. To take the choir first, it is remodelled after the rich and quaint fragments which were

left, and is pierced by five lancet windows on each side and three in the east gable after the same design, with a small rose window over. It is built like all the other new portions of fine-dressed sandstone from Ardovie quarry, is roofed with oak and furnished with two rows of oak stalls on either side. The south aisle wall has three triple windows under one hood moulding, and in north and south ends of the same aisle are two-light windows with trefoil. A small transept has been built on the south side on the foundation of a prior one. It has a large window filled with Geometrical tracery and a small door of the Norman type, in the tympanum of which is the symbol of the Holy Trinity. Beneath this transept there is a large chamber for the heating apparatus. The north aisle has two windows similar to the triple windows of the south aisle, and at the east end a two-light window corresponding to the one on the other side. The beautiful new porch built upon previous foundations opens into the centre of this aisle. It is enriched with deeply-cut carving both on outer and inner doors, chiefly of the dog-tooth and reed patterns. The roof is of oak, and stone seats flank the inner walls.

The north transept extends the length of two bays on this aisle. It is professedly an addition to the church, and of a later and more elaborate style of architecture. In the west end is a rich Flamboyant traceried window; on the north side two smaller traceried windows, and in the east gable a large rose window with exquisite stone tracery. This part of the church, like the chancel, is roofed with oak, and the carver has been allowed to exercise his skill freely on the pillars and mouldings of what in some respects is the finest feature of the church. The pillars of the nave have been skilfully repaired, and the kind touch of time will soon remove the traces of the restorer's hand. At the west end of the nave a small gallery of oak has been erected to accommodate the choir and the organ, and care has been taken not to obscure the large old Flamboyant window in the west gable. The old chapter-house in the base of the square tower has been stripped of its plaster, and with its fine groined roof and small lancet windows is well worthy of the work expended. The handsome "hearse" or brass chandelier bearing the arms of Andrew, bishop of Brechin, 1615, who gifted it in that year, is hung in its old place in the centre of the nave, and, like the rest of the church, is fitted with electric light.

Several valuable gifts have recently been made and are now placed in position. A native of Brechin has filled all the windows of the choir with the best stained glass. The scheme of subjects was prepared by the Rev. A. D. Tait Hutchison, and the effect as one approaches the steps of the chancel is wonderful. On the north side the windows display scenes in the life of Christ prior to the public ministry—the Nativity, the Flight, the Presentation, the Baptism, the Temptation. On the south side there are the Transfiguration, the Betrayal, the Crucifixion, the Resurrection and the Ascension. In the east gable of the choir the three windows represent the Redeemer's offices as Prophet, Priest and King; while the rose window over is filled with the Agnus Dei surrounded with cherubs and seraphs. The windows were executed by Mr. Henry Holiday, artist, London. At the east end of the south aisle the window is filled by figures of St. John and St. Peter. This window was erected by public subscription to the memory of the late Rev. John A. Clark. The corresponding window in the north aisle, containing figures of Isaiah and John the Baptist, is erected by Mrs. Shireess Will, of Ardovie, and her sisters, the Misses Shireess. The communion-table, made of fine oak, was the gift of the Women's Guild of the congregation. So was the pulpit, a beautiful piece of oakwork, with cusps and canopied niches containing figures, which stands at the south respond of the chancel. At the north respond a large Corennie granite font has been placed by the Rev. William Duke, D.D., of St. Vigeans, in memory of his parents.

The cathedral is a small one, and the clerestory and arcading is not so rich as was expected, but it has a simple dignity which makes it wonderfully attractive. Mr. Honeyman is to be congratulated on his work, which in many respects was not an easy one. It has been a true restoration, and every clue to the original has been followed up anxiously and conscientiously. Some of the new carving has been copied from old stones discovered in the masonry of the 1806 aisles, and it is interesting to note that Mr. Honeyman is of opinion that an earlier Norman church once occupied the site of the Gothic church now restored. Everything that could be spared was spared, and "the waste places of former generations" have blossomed into new beauty under the loving skill of the architect. It is fair to say that the restoration could not have been accomplished in anything like the time but for the interest and activity of the ministers of the collegiate parish, the Rev. John A. Clark and the Rev. A. D. Tait Hutchison, the former of whom died last year, to the great grief of the community. Something like 1,300*l.* is still required by the committee, for whom the National Bank, Brechin, gladly acknowledge subscriptions.

NOTES AND COMMENTS.

WE lately mentioned the friendship of M. RUPP, who for years devoted himself to GUSTAVE MOREAU, the French painter. He not only acted as factotum, but he endeavoured with all his might to convince the world that the greatest of all painters was his friend. MOREAU died, and M. RUPP became his sole heir. There was some money, and the entire property was valued at about 20,000l. It was understood between the two friends that 4,000l. was to be given to the Institut in order to found a prize as a memorial of the artist. M. RUPP paid over that sum. He then proposed to endow the State with MOREAU's works, and proposed that they should be hung in the building where the painter had resided. The Government decided to undertake the possession, M. RUPP paying all the charges. But they declined to keep up the museum, to heat it or guard it. M. RUPP offered to surrender every sou which he had inherited or possessed, but that was not sufficient. The Institut under the circumstances resolved to hand back the 100,000 francs towards the expenses of the museum, but no sign was given that the Government concended to accept the pictures, house and money. It seems incredible that for about three years M. RUPP has been compelled to defray all the charges which arose out of the existence of this gift to the public. A week or two since this gentleman, who had acted so disinterestedly and self-sacrificingly, was astounded by a Government demand for 350,000 francs as charges on the museum. He was informed subsequently that although he had enriched the State and deprived himself of his modest property, yet as there was no official acceptance of the gift he was responsible for the estimated expenses of the museum in the future as in the present. It is believed that steps are being taken to comply with the formalities of circumlocutionism, but at present M. RUPP appears indebted to the State to the extent of 14,000l.

VALUATIONS often give rise to litigation owing mainly to the difficulty of discovering who gave the first order for them. A case of the kind has just been heard at the Brighton County Court. The widow of the late CHARLES BACON sought to recover from Messrs. HARDY & CLARKE, solicitors, the sum of 26l. 5s. for the survey and valuation of the Dyke Hotel. Mr. HUBBARD, the owner of the premises, wished to raise 10,000l. on mortgage, and for that purpose a survey was made; then he wished to increase the amount to 12,500l., and it was necessary to go through the work again. The loan was not negotiated. Application was made to the owner of the property, who disclaimed liability and said that Mr. HARDY, the solicitor, had promised to pay for the survey, and it appears that on one occasion the solicitors had paid the fees. Different accounts were given about conversations on the subject, and eventually Judge MARTINEAU decided that Messrs. HARDY & CLARKE, who had employed Mr. BACON, were liable to the widow, while Mr. HUBBARD was liable to Messrs. HARDY & CLARKE. He would direct that Mr. HUBBARD should pay the amount claimed to Messrs. HARDY & CLARKE so that they should pay it to Mrs. BACON.

WHEN what is known as the Tarsney Act was passed in the United States, it was accepted as a triumph by civil architects. By its provisions the designing of public buildings was not confined to official architects. The Secretary of the Treasury was endowed with the power of calling in any architect in good practice for the preparation of the plans. The architect was to be aided by an officer known as superintendent, who was to be selected from a list of six men furnished to the architect by the Government. It has been found that although the superintendent is supposed to have no authority in directing the works, but is merely engaged for administrative purposes, yet he does not recognise that he is in any way responsible for the carrying out of his duties to the architect. He becomes an intermediary between the Government Department and the contractors and sub-contractors. The architect consequently finds that he has not the authority which is

believed essential in the case of a contract for ordinary works. He is allowed no voice in the selection of the contractors, and although he is responsible for having the work carried out in a proper manner, he cannot prevent the usual payments from being made according to the conditions of the contract. It was therefore proposed at the last convention of the American Institute of Architects that the Government should allow the architect to exercise as much authority over public buildings as he has been accustomed to do in his own practice. It is maintained that defective buildings arise less from faults in plans and specifications than from a builder's incompetency, and from the attempts he makes to carry out works in the least expensive manner in order to derive a larger amount of profit. It would be an advantage, of course, if the Government could adopt the suggestions of the architects, but as in the eyes of politicians, contractors, as they may exert influence over workmen who are voters, are of more importance than architects, a long time is likely to elapse before any improvement in the system is realised.

ONE of the old school of French artists who can still testify by his works that he is competent to paint important works is M. FÉLIX ZIEM. Fifty years have elapsed since he received a medal from the Salon. As far back as 1842 he was one of the artists who were invited to the Russian Court by NICHOLAS I. There, besides painting pictures, he gave lessons in art to some of the Russian princesses. The old painter was recently selected by the French Government to paint a picture of the meeting of the French and Italian fleets at Toulon, a work that is to be placed as a memorial of the event in the Ministry of Marine. M. ZIEM is not, however, exclusively a marine painter; he has produced works of other classes, and his name is honoured in Paris as one of the old representatives of ancient art who has been susceptible to modern influences.

EXPERIENCE has shown the difficulty of arranging a Lord Mayor's Show which shall not be suggestive of a procession of ill-trained supers from a circus. The pageants might be made interesting, but it would be necessary to arrange for their production in another manner to that which has long prevailed. This year it is hoped that ancient methods of weighing might have attraction for shopkeepers and those who deal with them. But to exemplify weighing it would be necessary to go back to a very early age. The Egyptians were masters of the process. In museums measures are to be found as well as objects with the weight inscribed on them, with cartouches of the monarch as a guarantee of accuracy. Weights were found in Pompeii, and as they were under the protection of MERCURY they may have differed from the standards and favoured the sellers. The sculptured representations of weighing souls in Mediaeval churches are proofs of the use of weights and scales. "Avoirdupois" originally signified goods which had been weighed, but from the time of HENRY VIII. it has been employed to designate a class of weight. The weight was used for groceries and foods, but it is doubtful whether the pound which is now established in England agreed with the old standard.

ILLUSTRATIONS.

WE publish this week illustrations of four of the designs submitted for the competition for the memorial of Queen VICTORIA. In our next number the fifth (Dr. ROWAND ANDERSON's) will appear. The descriptions of Sir THOMAS DREW's and Mr. JACKSON's design will be found on page 293-4.

THE NATIONAL MEMORIAL TO QUEEN VICTORIA.
SELECTED DESIGN. MR. ASTON WEBB, A.R.A.

DESIGN BY SIR THOMAS DREW, P.R.H.A.

DESIGN BY MR. ERNEST GEORGE.

DESIGN BY MR. T. G. JACKSON, R.A.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE first meeting of the Institute for the session 1901-02 was held on Monday evening last, Mr. William Emerson, president, in the chair.

The decease of the following members was announced:—W. L. Sugden, of Leek, elected fellow in 1892; H. Y. Thomason, fellow in 1862, architect of the art gallery and municipal buildings of Birmingham; R. J. Bennett, of Manchester; H. R. Lloyd, elected associate 1887; J. Mackland, J. Littlewood and James Brooks, elected as fellow 1866.

The Hon. Secretary said they would all deplore the death of Mr. Brooks. He was a familiar figure at the Institute meetings. Mr. Brooks was one of the few survivors of the old school of Pugin, and he never swerved during his lifetime from the principles initiated in that school. In his work he proved himself to be an excellent church planner, the lines of his composition being marked by their simplicity. Mr. Brooks also possessed restraint, a quality to be observed in most of his works.

It was announced that Mr. Emerson had been made an honorary member of the American Institute of Architects.

The President acknowledged the honour conferred upon him by the American Institute. He said he considered that the American School of Architecture was doing good work. They encouraged, as many members of the profession in England did, a freedom for imagination in present-day architecture. The Americans understood the importance of restraint in all their works. They studied all styles in their best schools, and they were bringing up men thoroughly grounded in ancient work. In alluding to the number of recently deceased members, the President remarked that the Institute had benefited by the sum of 1,500*l.* bequeathed by the late Mr. Arthur Cates.

The Hon. Secretary said Mr. Cates under his will had presented the Institute with 215 volumes from his architectural library.

On the motion of Mr. John Slater, votes of thanks were passed to the Glasgow Institute of Architects, the Glasgow Corporation, Glasgow University, Glasgow Art Club, Imperial Union Club and the Royal Scottish Society of Painters in Water-Colours for their hospitality to the members of the Institute on the occasion of their visit to Glasgow and the Exhibition in the summer.

The Secretary said, as the result of a recent statutory examination, a certificate had been granted to Mr. C. O. Nelson, of Chiswick, to act as district surveyor in London.

The President's Address.

The President delivered his opening address. He said:—I had occasion, in my two former addresses from this chair, to take a retrospective view, in the one of the architecture of the past century, and in the second to consider what might be the state of our art during the coming century. This year I shall but glance at certain current points which seem to me either important or of interest. First, as to the increase of the numbers and influence of the Institute. Our numbers, I am happy to say, maintain a steady increase, and each year more candidates present themselves for examination than on previous occasions. We have, in fact, some 1,700 actual members of the Royal Institute of British Architects, or over 3,000 members counting those of Societies in alliance with us. There are also some 1,500 probationers and more than 400 students, which is some proof of the value set on the Institute examinations and the trend towards improvement in education of architects. I think this speaks very well for our increasing prosperity, so far as it can be told by figures. Unfortunately, though our numbers steadily increase, death has recently made dreadful inroads on our members, for since this time last year we have lost twenty-one Fellows and five Associates. It is sad to find that amongst this number have been some of the greatest and most honoured names. The roll includes Barry, Burnet, Brydon, Brooks, Cates and Young; and many of the number were carried off while in the prime of manhood and busy in harness—two of them just as they had achieved the honour of being appointed to design and carry out two of our greatest public buildings. Truly we must feel that in the midst of life we are in death. Their loss we all deeply deplore.

That the influence of the Institute is growing and not waning is shown by the number of instances in which it continues to be appealed to on architectural questions by public and other bodies, both in the Metropolis and provinces, and the number of congresses and other meetings to which we are asked to send representatives and invited to express our views. There can be no doubt that if the Institute would only let its voice be heard on important points in respect to architectural questions as they arise, whether they be metropolitan improvements or other important schemes, we should, and ought, gradually to become the guiding spirit in such matters.

While touching on this point of metropolitan improvements and large architectural questions, I suggested last year the

advisability of some more organised system of control over design. Whether it were by a Ministry of Fine Arts, as proposed by me, or by a Royal Commission, as has been suggested since both by the President of the Royal Academy and Lord Wemyss, is of little matter so long as the responsibility were fixed. The discussions and very varied opinions expressed in the *Times* and other journals on such a question by writers qualified or unqualified to judge seems proof of the evident necessity for some such organisation. In America, at Washington, the same suggestion is being urged on the Government. It has been stated that the widening of Piccadilly was only a part of a large improvement scheme for that particular approach to the City from Kensington, in which the taking down and rebuilding of Walsingham House would afford an opportunity for a move in that direction. Whether this is so I have no knowledge; but the question I would ask is, Why deal with only one small portion of London at a time? The whole question of the rebuilding of London, enormously difficult as it may be or the huge expense it may involve, ought now, without further delay, to be considered. Definite improvements and building lines should be laid down in all important directions, and all buildings pulled down and rebuilt or altered in the future should be obliged to conform to the scheme. It would mean increased expense to the ratepayers as each portion of ground was taken by the authorities for the widening or improvement of the thoroughfares; but it would be a gradual work, and, though slowly, London would at length be rebuilt on a properly considered plan, instead of an improvement here or a widening there being effected without relation to any well-considered inclusive scheme covering the whole problem. And I would reiterate what I said last year as to the necessity for providing subways to avoid the constant taking up of the roads. I am glad to see that five parishes have raised an indignant protest against the ever-recurring interruption to traffic by street excavations, and that the attention of the London County Council has been drawn to the matter. Since writing the above, I see in this morning's *Times* that the highways committee of the London County Council will submit at the next meeting of the Council a report advocating the construction of a system of shallow underground tramways in London, with subways for pipes, wires, &c., on each side of the tramway subway, and that the experiment should be initiated in the new thoroughfare in course of construction between Holborn and the Strand. This is a step on a most important matter quite in the right direction. The consideration of the questions of the insanitary effect of large areas overcrowded by a dense population in flats, the shutting out of sun and air, arcades over footpaths, railway works in the Metropolis, sites for workmen's dwellings, &c.—these are a few of the many questions entering into any scheme of improvement, as well as the embellishment of the Metropolis by its public buildings, and they should be dealt with by the ministry or commission to which I have referred. If we do not wish future generations to hold us up to scorn and blame us for our culpable apathy, it is time that Parliament took some step in the direction indicated.

I must again this year refer to the question of competitions. A great deal has been written of late in some of the journals on the subject of assessorships in competitions, and evidently without knowledge of the truth of the matter or troubling to ascertain it. The suggestion has been that the blame of the dissatisfaction so constantly arising as to awards lies at the door of the President or Council of the Institute for not having exercised sufficient care in the selection of assessors. I have therefore had a list made of the competitions held since July 1899 up to September last, with the assessors' names and the results—that is to say, as to whether there has been any expression of dissatisfaction in regard to their awards—and the following is what I find to be the case. There have been during this period, as far as I can find out, ninety-seven competitions held in all parts of the country and Metropolis. Out of this number there were seventy-three in which the authorities chose their own assessors, or, at any rate, did not apply to the Institute to name one. Out of these seventy-three the assessors' awards were set aside and dissatisfaction was expressed in twelve cases, or, practically, one in every six competitions. In the remaining twenty-four the President of the Royal Institute of British Architects, or the Council in a few instances, nominated the assessors, and in not a single instance was the award of these assessors set aside, nor can I find that any expression of dissatisfaction arose at their awards. There was only one case in these twenty-four where any unpleasantness at all arose, and that was solely on the part of one person out of sixty-two competitors for the same subject, because a certain alteration had been made in the conditions by the assessor, who was appointed a week or two after those conditions had been issued by the authorities. As it apparently made no difference to sixty-one out of sixty-two competitors, it could not have been of serious importance, and there was no dissatisfaction expressed at the assessor's award. I think this proves how ready some even of our own members are to blame

either the management or the officials of the Institute when they do not even know the facts about which they are writing or talking. A little more loyalty and real honest endeavour to serve the ends for which we are all supposed to be united and working would be more to the point, and assist materially the work of the Institute for the good of our art and the profession at large. And on this I must quote and adopt some words of Mr. Peabody's in his address to the American Institute:—"We can only measure the amount of good the Institute has done by its output. Many a man who cares little for it benefits because others have cared. Many a man outside of our numbers is more respected in his community and has a more certain livelihood because the Institute has proved itself a reasonable public body. Certainly, through its influence the perils and hardships of competitions have been greatly mitigated. But all these are small and selfish ends. The real value of the Institute lies in its opportunities, in its openings for useful work and mutual high endeavour. Thanks to the wisdom of its founders, I think it has been a potent means of good. Thanks to them, it has none of the features of a selfish trade union. In a trade union a man's powers and skill are handicapped for the general good, but with us a member has entered into no engagements of any kind except that he will honourably practise his profession." This examination of the result of the enormous number of competitions in a couple of years only is enough, I should think to deter most men in the profession from taking part in them; but if not—and we choose to have it so—we should bear in mind that in every competition the larger proportion of the competitors must naturally feel disappointed, as there can only be one winner, and if a man does not care to take this risk he should not compete. As I said last year, one can only endeavour to nominate the right man as assessor, but even he is hardly likely, however level-headed, careful and just in his perceptions he may be, to please everyone. Anyhow, if the public continue to lay the burden of competition on the profession, and we prefer to bear this burden of enforced gambling, then at least let us be fair amongst ourselves, and insist that nothing shall upset the principle we have long ago laid down—that when a duly qualified assessor has been appointed, and has selected a particular design, the author of that design shall, unless there be some very special reason to the contrary, be employed to carry out the work. Otherwise we are simply playing into the hands of an unscrupulous public, prepared to take every advantage of our time, talents and money. Even should the assessor happen to make an award that does not commend itself to all, it will certainly be better for the profession in the long run that the award be upheld than that each dissatisfied competitor should endeavour to upset it. Our only safeguard is loyalty to uphold this principle.

Our Congress last year gave rise to a most interesting discussion on bridge design, by the courtesy of the Civil Engineers, at their Institution. Whether it may bear fruit in the more intimate relations of the engineer and architect on the question of monumental bridges in the Metropolis and provincial towns remains to be seen. The architectural effect of bridges must be the outcome of the construction at the inception of the design, and can scarcely be added as a dressing afterwards with advantage. It can, therefore, only be satisfactorily accomplished if engineers and architects would be willing to consult with each other at the commencement of any such scheme. Unless this be done, as the aim of the engineer is necessarily and properly, from his point of view, to construct in a purely scientific manner, usually omitting all that would add unnecessary weight or cost, the more such a purely engineering scheme is developed the more hopelessly ugly it usually becomes. The only way out of the difficulty appears to be for architects to study the subject of engineering for such schemes themselves, and, when opportunity offers, put forward their own views. Certainly, progress in the beauty of monumental bridge treatment may be made, if the designer will only remember at the outset that every idea in the design should be suggested by the construction, and that any ornamentation added for mere caprice certainly defeats its own object, if that object be the mere adding of unnecessary features as ornament to an already logical construction. Such friendly discussions as these between kindred professions cannot do otherwise than help in the appreciation of architecture as appertaining to engineering, and clinching the theory that architecture and engineering should go hand in hand as helpmeets the one to the other.

In speaking last November, from this chair, of the problems that the architecture of this century is likely to have to solve, I mentioned as one the planning of large churches to meet the needs of modern congregations, with a view to avoid the blocking of the central portions of churches in the Mediæval manner of our Gothic cathedrals. I wish to-day to go a step further on this point, though I do so with some diffidence, because any suggestion of alteration in our accustomed church or cathedral arrangements is looked on by many as almost heretical; but what I may say is with a view possibly to induce at some later date a discussion on the point I am going to

raise, namely, that of bringing altars forward nearer to the congregations than is possible with the present arrangement of deep chancels and choirs. Such a discussion might be very interesting and instructive from the architectural side of church arrangement, as well as in relation to the question of congregational worship in our larger churches. In 1884 I wrote in one of the building journals some thoughts on church planning, the object of which was to show that the common fourteenth-century plan, with the crossing blocked by large piers and the enclosed choirs in the centre of the church though well adapted for the Mediæval and monastic times is quite unsuited to modern worship in the nineteenth century. This view now seems generally accepted; but further than this, the fervent spirit that has developed itself under the Church revival of late years renders it necessary that the large congregation should be able both to hear and see all parts of the services for full participation in them. Beresford Hope in his "Worship and Order" (written many years before his death, but still, I am assured, expressing his latest views, for he presented copies of this book to friends shortly before he died), says:—"I tell the man who wants to build a church, which shall be at once useful and beautiful, to forecast that church in his mind's eye, to forecast it at work—full of worshippers joining in the 'Te Deum,' upon their knees at the Holy Communion, of worshippers listening to the evening services. Let him guess, as he only can, by such a glance how everyone can hear and everyone can see. Let him notice where his light falls, and where it is darkness, and in particular let him make sure that the altar and its adjuncts stand well forward and are not lost in the obscurity of some unlucky shadow. There is no reason, beyond the prejudice which such a novelty might excite, why at times one should not construct a circular or polygonal nave. The nave of the Temple Church is precedent enough, and the glorious decagon of St. Gereon at Cologne would hold a goodly multitude. There are no more congregational naves anywhere than the octagon at Ely and the dome of St. Paul's." All which means that what is wanted now, and much more now than when the above words were written, is a large open space for worshippers, with the altar brought well forward, and not buried in the depths of a lengthy chancel or choir, as in the case of the fourteenth-century English cathedrals, of which type the new one at Truro is a modern representative, and, however good in its architecture, is simply an anachronism. Tradition and conservatism are well in their way, but should not go the length of hampering modern requirements with obsolete arrangements made for the benefit of colleges of monks, and not for the people. The desirability of a good open space for congregational purposes is now by most thoughtful minds generally conceded. The point I would suggest for reflection is the possibility and propriety of a further advance in increasing the facilities of large congregations for seeing and hearing, and participation in those parts of the services conducted at the altar, by an alteration in its position, which might, while being a step in advance towards meeting modern congregational wants, possibly also be found to be in a measure almost a return to early usage. In a modern cathedral, say, for argument's sake, the choir must contain stalls and seats for seventy to one hundred persons, with proper space for altar communicants and steps. The length would be at least 100 or 120 feet, and though this is considerably less than the depth of many Mediæval churches, it nevertheless removes the east end of the sanctuary so far from the nearest members of the congregation that it becomes practically impossible for them as a body to see or hear the services conducted at the altar. The question I ask is, conceded the open space in the centre of a large church, Why should we not consider the advisability in the future of altering the arrangement of our choirs and placing the altar at the entrance to the choir instead of at the east end, with the clergy, choir and bishop's throne behind the altar? To see if there is any reason in such a suggestion let us look back at some points in the history of church planning. The seats for the clergy being situated behind the altar is a far older arrangement than the position assigned to them in the Mediæval and monastic times. It existed at first in some of our own early cathedrals, as you all know—at Norwich and Canterbury, for instance. I believe I am right in stating that the view of the Anglican party in the Church is that their rules, doctrines and worship are intended to be in accordance with those of the earlier Church, and go back to the time before the bishops of Rome established the Roman Church as the chief of all the churches and arrogated to themselves the position of supreme head as Pope or Father. Now at this early period it is certain that the arrangements in the Christian churches provided for the altar being immediately in front of the congregation, and the seats for those who officiated at the various offices and at the altar being behind it. It is interesting to note how the earlier arrangements developed and were altered to meet the requirements of various times and peoples and changes of thought. Let us glance broadly at the various alterations that have occurred.

In the early basilican arrangement, as in old St. Peter's at Rome and St. Paul's without the walls, St. Apollinare at Ravenna, St. Clemente at Rome, both in the ancient and lower and the later or upper churches, and later also at St. Ambrosio at Milan, Sta Maria Maggiore at Rome, also at Torcello and Parenzo, and in the Armenian Church of Pitzounda, in the Coptic churches, and, as before mentioned, in Canterbury and Norwich, and also at the little Early church of Deerhurst, it was evidently thought desirable that no great distance should intervene between the congregation and the altar, and for this reason no doubt it was placed in front of the Bema, thus bringing it in close proximity to the worshippers. In those days the form of worship was comparatively simple, and the officiating clergy, who probably acted as cantores also, were seated behind the altar, their seats being ranged around the Bema, with the bishop's throne in the centre, and the worshippers evidently took full part as well as the clergy in the ceremony of Divine worship. These altars, it is true, faced the reverse way to ours, and the priest officiated standing behind the altar facing the people and the east. Now both priest and congregation in our churches usually face eastwards or towards Jerusalem, perhaps originated by Solomon's prayer at the dedication of the Temple, though other reasons are more usually given for the custom. Some few centuries later, when, in consequence of the holy mystery of the Divine sacrifice being more prominently suggested in the Church arrangements, indicated by the veiled altars, the ritual had extended and comprised more ceremonial, and more attention was paid to music, the addition of a chorus cantorum or choir was made, intervening between the altar and the congregation and jutting into the nave. The clergy still occupied the same position behind the altar during the missa and officium divinum, but subsequently those in holy orders, as well as the cantores, occupied the lower portion of the choir during the officium divinum, and those only actively engaged in the missa occupied the Bema. One evident reason of the choir being thus brought forward into the nave between the altar and the congregation in the basilican churches, as in the upper church of San Clemente and others, seems likely to have been, that had the increased number of singers been placed, like the priests, behind the altar, it would have necessitated in such a plan the position of the altar being moved some bays down the church towards the centre of the nave, by which arrangement many of the worshippers in the large aisles would have found themselves during the missa behind the altar and the officiating priest instead of in front. It seems to me there could have been no other logical reason for the departure from the first method of arrangement, which brought the altar in greater proximity to the congregation; and from this departure by gradual steps our Mediæval choirs were evolved, resulting eventually in the abbey churches in the entire shutting off of the altar, clergy, brotherhoods and choirs from the congregations by the elaborate screens even now remaining in many churches both here and abroad. The more exalted ritual with its greater suggestiveness of the importance of and reverence for the holy mysteries, aided by other Roman doctrines, seems to have led to the screening off of all those engaged in the service of the Church from the congregations by the veiling of the altars, as in the Coptic and Eastern churches by the iconostasis or solid screen which separated the altar from the choir, and also a further and more open screen which again separated the choir from the congregation. Instances of both these arrangements are found—of the first in the church of Abu Sargah and the old Coptic churches of Egypt at old Cairo, in Russia and Armenia; and of the second in the upper church of San Clemente at Rome and other early churches, and at Torcello; and possibly some such similar arrangement was adopted at old Canterbury and Norwich and the little ancient church of Deerhurst. Again, later on in Mediæval times, when civilised but Pagan Rome had fallen, and education for the masses had disappeared, the Church being the only light of the dark ages, and the bishops of Rome had added worldly pomp and power to the spiritual character of their office, and claimed for themselves the title of Pope as head or Father of the Universal Church, it was to be expected that the clergy and monastic orders should have conceived it necessary, considering the strong line of demarcation they had drawn between themselves, their elevated office and the ignorant laity, to emphasise this point in their churches by altogether enclosing for themselves and occupying the central and best part of the churches and cathedrals. This was the natural evolution of the first enclosed choirs in the basilicas placed between the altar and the congregation, and completed by the separation of the clergy and monastic bodies from the laity. This arrangement is familiar to us all in the numerous cathedrals with the enclosed choir or pulpitum. By this plan the congregations were debarred from any prominent or general joining with the clergy in Divine service or public worship, excepting in connection with the Mass or services held at the altar which it was then

found necessary to place in the nave, outside the choir or rood-screen, as was the case at Lincoln and York. These altars were for the popular services. There was a great screen between the western piers of the central tower, the altar in the middle, and doors on either side. A necessity for this altar for popular or congregational services is felt at the present time in some of our cathedrals, as at Norwich, in consequence of the enclosed choirs still remaining. In the early Mediæval times, that the congregations should unite with the clergy in public worship was, judging by the arrangements then existing, apparently considered of small moment. The people were to be impressed, or perhaps improved, from a spiritual point of view, but their worship was done for them, if I may so express it, by proxy, "as in the Jewish sacrificial rites, when the priests and Levites acted alone, but with this difference, that in this case the people could not even join in the prayers and praise, as did the Jews, for the reason that the Divine offices were not in the vernacular." It was when, later on, education, both religious and secular, caused an expansion of thought and feeling in the popular mind that an alteration was felt to be necessary, and it was the recognition on the part of the clergy for the necessity of the participation of the congregations in the whole of the services that caused the introduction of these second prominent nave altars in such proximity to the people that all could easily see and hear, and, at last, the holding of the services in the language of the people, as an additional aid to their heartily joining in them. This principle of two altars is sometimes considered not in accordance with the feeling of the English Church, which it has been said is one church, one altar; but it seems to have been the outcome, first, of the desire for the separation of the clergy and choir from the congregation, and, secondly, of the basilican churches having first arranged the choirs intervening between the altar and the congregation. If the basilican churches—which, after all, were first derived from courts of justice—had had, instead of the Bema, long chancels or choirs to accommodate a large number of cantores, like the late cathedrals, is it not possible that the same relative position of the altar near the congregation would have been maintained, and the chorus cantorum have been placed behind it with the clergy, instead of in front of it? The fact that later on the nave altars outside the choir were found necessary seems, to my mind, to argue that it would have been so. In Spain in the fifteenth century the arrangement obtained of the coro or choir being placed in the nave and the altar in the eastern part of the church, with the congregation intervening between the altar and the choir. A modified form of this principle of arrangement is now to be seen at Westminster Abbey, and this plan was no doubt also the outcome of the feeling for the necessity of the altar being not too far distant from the congregation. There are also many instances now in Italy of the choir being behind the altar, but in some of these cases the public are brought too near the altar, which seems somewhat derogatory to reverence, as in Sta Maria del Fiore at Florence, where the high altar was placed under the dome, and the congregation entirely surrounds it. At Sta Maria Maggiore the altar is still at the entrance of the Bema in the nave, and the choir and stalls for priests behind it on either side of a second altar at the end of the apse or Bema; and a somewhat similar arrangement exists in the semi-Romanesque churches of Cologne and St. Gereon, thus bringing the altars in proximity to the congregations. Does it not seem evident from these variations at different times of the arrangements made to suit the feelings and education of the ages that there can scarcely be said to be a hard and fast line drawn, or any grave law that would be broken if the present plan of accommodation of our tripartite arrangement of congregation, choir and sacrum were somewhat altered to meet modern requirements, however much in some respects our sentiment and conservative feeling make us averse to alterations? The present arrangement, when we consider the late earnest Anglican movement, which claims to go back in its faith and ritual to the period previous to the absolute sway and domination of the Roman Church, seems in some respects to be wanting and illogical, where, as in our larger churches and cathedrals, large choirs and numbers of clergy have to be accommodated, causing by this plan the altar to be removed from the congregation, say from 80 to 150 feet, and suggests the necessity for some revision in our plan which shall, as in the early times, bring the altar and the services conducted at it in closer proximity to the worshippers. I quite feel that difficulties arise which are not easy to surmount in the suggestion of the principal altar being placed at the entrance to the choir, but I do not see that they are insurmountable. First, there must be the elevation of the choir above the nave, and then of the sacrum and altar above the choir; but with a wide choir and a large open space in front, I do not see that this would be impossible any more than at Sta Maria Maggiore in Rome, or at the Duomo in Florence. Also there is the question of a great reedos, but a canopied altar and a dossal of beautiful workmanship and precious and rare

materials might be infinitely more satisfactory and in better taste than some of the large and elaborate altar-pieces of soft stone and inferior sculpture and workmanship that have been erected in many of our churches in late years. One objection, no doubt, that would be raised to such an arrangement would be, that by the present plan we are supposed by degrees to arrive at the holiest of all at the altar, which, therefore, is removed furthest from the vulgar; but the Roman Church has evidently not attached weight to this, and why should ours? A second altar might be placed at the extreme east end and used for smaller services, the bishop's throne and the choir and stalls remaining in the same relative positions as at present. With the enormous congregations our churches are now attracting, width of nave and choir and spacious interiors are a necessity, and with these, were it found advisable, this arrangement could, I imagine, be made to suit our worship as easily as the Roman Church has, in numbers of instances, made it suit theirs. As to its advisability in regard to sentiment and conservatism, no doubt many adverse arguments could be raised; but, all the same, the question would still remain of the vital necessity for fervent worshippers being able to see and hear and join in all parts of Divine worship. The subject has been in my mind for a number of years, which must be my excuse for bringing it before you on this occasion, and, after all, it is as much an architectural question as an ecclesiastical one. At any rate, I am not the first to have proposed such a thing, and numbers besides myself are interested in the subject. I would commend the point for consideration to any of you who may be likely to have the chance of erecting a large church or cathedral suited to modern times.

Gentlemen, this is the last time I shall have the honour of addressing you on the first day of a new session, and I can only conclude by once again saying how greatly I feel the honour you have conferred on me and the confidence you have reposed in me by again electing me as your President, and I assure you I shall continue, as I have ever endeavoured to the best of my ability, to do all I can to further the interests of our noble art, to extend the influence of this institution, and to uphold in the highest sense, as far as I am able, the dignity of our profession. To these ends the Council are ever ready to give their unqualified aid, and I only ask you all to loyally join with us in our endeavours.

On the motion of Mr. J. MACVICAR ANDERSON, seconded by Mr. G. H. FELLOWES-PRYNNE, a unanimous vote of thanks was passed to the President for his address.

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last at 9 Conduit Street, W., Mr. W. H. Seth-Smith, president, in the chair.

A vote of thanks was passed to the Rotary Photographic Company for a donation of photographs of Rome for the Architectural School.

The President announced that there was a vacancy on the committee owing to Mr. A. T. Bolton's resignation prior to his appointment as master of the School. The committee have selected Mr. R. H. Weymouth to fill the vacancy, and he will be formally nominated at the next meeting.

The following were elected members of the Association:—Messrs. C. M. Edwards, E. F. Knight, W. H. Hillyer, H. Bailey, J. H. Gott, A. G. Parker, H. L. Samson, B. B. Hooper, W. J. Parker, J. H. Belfrage, C. J. Calder, J. C. Corblet, J. H. Crabtree, J. J. Crowe, jun., L. H. Harrington, A. J. Healey, D. S. Jennings, H. A. P. Pierce, L. Roberts, S. H. Stock, F. A. Stowell, T. J. Tatham, T. Thorne, G. F. Webb, H. D. Aubrey, A. B. Botterill, W. B. Sinclair, E. Chaplin, R. B. Curven, M. E. D. Dixon, J. V. Gibberd, Norman Hall, C. R. G. Harrison, C. McJarrow, H. Kemp, C. U. Kilner, D. M. O'Connor, A. E. S. Payne, P. Phipps, G. A. Potts, F. G. Russell, S. M. Spoor, E. G. Stevenson, R. W. Suttle, W. J. Tomlinson, W. I. Travers, C. F. Ward, R. H. Willson and B. H. Sutton.

Mr. ALEXANDER WOOD, F.S.A., read a paper entitled

Early and Mediæval Cambridge.

It has been said that Cambridge was, commercially speaking, never a very flourishing place. This appears to me over-hastily said. At Oxford the colleges have fairly strangled the town, or rather city, which in the early history was a commercial capital, and which one finds mentioned with London and Bristol. Cambridge has lost its commercial, but has retained its agricultural, consequence.

In the history and constitution of its Guilds we may read the record of its early unfulfilled promise. Guilds are of very early origin, and the English are the earliest. The Guilds were lay bodies, and existed for lay purposes. In the case of

the three Guilds in Cambridge given in the return (12 of Richard II.) one altogether excludes the clergy, another prescribes that they are to have no part in its management, whilst the third has a chaplain, but with the condition that if the funds run too low to maintain both a chaplain and the poor brethren, the chaplain shall be stopped.

Two Guilds—those of Corpus Christi and the Blessed Virgin—combined to found Corpus Christi College. The Guilds themselves united and bestowed much of their property in houses upon the college. This excited the people of Cambridge, who, in 1381, instigated by the Mayor, and led by a certain James of Granchester, a local Wat Tyler, plundered and destroyed the house of a University official, the Esquire Bedell, whence they hurried to Corpus Christi, broke open the college gates, assaulted the master and fellows, and seized upon the college charters and plate. They next went to the house of the Chancellor of the University, whom they constrained to subscribe two bonds, subjecting the University to the town, and engaging the University not to prosecute the town on account of these violent proceedings. The mob, after burning the University charters in the market-place, assailed Barnwell Priory and the nunnery of St Rhadegunde, both of which had large possessions in the town, and the riot was only put down by the arrival of the Bishop of Norwich with an armed force. Dr. Keys relates in his history that after the burning of the University charters an old woman, Margaret Sterr, threw ashes—I suppose those of the charters—into the air, and shouted, "Thus let the learning of all scholars be confounded."

This amiable lady appears to have possessed an exuberance of civic life, and there is this to be said for her, that throughout the whole Middle Ages the colleges were thrusting themselves into and absorbing the most important region of the town, that adjoining the river, and were unpopular in consequence.

There were till lately several old houses in Cambridge, particularly in Bridge, Trinity Street, formerly the High Street, and the neighbourhood of the Petty Curry. The Jewry was in the parish of St. Sepulchre's, and occupied a large part of All Saints parish, including the site of St. John's College. The Synagogue and the house of Benjamin the Jew (afterwards converted into the Tolbooth) were not in the Jewry but in the market-place, near the present Guildhall. Some have thought that the Jews did not live in the Jewry, but that is a mistake. As a matter of fact, they constructed numerous stone houses in and about the Jewry at a time when the majority of houses were constructed of wood.

The presence of Jews in a town in such numbers as to have a special quarter assigned them is an evidence of its commercial importance.

I have referred to the Cambridge Guilds at an early date. At that time their ordinances were full and original. It is probably an evidence of the commercial decline of Cambridge that a very singular change took place in the fifteenth century. Nowhere else in England did, as in Cambridge, one Guild after another simply copy out the ordinances of an older Guild. Ordinances professing to be those of distinct Guilds, with more than forty years between them in the dates of their foundation, "are more identical in shape and words, so far as these could be used by separate bodies, than are the different versions of what are avowedly copies of the same by-laws."

The Cambridge charters have been published in the course of the present year under the editorship of Mr. F. W. Maitland and Miss Mary Bateson.

The churches of Cambridge would take a volume in themselves. To make the study of them intelligent one has to make a circuit of several miles round Cambridge, and even further than that at individual points, to trace their similarity to other churches in the same district. Thus what I have seen described as the singular tracery and form of the windows at St Michael's, Cambridge, proves not to be singular when compared with that at Over, some miles to the north-west of Cambridge, which appears to be by the same architect or band of workmen.

I shall omit all notice of the most remarkable church in Cambridge, St. Sepulchre's in the Jewry, as that is well known and has been fully described as one of the round churches of England. I shall speak of those only which were connected with the colleges, and in doing so I shall take them in chronological order, as they existed in and were part of the town before the colleges were built.

The oldest church in Cambridge and the oldest building in the town is St. Benedict's, or St. Bennet's Church. Its situation is slightly to the west of the site of the Austin Friars, and immediately adjacent to Corpus Christi College. The body of the church was restored by Mr. R. Brandon, and exhibits few traces of its remote antiquity. The tower, however, remains intact. It is of that version of Early Romanesque which we commonly call Saxon. It is in diminishing stages, not in one upright mass, as the tower of St. Michael's, Oxford. The material is rough masonry, the quoins being in "long-and-short" work. Of the three stages of which the tower is composed, the lowest occupies nearly half of the entire height. The divisions are made by plain projecting string-courses. In

in the midst of each face of the belfry stage is a window divided by a central baluster standing in the midst of the thickness of the wall, and supporting an abacus extending completely across the wall and bearing two semicircular window-heads consisting of a single stone. There are smaller windows in each face set laterally to the larger ones, but on a higher level. The baluster shafts of the central windows are ornamented with a band of rudely-carved rings. The crowning member is a plain coping.

The tower of St. Bennet's communicates with the nave by a massive semicircular arch having capitals adorned with highly-carved representations of animals. Of the church contemporary with the tower only a few fragments remain built into the existing walls.

The nave is of the thirteenth century.

The original approach for the parishioners was by a porch, no longer existing, at the west end of the south aisle.

The south aisle of the chancel is formed by a building that in Mediaeval times consisted of an upper and lower chapel, the lower of which was used as a lecture-room. In the north wall is a window commanding a view of the parochial chancel. This building, deprived of many interesting features, is still connected with Corpus Christi College by a gallery supported by a four-centred archway.

The advowson of St. Bennet's was purchased by the monks of Corpus in 1350, and the royal license for the appropriation was obtained in 1352, but was not acted upon until a very late date. The college was in the parishes of St. Bennet and St. Botolph, one standing at one and the other at the other extremity of the site. The statutes of the college required its members to attend service daily in one or other of the churches.

A trace of the former connection with the college is the monument in St. Bennet's of Richard de Billingford, Master of Corpus in 1398, who died in 1432.

Much the finest example of First Pointed in Cambridge is that at is now, and has been since the early part of the sixteenth century, the chapel of Jesus College, formerly that of the priory of St. Rhadegunde. It was erected between the years 1230 and 1245, the north transept being the oldest portion of the existing building. It was originally in the form of a cross, with a tower in the centre, and had, in addition to the transepts, aisles on the north and south sides of the eastern limb, flanking along half the extent of its walls and forming chapels, which opened into the chancel by two pier arches in each wall. Of peculiar beauty are the piscina and sedilia; the series of octagonal windows, with blind arcading between them, in the chancel, and the roof-storey gallery on the inner side of the nave walls. The piscina was thought so beautiful that it was copied in the parish church of Histon, to the north of Cambridge, and in the ancient Hospital of St. John, where St. John's College now stands.

The nave had seven piers on either side between it and the aisles. These piers were alternately cylindrical and octagonal.

Upon this splendid fabric Bishop Alcock of Ely brought about as little else than ruin in transforming it into a college chapel. A considerable amount of his work has been undone in our own day, and there appears to be no reason beyond the sense that would be incurred to prevent the whole being brought back to its primitive condition.

The Cambridge example of the Second Pointed style is the church of St. Mary-the-Less without Trumpington Gates, attributed to Alan of Walsingham, remarkable for its window tracery, and particularly for that of its east window, in which one sees an approach to the Flamboyant character. The first church on this site was in the Norman style, and was known as St. Peter's without Trumpington Gates to distinguish it from St. Peter's by the Castle. The college was named St. Peter's in this church.

This church fell down about 1350. The actual church of St. Mary was built as Merton chapel or church in Oxford to serve both for the college and the parish. It is a lofty body without aisles or any structural division between nave and chancel. The separation was effected by a screen. The length is 100 feet and the width 27 feet. The church is divided into six bays, each of which, except the westernmost, is a double bay in plan. It is lighted by lofty windows having between them deep buttresses. The tracery of the windows on the north side is all modern, with the exception of that in the westernmost window. In the eastern gable and in that on the north side are windows, the tracery of which is exceptionally rich and flowing. The tracery is in the same style and even in the same patterns as that of the same date in Ely Cathedral. In the fourth bay are traces of chantries both on the north and south, opening from the chapel by doorways and decorated with rich complex foliation which formerly overhung the monuments placed upon the line of the foundation of the wall. At the east end of the church is a vestry in two storeys attached against the south wall of the easternmost bay, whilst against the next bay is an apartment or vestibule, entered from

the south side of the choir. An ancient stone staircase leads from this vestibule to the gallery communicating with the college, so that the members of the community could use this as a private entrance. The floor of the vestry is raised upon a vault, which was used as an ossuary, or charnel-house. The gallery connecting with the church is of the middle of the fourteenth century, at which date the choir was refitted. The new quadrangle of Peterhouse was built at the same time.

At St. Edward's Church the aisles to the north and south of the chancel belonged, that on the north to Trinity Hall, and that on the south to Clare College.

The south aisle of St. Michael's Church served anciently as the chapel of Michael House, one of the collegiate establishments on the site of Trinity College. The north aisle was the chapel of Gonville Hall. In this church was buried Hervey de Stanton, minister of Edward III. in 1337 and founder of Michael House.

St. Mary-the-Great is the university church. It has a lofty nave with span aisles and lighted by twenty windows in the clerestory.

One might be tempted to think on entering a college that the chapel was the most important building, the first built, and that all the other buildings had clustered round it. That is not the historical fact. The least ambitious part, the chambers, comes first. Originally chambers were lodgings in private houses, such as the accommodation—if such it can be called—for students in London or in the Scottish university towns. Next, larger or smaller bodies of students came to be entertained by a host, who furnished a common table, to the cost of which, however, each student contributed his own expenses. So we have hostels or inns. Some hostels were of sufficient importance to have parts of the parish churches appropriated to them. Then colleges came to build their own chapels, of which arrangement Pembroke is the earliest example in Cambridge. The chamber, the hall, the chapel, such was the progressive development. Eventually, with the exception of St. Mary's, the parish church ceased to enter into university life.

So also have monastic establishments. During the Middle Ages there were many monastic houses in Cambridge. The monks of Ely had one hostel, those of Croyland another, those of Norwich a third. Of the friars the Franciscans established themselves at Cambridge as early as 1224, in 1249 the Carmelites moved in from Chesterton to Newnham, in 1257 the friars of the Order of Bethlehem settled in Trumpington Street, and in 1258 the friars of Penitence settled in the parish of St. Mary-the-Great, whence they afterwards removed to the parish of St. Peter's, where their buildings were eventually absorbed by Peterhouse. There were added to these at a rather later date (1273) the friars of St. Mary, and two years afterwards the Dominicans. The Austin Canons had been for two centuries and a half established at Barnwell Priory, and the brethren of St. John's Hospital—also under the rule of St. Augustine—were established in 1135 by Henry Frost, a burgess of Cambridge.

Two Cambridge colleges, which fall without the Mediaeval period, Sidney-Sussex and Emmanuel, are built, the former on the site of the Franciscan or Grey Friars' house, Emmanuel on that of the Dominicans or Black Friars. The Carmelite house was situated between King's and Queen's Colleges; the Austin Friars near the site of the new museums; the White Friars of the Order of Bethlehem on the site of Addenbroke's Hospital.

The alleged history of the town and University of Cambridge in their early days is an impossible fable, and the account attributed to Peter of Blois, archdeacon of Bath, is not history. Universities grew up from the episcopal and monastic schools. Something was wanted of wider range than their comparatively contracted teaching, and what became universities sprang up by the efforts of capable and enterprising teachers at suitable spots. Separate schools or colleges came in time to supplement the universities and to impart a more familiar and methodised instruction. This process was followed everywhere in Western Europe, except, indeed, in Scotland, where the students do not reside in colleges.

The word university is simply a Mediaeval law term for a corporation. When academical corporations were founded at Paris and Bologna they gradually absorbed into themselves the use of the word university, which had hitherto been common. The School of Bologna was called the University of Scholars, that of Paris the University of Masters, because in the one the students enrolled themselves into a corporation, and in the other the masters obtained for themselves corporate rights.

A college means properly a number of persons incorporated as colleagues for certain common purposes; the building is the house (*domus*) and hall (*aula*) and hostel (*hospitium*).

The only buildings required by a university as such were a place to hold meetings and ceremonies, a library, lecture and examination-rooms.

We know the appearance of the Cambridge schools in the middle of the fifteenth century. On the north side of the

Quadrangle stood the Theology School, and on the west was that of Canon Law, with the new library above it. To these on the south side were added the Schools of Philosophy and Civil Law. The whole building appears to have been completed in 1470 or 1471. The south building was entered by a vice or turret staircase at the north-east corner, known as the schools' tower and as the schools' belfry from containing the schools' bell. It formed part of the east range containing the gateway—still preserved at Madingley, near Cambridge—which was begun in 1470. The east building occupied the space between the staircase and the Theology School. The entrance gateway had above its archway shields bearing the arms of England supported by lions, and those of Archbishop Rotherham of York. On the side towards the Quadrangle were seen the arms of Edward IV. and of Richard III.

These schools were the outfit of the Mediæval University of Cambridge. They were confined to a single building. The colleges, on the other hand, were numerous. Still, they had a common character, so that we say now of a building that it is or looks like a college.

It has been argued that the dispositions of a monastery were derived from those of a Roman villa, and in particular from those that partook both of the character of the town and country house, and this resemblance has been worked out in detail. The cloister, with its pillars surrounding an open court having apartments opening from it, is, it has been argued, clearly derived from the peristyle common to the Roman town house and the country mansion, which was the part of the house reserved for private use. The outer court, with its stables, granaries, &c., corresponds with the villa rustica of the Roman country house. The tablinum becomes the chapter-house. The kitchen and refectory are in both cases situated on the outer side of the court. It is easy to press the analogy too far, but there is an evident truth in it.

So it may be said that there is between the general plan and disposition of a college an analogy with that of a monastery. The general enclosure within walls, the disposition into courts surrounded with buildings, the cloister, the refectory with its attendant kitchen and offices, the chapel (where it existed), the master's lodge corresponding to the dwelling of the abbot or prior, were similar to parts of the monastic structures or those occupied by the secular canons. The common dormitory, however, was a feature not reproduced, as the members of colleges slept in rooms or chambers, and were chamberers or chums. In Cambridge the chapel, the library, the master's lodge, and the great gateways of the later were wholly wanting in the earlier colleges. Even the disposition in a square or quadrangle was not at first attempted. The founder would purchase land and houses and accommodate them to the use of his college.

The colleges which fall within the Mediæval period are fourteen in number.

1. St. Peter's, the earliest of the Cambridge colleges, was founded by Hugh de Balsham, bishop of Ely, in 1284. He transferred to certain hostels on this site scholars whom he had previously placed in St. John's Hospital. He bequeathed funds which enabled his scholars to purchase land to the south of St. Peter's Church (now Little St. Mary's) and built upon it a handsome hall. The quadrangle was not begun until 1424. The buildings were then carried on continuously until about 1466. The north, west and south sides were successively undertaken. The east side was still occupied by the original hostels.

2. Clare College was founded in 1326 by Dr. Richard Badew, chancellor of the University, and was originally known as University Hall. The college was founded anew by Elizabeth de Burgo, third sister and co-heiress of Gilbert de Clare, Earl of Gloucester and Hereford. This college does not appear to have been arranged upon the quadrangular plan until subsequently to the Mediæval period. It is now wholly Renaissance, and the best specimen of that style in Cambridge.

3. Pembroke College is one of the four colleges founded in the middle of the reign of Edward III. It was founded by Mary de St. Pol, second wife of Aymer de Valence, Earl of Pembroke. The Earl died suddenly in France in 1324, when his widow became foundress of Denny Abbey, between Cambridge and Ely, and in Cambridge of a house of scholars with the name of the college or hall of Valence-Mary, by way of jointly commemorating her husband and herself. The south side of the quadrangle was begun in the lifetime of the foundress, and the construction of the chapel—the first college chapel in Cambridge—was authorised by a Papal bull in 1355. The Countess had originally chosen another site for her college, and St. Botolph's Church was to have served as chapel. The very diminutive court at Pembroke is, with the exception of the building on the south side, of later date than 1351, when the site for it was obtained. Henry VI., in his charter, calls this "the most noble, renowned and precious college, which, among all others in the University, was ever wonderfully resplendent."

4. Gonville Hall was originally erected on another site and

transferred to the present by William Bateman, bishop of Norwich. The chapel, occupying part of the south side, built in 1393; the chambers that complete that side and the west side in 1441; the east side was not built until 1471. The chapel was built with its east end free, no building abutting upon it.

5. Trinity Hall has the peculiarity of an entrance court interposed between the quadrangle and the street, like the curia of a monastery. The quadrangle is larger than in previous college—115 feet long and 80 feet wide. The founder, Bishop Bateman, is believed to have built the hall and range next the street. The rest of the west range and north range were added in 1374. The chapel is believed to have been built in the fifteenth century. Trinity Hall was a house of study for the monastery of Ely prior to its conversion into a college for the study of civil law.

6. Corpus Christi College, built between 1352 and 1360, exhibits the first regularly planned close quadrangle, as it is a hall range on the south, containing the hall, kitchen, master's lodge, and of chambers upon the other three sides. The buildings are low and of equal height throughout. There was no chapel, but, as I have stated above, two parish churches, to either of which the students could resort.

7. The first stone of the old court of King's College was laid in 1441. The area was so cramped that the formation of a regular quadrangle could not be attempted. The first stone of the chapel for the enlarged foundation was laid in 1471. The design for the enlarged college was never executed, the large southern quadrangle has sprung up in quite modern times. A closed quadrangle was contemplated, of which the chapel would have formed the north side; the west side would have been occupied by the library, the hall and the provost's lodge; the south and east sides by chambers. Westward of the chapel would have been a cloister, like Wykeham's at Winchester and New College, Oxford, with a lofty detached campanile.

King's College was founded by King Henry VI. in 1441, with a rector and twelve scholars. Two years later the king's plan was greatly extended and the endowment was made for a provost and seventy scholars. The college was not completed until the reign of Henry VII., although the Lancastrian kings of the Yorkist kings contributed to this Lancastrian foundation by Henry VII.

8. Queen's College was founded by Margaret of Anjou, wife of King Henry VI., in 1448, for a president and four fellows. The annual revenues amounted to 200*l.* a year, a sum of much greater purchasing value then than now. The principal quadrangle was completely designed and finished in a few years. It is entered on the east side, which, as also the south, is occupied by chambers. The hall, kitchen and buttery are on the west side, whilst the original chapel and the library were to the north.

The first stone of the chapel was laid for the Queen by Sir John Wenlock, who was afterwards slain at Tewkesbury, who caused to be engraved upon it (in Latin) the inscription: "The Lord will be a refuge to our Lady Queen Margaret, this stone for token," a prophecy ill-fulfilled by the event. The building of the college was interrupted by the Civil Wars; the president, Andrew Duckett, was successful in obtaining for it the patronage of Elizabeth Wydeville, queen of Edward IV. The number of fellows was raised to nineteen, and as many as forty-five scholarships were founded. The endowments were much increased by Richard III. and other benefactors.

Soon after the erection of the great quadrangle a large range of buildings was erected to the west, with, what is an exceptional feature for Cambridge, a cloister-walk on the ground floor. The arches are plain four-centred arches of brickwork, of three chamfered orders.

9. Catherine Hall was founded in 1473 by Robert Wenlock, Doctor of Divinity, provost of King's College, and chancellor of the University, who dedicated it to St. Catherine and appointed a Master and two Fellows and some Fellow-commoners. The buildings formed a quadrangle. The library and master's lodge were on the north side, and the chapel on the south, projecting eastward beyond the east range of chambers. This college was wholly rebuilt in the seventeenth and eighteenth centuries.

10. Jesus College was made into its present form from a pre-existing nunnery of St. Rhadegunde about 1495. The nunnery was endowed by Malcolm IV., king of Scotland, who was also Earl of Huntingdon. It was dissolved at the petition of John Alcock, bishop of Ely, and Lord Chancellor of England. Alcock's foundation was for a Master, six Fellows and six scholars. I have already treated of the conversion of the nunnery into a college.

The distinctive features of this college are the cloister surrounding the original quadrangle inherited from the nunnery, the entrance court, and the road leading to the entrance gateway and running between the walls of the master's and fellows' garden. The cloistered quadrangle was universal in monasteries, but not to be found in colleges.

cept in their secondary courts. In ecclesiastical buildings the Vicars' Close at Wells presents a near analogy to the ordinary college quadrangle.

11. Christ's College was built on the site of a hostel called St. Mary's House, which had been originally settled near Clare College, and endowed in 1442 by William Bingham, rector of St. John Zachary, London, but removed to this site to make room for the building of King's College. Margaret, Countess of Richmond and Derby, obtained a license from her son, Henry VII., to complete the college, gave it a body of statues, and lived to see the quadrangle completed.

The entrance gateway is to the west; on the opposite or eastern side are the master's lodge and the hall, having at its south end the butteries, and beyond them the kitchen, external to the quadrangle. The chapel occupies part of the north side, and extends beyond the eastern range of buildings. The remainder of the north side, the whole of the south side, and the greater part of the west is occupied by chambers. The library is on the first floor, on the west side, to the south of the gateway. The buildings have been much transformed externally, but the ancient structure remains.

Tradition says that Lady Margaret of Richmond was influenced by Bishop Fisher of Rochester in the interest she took in Christ's College. The exercise of that influence is much more certain in the foundation of St. John's. Dr. Fisher was master of Michael House, in the immediate vicinity of the Hospital of St. John the Baptist. It had fallen into decay and disrepute about the time when Fisher became chaplain to Lady Margaret. She had endowed Christ's College with the Abbey of St. Mary of the Meadows, at Ely, in Norfolk, and she now concurred with Fisher in his desire to devote the Hospital of St. John to educational purposes. Her death took place June 29, 1509, and the college was not begun until two years later. The building of the first court was carried on without interruption until completion. The college was opened by Bishop Fisher, July 29, 1516. One of the buildings of the hospital was altered to a chapel for the college, and formed such part of the north side of the quadrangle as was not occupied by the master's lodge. The lodge had an oriel resembling the bayed windows to be found in the churches and chapels of the period. It gave the master a view of every part of the quadrangle. The west side comprised the hall, buttery and kitchen. On the south was a range of chambers. On the east side was the library, with chambers beneath it. The second court is entered through the screens of the hall. There is nothing unusual in a passage given in at both ends in this position. It was probably seen from the first that the college would extend in this direction. The entrance gateway is of the type of which that at Queen's is the best example. It is of red brick, with angle turrets, having on each side two quoins. There is an ogee canopy over the gate. The central shield, with the arms of England and France quarterly, supported by the Beaufort antelopes. In the tympanum beneath is a rose. To the right (heraldically) is a large rose, to the left (heraldically) a portcullis. Both are crowned. The special emblem of the Lady Margaret, are sown throughout the whole space beneath the string-course. The arms were formerly emblazoned in gold and colours, whilst the antelopes were gilt. Resting upon the finial of the arch is a niche with a figure of St. John, beneath the usual oriel canopy.

Of this noble gateway that at Trinity College may be considered a more homely version. There the entrances are suitable, one for carriages the other for foot passengers. These have always reminded me of the tale of Sir Isaac Newton, that he cut two holes in his door, a big one for the cat and a small one for the kitten.

13. Trinity College sprang up from a variety of hostels, none of which are there now any but the most fragmentary remains. The history of this noble college itself falls without a period.

14. Magdalene College stands apart in more senses than one. It occupies the site of an ancient Benedictine establishment, dating from 1428. Different religious houses built different portions. Ely built one chamber, Walden a second, Ramsey a third. The general name of this composite fabric is the "Monks' Hostel." After the Dissolution the building was carried on in succession by the Duke of Buckingham, Lord Dole of Walden and the Duke of Norfolk. The buildings, with the exception of the Pepysian Library, were completed before the end of the sixteenth century. In the quadrangle of Magdalene is to be observed the corner staircase turret, a feature of Cambridge but not of Oxford colleges. The entrance gateway is unaccompanied by a tower.

The hall, butteries and kitchen occupy the east side, the library being at the north end and the kitchen extending to the external south boundary of the buildings. On the north side is the chapel next the hall; the remainder was formerly occupied by the master's lodge.

The south and west sides consist of chambers.

Magdalene College is at the foot of the Castle Hill of

Cambridge, and I now end where I began, in Horace's phrase, "The close of a long journey and a long paper."

Mr. BUTLER WILSON, who proposed a vote of thanks to Mr. Wood for his exhaustive paper, said the history of Cambridge was too long to encompass in a one evening lecture. The account the lecturer had given them proved him to possess a thorough knowledge of the locality. Such a study as the history of collegiate buildings tended towards antiquarianism, and students of architecture were perhaps supposed to take more interest in other work, which came before them in everyday practice. If an acquaintance with the buildings of Cambridge stimulated the student to work in the same spirit and to show such good results as their Mediaeval predecessors, then antiquarian study should be encouraged.

Mr. FRANCIS HOOPER, in seconding the vote, said the antiquarian part of the paper should be appreciated by architects. There were few subjects which the architect should be foreign to, and it seemed almost necessary for him to have some antiquarian knowledge. The speaker said it was very pleasing to find that the two great university towns had been so little modernised, and that to-day the student could see existing examples of sixteenth-century work when English architecture was as virile as it ever had been.

Mr. H. CAVLEY, M.A., supported the vote, which was passed with acclamation.

LIVERPOOL CATHEDRAL.

A MEETING of the Liverpool Cathedral committee was held on Monday, Mr. Robert Gladstone presiding. The report of the organisation committee was considered, and the following recommendations were unanimously adopted as likely to provide the basis of much useful work in the future:—

1. (a) The organisation of the diocese should as far as practicable be arranged on rural-dean lines, and with this object in view it is thought that the rural deans of the diocese should be added to the organisation committee as ex-officio members, together with one leading layman from each deanery, to be nominated by the rural dean. (b) In the case of the large towns of the diocese, such as Bootle, Southport, St. Helens, Warrington, Widnes and Wigan, a special organisation for the town should, if practicable, be formed and worked separately on its own lines.

2. The rural deans of the diocese should be requested to invite the clergy of every parish, even the poorest, to nominate an hon. treasurer, who may be either gentleman or lady, whose duties should be:—(1) To receive, and where possible to solicit, subscriptions to the Cathedral Building Fund, with the assurance that even the smallest amounts will be most gladly received, and on the understanding that the payment of all subscriptions may if so desired be spread over any period up to five years. (2) To arrange, where such may be possible, for, say, quarterly or at least half-yearly collections from men's services, adult Bible classes, mothers' meetings, children's services, Bands of Hope, Sunday schools—including both teachers and scholars—and mission-rooms. (Here it may be noted that it is felt that the time has not as yet come when as a rule special collections in the various parish churches of the diocese can wisely be asked for. The collections contemplated in this paragraph do not therefore refer to these.) (3) To distribute collecting boxes (to be provided by the organisation committee) where such may be desired, and to be responsible for the ingathering of funds collected in this way.

3. In most of the larger towns, especially, of course, in Liverpool, there are highly organised and powerful business associations, both mercantile, trade and labour. It is strongly felt that, so far as opportunity may be devised, every endeavour possible should be made to enlist the organised help of these associations with a view to the collection of subscriptions from their members.

4. The committee recommend that an organisation secretary be forthwith appointed at a stipend of 200*l.* per annum, with travelling expenses (second class) and such necessary printing and postages as may be rightly incurred. Three months' notice on either side to terminate the engagement. The duties of such secretary to be:—(a) To keep the ideal of the cathedral ever before the diocese in the highest possible way and on the highest possible level, as a great spiritual work to be undertaken and carried through for the glory of God and for the welfare of His Church in our midst. (b) The organisation of the diocese in consultation with the rural deans and the parochial clergy under the direction of the organisation committee. (c) The oversight and encouragement of all hon. treasurers, whether connected with the parishes of the diocese or with the associations referred to in clause 3 above. (d) To suggest, even at this early stage, the great desirability of contemplating or initiating votive offerings to the cathedral of every kind, whether by individuals, by parishes or by other special organisations.

(e) The creation of a strong public opinion by means of private influence, by sermons, by lectures with or without the lantern, and by speeches both by himself and by others working with him. (f) To further the good cause by every possible means that may be suggested or devised. (g) When not engaged on Sundays in preaching on behalf of the Cathedral Fund, the organisation secretary will be expected to do duty as a diocesan chaplain, such duty to include (a) taking services and preaching at the request of the Lord Bishop in any parish of the diocese as need may require—any fees received for such services being paid to the Cathedral Fund; and (b) preaching occasionally for the various diocesan societies as opportunity may be afforded.

The committee further recommend the appointment to this important post of the Rev. Charles Harris, M.A., senior curate of St. Helens, and since 1893 lecturer to the Palestine Exploration Fund (late Gunsley Exhibitioner of University College, Oxford, 1879, honours in natural science, 1882, formerly assistant master at Merchant Taylors' School, Great Crosby, and curate of Milton-next-Sittingbourne, St. Lawrence, Isle of Thanet, and Appledore). Mr. Harris to enter upon his duties at the commencement of December 1901.

5. The committee propose to address a letter to the rural deans enclosing a copy of the foregoing resolutions, if finally approved by the executive committee, heartily inviting their co-operation as above suggested, informing them of the appointment of the organisation secretary, and offering them his services and the services of other members of the organisation committee as a deputation to address meetings in any part of their deanery where such may be found practicable.

EDINBURGH ARCHITECTURAL ASSOCIATION.

FOR some time past there have been in Edinburgh two societies of architects, one of them—called the Association—being largely composed of older members of the profession, and the other—the Society—consisting of the younger class. They have this winter joined hands, and an auspicious beginning was made on Monday evening, when a handsome suite of rooms was formally opened by Sir George Reid, president of the Royal Scottish Academy. The rooms are situated at 117 George Street, and they have been prettily decorated and furnished by the members. Mr. Henry F. Kerr, president of the Association, presided over the “house-warming,” at which there was present a large number of ladies and gentlemen, and he expressed the hope that the advancement of their art would always be in the forefront of their institution. He hoped also that there would be no more hieing off of the young shoots, but that the Edinburgh Architectural Association would serve the interests of both the older and junior members of the architectural profession in all time coming. Sir George Reid wished the Association many prosperous and happy days in its new home. Bailie W. S. Brown also conveyed the good wishes of the Corporation. He knew architects had been saying that the Corporation of Edinburgh had not been doing very much by way of open competition to assist especially the younger members of the profession. He was divulging no secret when he said there was a growing feeling in the Town Council—and it was one of the points that would have to be considered at an early date in connection with a vacancy in one of their departments—that Edinburgh should follow what had been done with so much success in Glasgow and elsewhere in throwing municipal work open to competition. Professor Baldwin Brown also spoke.



Broad Street Place.

SIR,—May I inquire your authority for the suggestions in par. 3 and the statements in pars. 4 and 5 of your description of above? If I am right in my history, the site of the St. Mary's Catholic chapel mentioned was part of the large marsh fen or pond comprising the area of Old Bedlam at the south-west corner of London Wall to the site of the Ophthalmic Hospital, and had until 1817-20 never been built upon. That the whole space was the resort of the public of the locality as an open space in fine weather, and in winter time a skating ground frequented by the roughs of Long Alley and the Bishopsgate slums, was common knowledge. When the Corporation of London, or the Bridge House Committee, set about building Finsbury Circus the Roman Catholics, whose chapel was then in White Street, Little Moorfields, south side, obtained leave of the Corporation, after arranging with others who had rights of pre-emption, to take the site on

which the church of St. Mary's and the clergy house was built. If I am right the Corporation was the vendor and not the Fishmongers' Company, whose interest in the site or a portion of the great marsh I do not remember to have previously heard of. The chapel plundered in the Gordon riots was believed to be that in White Street. It could not have been on the marsh, where none existed. When Whitecross Street Prison was built, the owners of the sites were offered rights of pre-emption on the marsh. Possibly the Fishmongers' Company was one of the number who declined their pre-emption, and gave way for the Roman Catholics. The chapel is not in Ropemaker Street, a street parallel with White Street, but Eldon Street, the northern boundary of the old marsh, less than 200 yards from the site of St. Mary's Chapel.

Some of your Colonial subscribers, whose knowledge may be greater than mine, would regret, I am sure, you should unintentionally fall into error of history on the subject of St. Mary's.—Yours obediently,

J. FUNSTON.
November 5, 1901.

GENERAL.

Fragonard's Paintings, which were lately discovered, will be among the examples of eighteenth-century painting which will be exhibited at the next loan exhibition at the Guildhall.

The Steamer Krefeld has brought to Germany 175 ancient Chinese bronze guns which formerly stood on the walls of Peking and, according to inscriptions upon them, were cast between 200 and 250 years ago in Chinese arsenals under the superintendence of the Jesuits.

A Pulpit has been erected in St. James's Episcopal church, Cupar, which has been executed by Messrs. Whytock, Reid & Co., of Edinburgh, from the design and under the superintendence of Mr. R. Rowand Anderson, LL.D., architect, Edinburgh.

The Gas Committee of the Birmingham Corporation have decided to spend half a million of money on additional plant, buildings and land, a site of 120 acres having been acquired near Erdington, where the population is rapidly increasing.

Hogarth's House at Chiswick will be put up for auction on the 25th inst.

The London County Council on Tuesday adopted a recommendation by the water committee that a Bill for the purchase by the Council of the undertakings of the eight metropolitan water companies be promoted in the next session of Parliament.

Mr. C. A. Frost, assistant engineer to the Darlinghurst electricity works, has been appointed to the post of assistant electrical engineer to the Bexhill Urban Council.

At a Public Meeting convened at Worthing for the purpose of considering the proposed improvement and reconstruction of the Corporation baths, a resolution was unanimously passed urging the Town Council to carry out a scheme, estimated at 7,000*l.*, without any further delay.

The Memorial of Old Harrovians who have lost their lives during the war is to take the form of an extension eastwards of the north and south aisles, and the cost of the work, which has been designed by Mr. Aston Webb, A.R.A., will be about 6,000*l.*

An Ancient Roman Urn, containing nearly two hundred gold pieces dating from the time of Nero to that of Hadrian, has been discovered at Torralba, in Spain, on the estate of the Marquis de Villorres. It is to be hoped the coins will be saved for some public collection, although generally in Spain old coins are sold to be melted.

A Fine Art and Industrial Exhibition was opened at Newark on Tuesday.

Mr. Herbert J. Finn is exhibiting his water-colour drawings of York Minster, Durham Cathedral, Oxford and Dutch sketches at the Modern Gallery, Bond Street.

Mr. Silvanus Trevail, president of the Society of Architects, has been returned at the head of the poll for the seventh time by the electors of the Eastern Ward of the city of Truro.

The South-Eastern and Chatham Railway Company have contracted to rebuild the Continental Pier at Queenborough at the cost of nearly 90,000*l.*

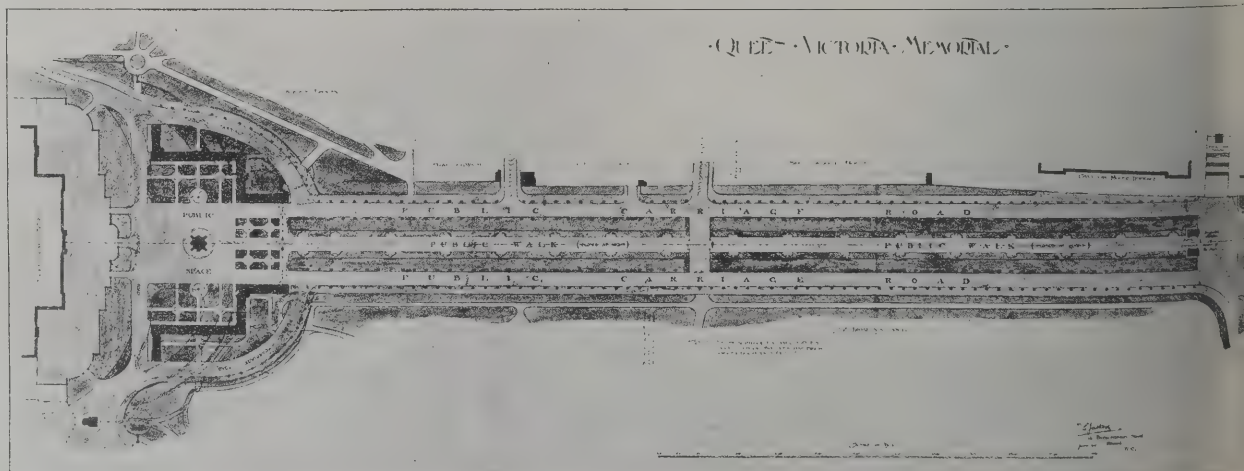
The Local Government Board have sanctioned the application of the Liverpool City Council to borrow 22,000*l.* for museum purposes.

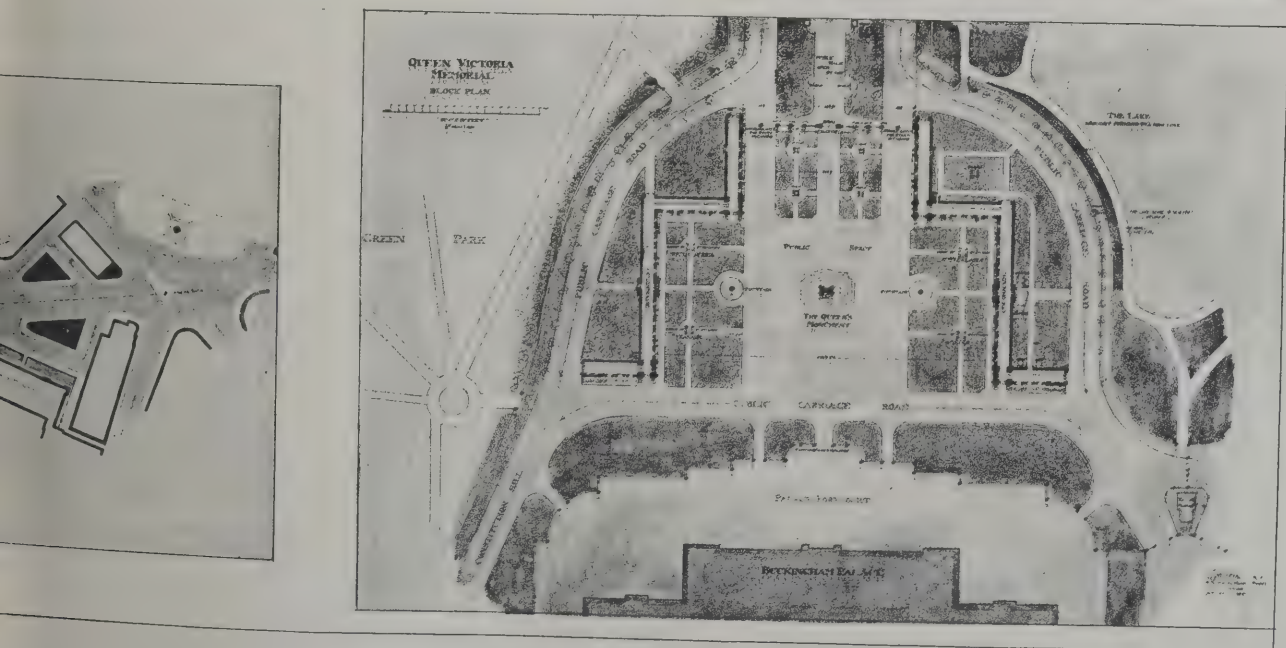
An Adaptation of the Duthie Memorial at Aberdeen, consisting of an Ionic column surmounted by the figure of a trooper, is to be erected at Kokstad, South Africa, as a memorial to the Cape Mounted Riflemen who have fallen in the war.

Mr. G. C. Ashlin, R.E.A., was on Monday elected President of the Royal Institute of the Architects of Ireland in succession to Sir Thomas Drew.

Mr. Paul Waterhouse, M.A., will read a paper on “The day next before the Manchester Society of Architects upon ‘Architecture among the Modern Arts.’”

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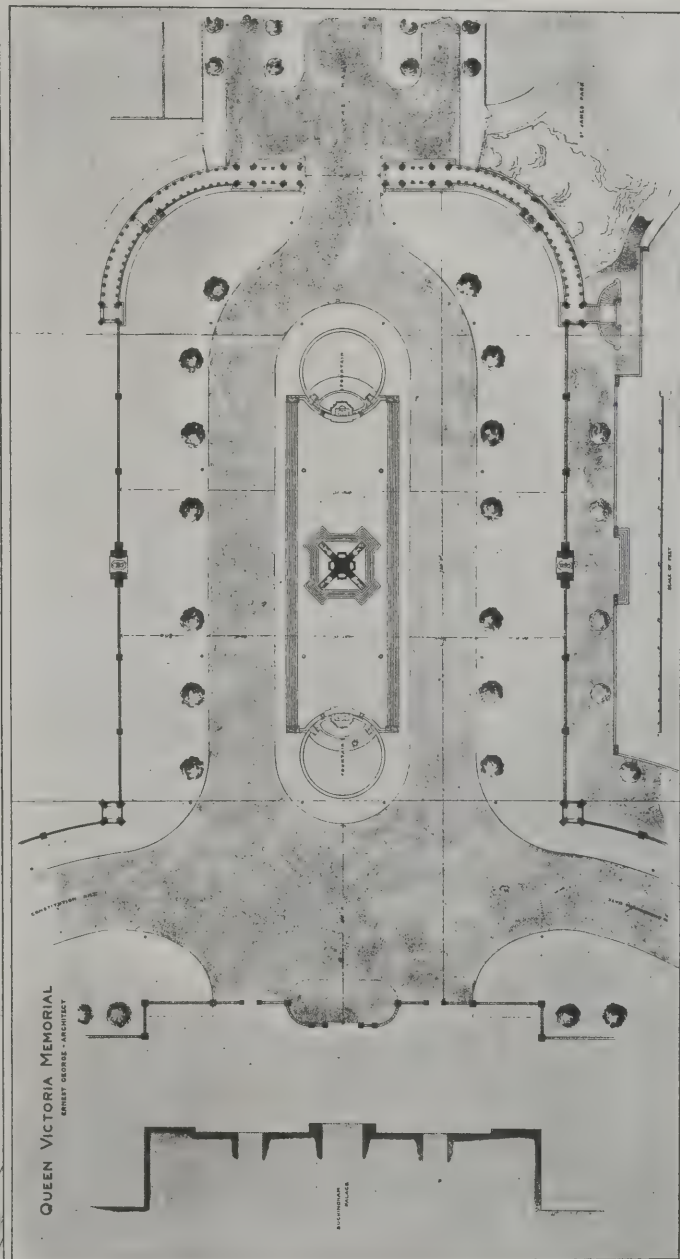
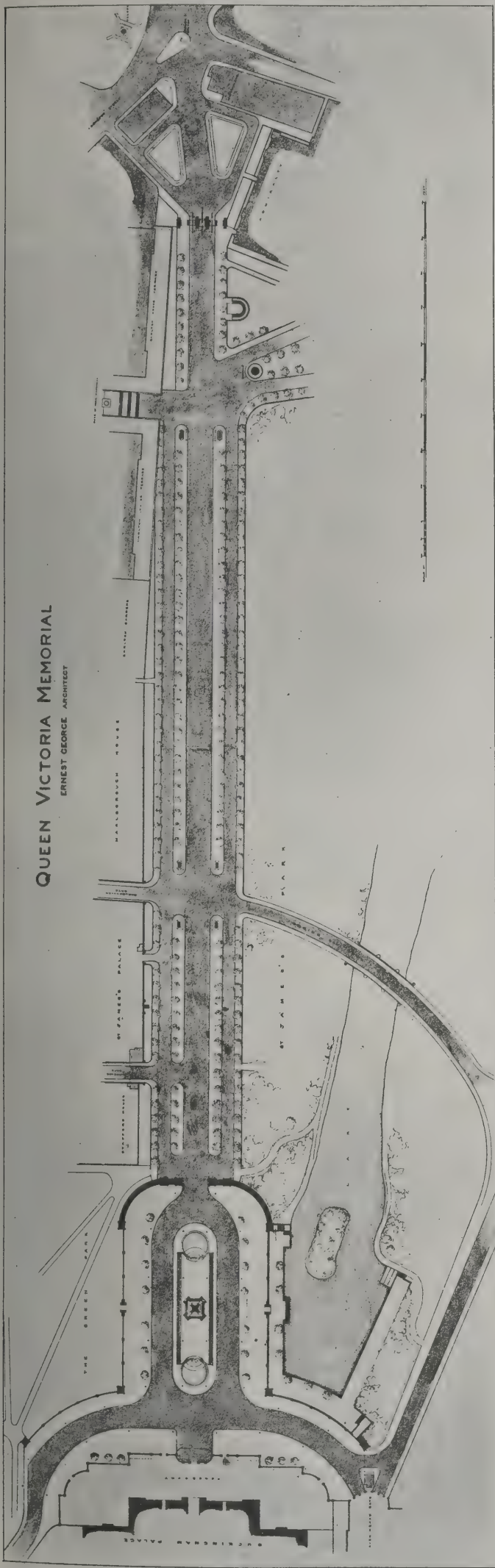
PROPOSED
AT SPINNEY
ERNEST



QUEEN VICTORIA
VIEW FROM SPINNEY
INTO GARDENS
ERNEST



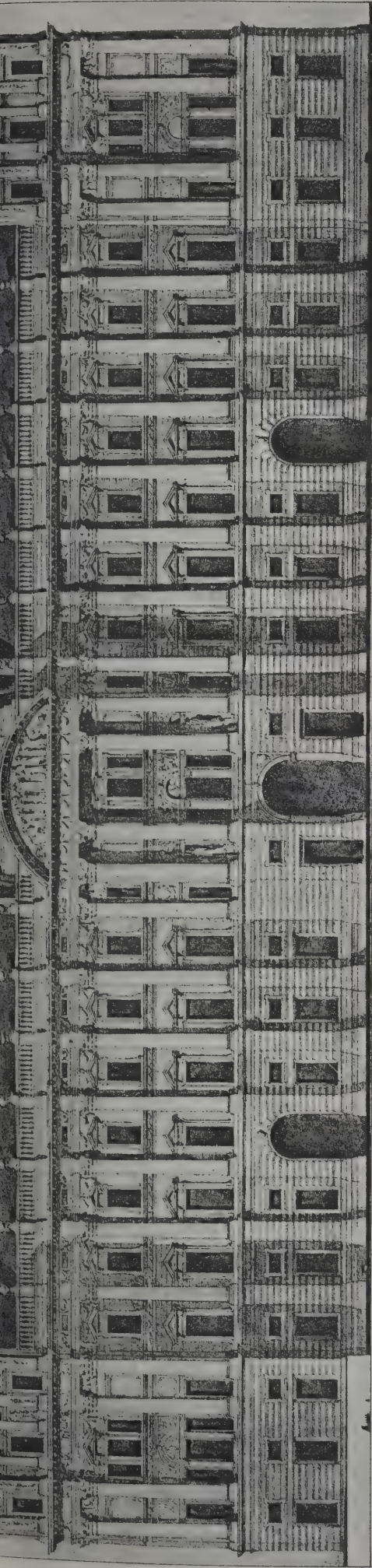
QUEEN VICTORIA MEMORIAL
ERNEST GEORGE ARCHITECT



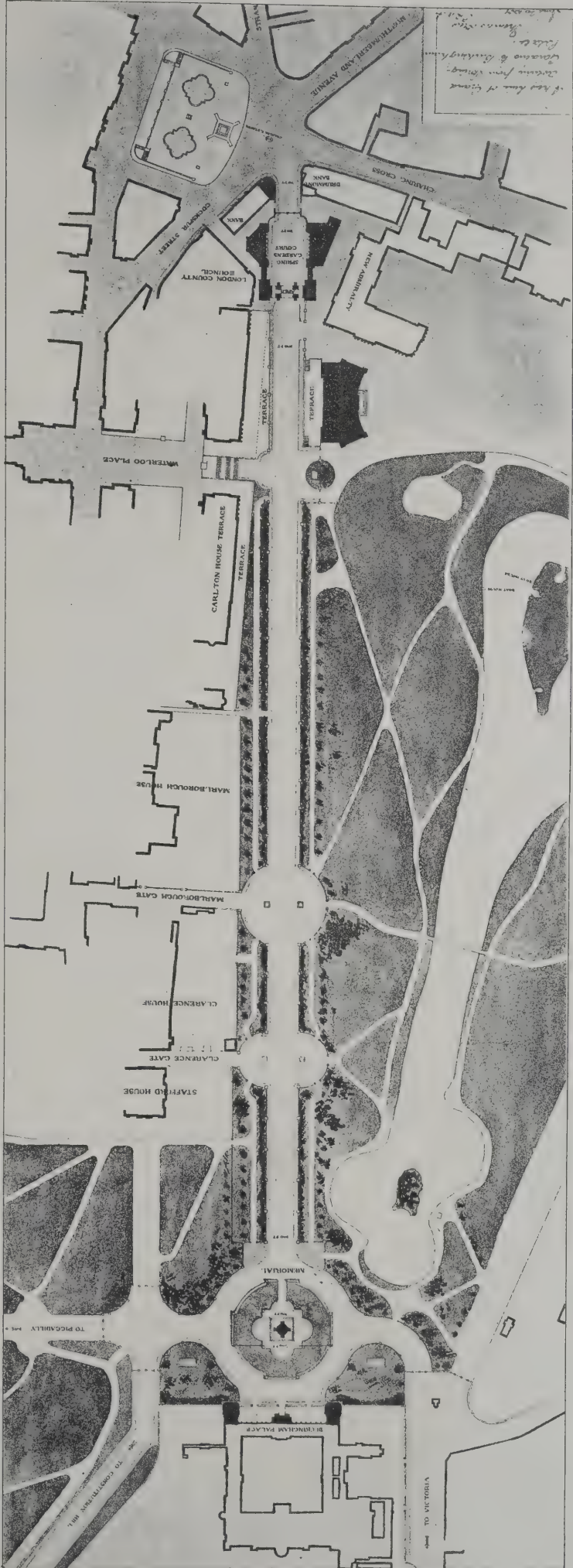
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Zeig. Architect. Nov 8th 1901.





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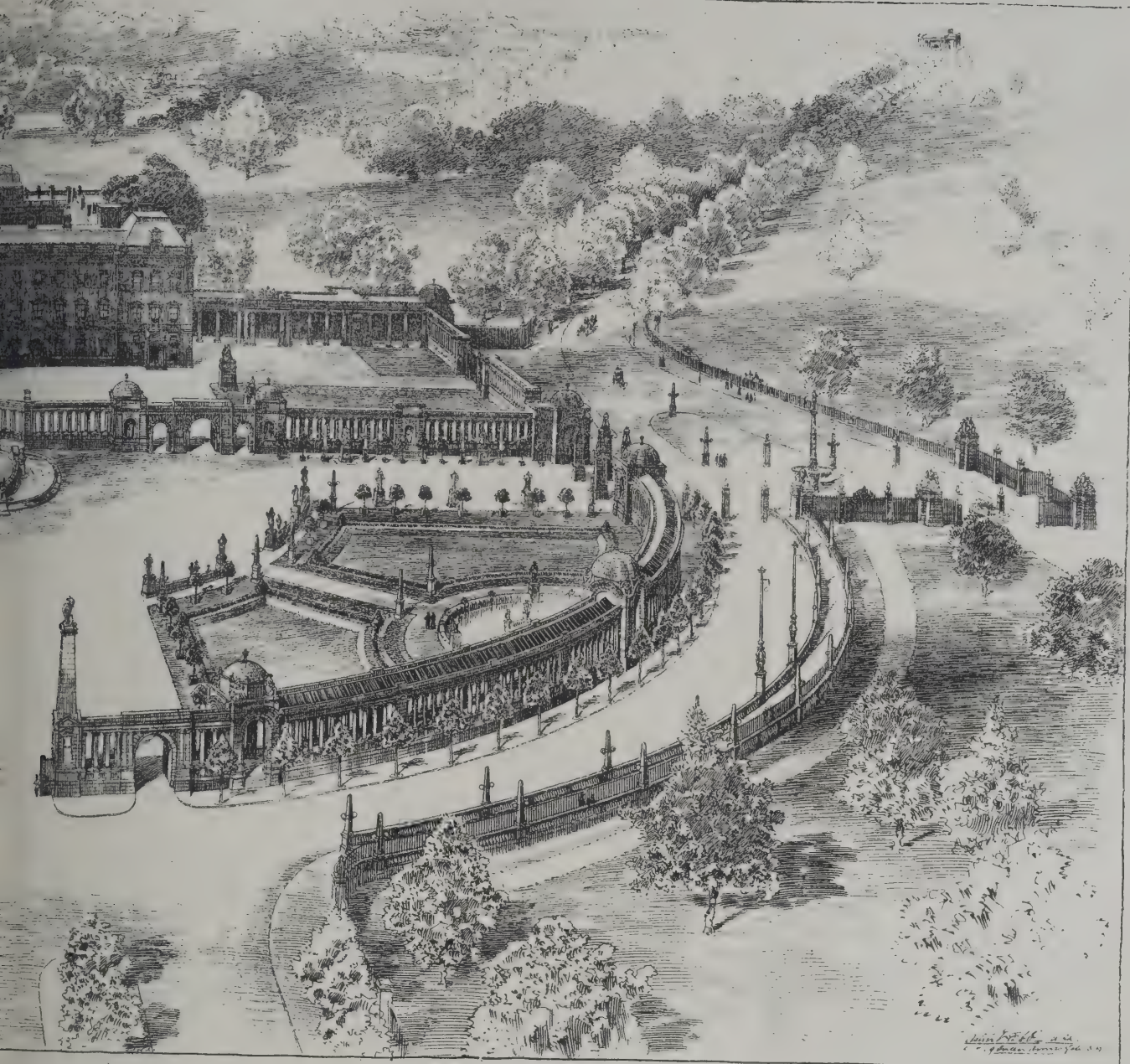
DESIGN by SIR THOMAS DREW, R.H.A.



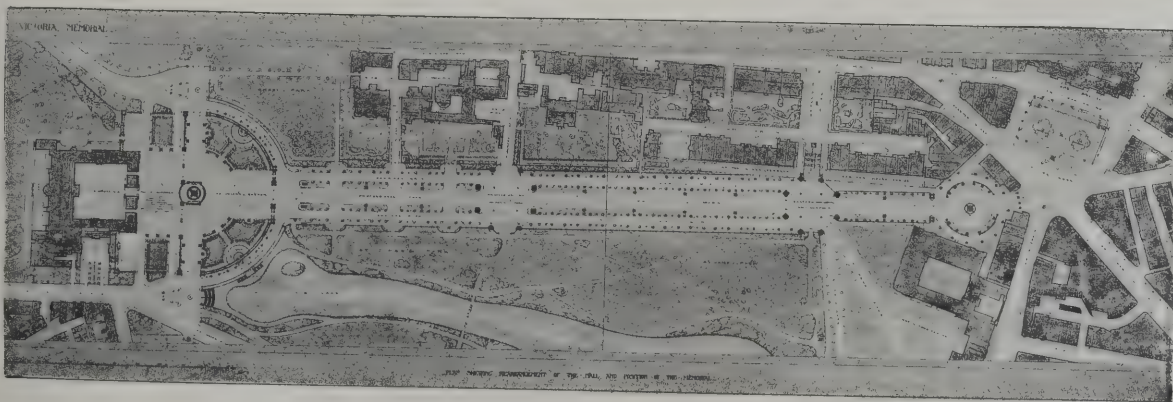
VIEW FROM WEST END OF



VIEW FROM BUCKINGHAM PALACE LOOKING DOWN THE MALL,



BUCKINGHAM PALACE.



PLAN SHOWING RE-ARRANGEMENT OF THE MALL AND POSITION OF THE MEMORIAL.

THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BARNSELY.—Nov. 22.—Competitive drawings are invited for the adaptation of property situate in Pitt Street, Barnsley, for union and relief offices, &c. A premium of 20*l.* will be awarded for the accepted design. Mr. C. J. Tyas, clerk, 7 and 19 Regent Street, Barnsley.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land as ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 5*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BURSELM.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded for the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

DARTMOUTH.—Nov. 20.—Plans are invited for offices and dwelling-house, to be erected on the South Embankment,

Dartmouth. All particulars may be obtained from the Channel Coaling Co., Ltd.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

ILKLEY.—Competitive plans are invited for new church and schools at Ilkley. Rev. W. Jones, Hope House, Hebden Bridge.

KINGSTON-UPON-THAMES.—Nov. 14.—Designs are invited for a new public library. Mr. Harold A. Winsor, town clerk, Kingston-upon-Thames.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

CONTRACTS OPEN.

ALDERSHOT.—Nov. 19.—For repairs to machinery of the steam road-roller. Mr. W. E. Foster, District Council Offices, Aldershot.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ASHTON-UNDER-LYNE.—Nov. 12.—For supply, delivery, laying and connecting of tramway feeder cables, test wires, feeder and section boxes, and other work connected therewith, for the Hurst Urban District Council. Mr. Edward Garside, engineer, Town Hall Chambers, Ashton-under-Lyne.

ASKAM-IN-FURNESS.—Nov. 28.—For erection of new Primitive Methodist Sunday schools, and heating same and existing chapel. Rev. W. Carr, minister, Slater Terrace Dalton-in-Furness.

BAMBURGH.—Nov. 29.—For erection of new coastguard buildings, consisting of quarters for two men and a look-out house, at Ross Links, near Bamburgh, Northumberland. Particulars may be seen at the Coastguard Station at Bamburgh, and at the Director of Works Department, Admiralty.

BARKING.—Nov. 12.—For supply of an electrically driven locomotive and the permanent-way in connection therewith, at the wharf, Gascoigne Road, Barking. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BARNSELY.—Nov. 11.—For erection of a church and schools, &c., at Wombwell, near Barnsley. Mr. J. P. Earle, architect, Norfolk Chambers, Norfolk Row, Sheffield.

BARROW-IN-FURNESS.—Nov. 18.—For erection of a block of five shops and dwelling-houses in Vickerstown, Isle of Walney, Barrow-in-Furness. Plans and specifications can be seen at the offices of the Isle of Walney Estates Company, Limited, Walney.

BLACKBURN.—Nov. 18.—For alteration to shed roof at the Witton outlet works. Mr. William Stubbs, borough engineer.

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BOURNEMOUTH.—Nov. 11.—For erection of car sheds, repairing shops, &c. Mr. F. W. Lacey, engineer, Municipal Offices, Bournemouth.

BOURNEMOUTH.—Nov. 18.—For erection of engine and boiler-houses and chimney-shaft. Mr. F. W. Lacey, borough engineer, Municipal Offices, Bournemouth.

BRENTFORD.—Nov. 20.—For erection of an isolation hospital, with administrative buildings, &c., at Clayponds Lane, Brentford. Mr. Arthur Ramsden, surveyor to the District Council, Town Hall, Chiswick.

BRENTWOOD.—Nov. 20.—For construction of bacteria beds, tanks, engine-house, &c., at the sewage works, Nag's Head Lane, Brook Street, Brentwood, Essex. Mr. Hall Jones, Parliament Mansions, Victoria Street, Westminster.

BURY.—Nov. 18.—For supply and delivery at Bury, Lancashire, of fourteen 69-passenger electric tramcars and fourteen 48-passenger electric tramcars. Messrs. Lacey, Clirehugh & Sillar, engineers, 78 King Street, Manchester.

CAMBERWELL.—Dec. 2.—For providing and fixing steam boilers, economiser, feed-water apparatus, steam and condense mains, cold-water storage tank, mains and branches, hot-water storage heater, mains and branches, waste-pipes and branches to slipper-baths, slipper-bath valves and all connections, laundry apparatus and machinery to public and establishment laundry, and heating apparatus, &c., complete, to the new public baths, laundry and library now being erected in Wells Street. Mr. Maurice B. Adams, architect, Clement's House, Clement's Inn Passage, W.C.

CASTLEFORD.—Nov. 13.—For erection of five terrace houses in Morrison Street. Mr. R. M. McDowall, architect, Carlton Street, Castleford.

CASTLETON.—For alterations and additions to the Brown Cow inn, Castleton. Messrs. Openshaw & Gill, architects, Heywood.

CHESHIRE.—Nov. 11.—For erection of scarlet-fever pavilion, additions to administrative block, laundry extension for disinfectant and stabling accommodation at the Wirral Joint Hospital, Clatterbridge. Mr. C. O. Francis, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

CHESTERFIELD.—For erection of five separate pairs of semi-detached houses at Bolsover. Mr. W. H. Wagstaff, C.E., architect, Chesterfield.

CLEATOR MOOR.—Nov. 12.—For erection of a new butcher's shop, slaughter-house, hanging sheds, &c., at Cleator Moor. The Central Office of the Cleator Moor Co-operative Society, Ltd.

CLITHEROE.—Nov. 30.—For excavating and building two new settling tanks, with channels, sluice valves, &c., on the sewage farm at Henthorne, Clitheroe, Lancs. Mr. Arthur R. Bleavard, borough surveyor, Church Street, Clitheroe.

COLCHESTER.—Nov. 11.—For erection of a greenhouse in the Castle Park. Mr. Herbert Goodyear, borough surveyor, Colchester.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

CORNWALL.—Nov. 18.—For erection of school buildings and alterations to chapel premises, reseating, &c., at the Foundry Wesleyan chapel, Hayle. Mr. Sampson Hill, architect, Green Lane, Redruth.

CROYDON.—Nov. 18.—For construction of an underground electricity sub-station in Addiscombe Grove. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DARLINGTON.—Nov. 20.—For enlargement of the head post office, Darlington. Particulars and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

DARTFORD.—Nov. 12.—For the supply and erection at the sewage pumping station at Dartford of two sets of steam-engines and vertical three-throw piston pumps, and the removal of the present engines and pumps. Mr. W. Harston, surveyor, High Street, Dartford.

DEAL.—Nov. 13.—For construction of an additional engine-house, boiler-house and coal store at their pumping station, Upper Deal, for the Deal and Walmer Joint Water Board. Messrs. T. & C. Hawksley, civil engineers, 30 Great George Street, Westminster, S.W.

DOVER.—Nov. 12.—For erection of an infirmary and nurses' home at the workhouse, Dover. Messrs. Creswell & Newman, architects, Castle Street, Dover.

DURHAM.—Nov. 11.—For erection of a four-roomed house at Langley Moor. Mr. J. G. Burrell, architect, Market Place, Durham.

EASINGWOLD.—Nov. 21.—For construction of a covered concrete reservoir, holding 120,000 gallons, at Kilburn, Yorks. Mr. F. J. H. Robinson, clerk to the Rural District Council, Easingwold.

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FARNWORTH.—Nov. 11.—For wiring and fitting up the tram dépôt, Albert Road, for electric light and power. Mr. J. D. Pember, electrical engineer, Electricity Works, Albert Road, Farnworth, Lancs.

FULHAM.—Nov. 13.—For erection of a branch library in the Lillie Road, Fulham. Mr. Chas. Botterill, surveyor, Town Hall, Fulham.

GIRLINGTON.—For erection of eight houses, Lytton Road, Girlington, near Bradford, Yorks. Mr. R. Drake, architect, 31 Pearson Lane, Girlington.

HALIFAX.—Nov. 30.—For erection of an infants' school at Haugh Shaw, Halifax. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

HALIFAX.—Nov. 21.—For rebuilding the Ryburndale Paper Mills, Rishworth, near Halifax. Messrs. Richard Horsfall & Son, architects, Commercial Street, Halifax.

HARROGATE.—For erection of a pair of houses at Birstwith. Messrs. Bland & Bown, architects, Harrogate.

HEBDEN BRIDGE.—Nov. 18.—For erection of the New Woodman inn, Charlestown, Hebdon Bridge. Mr. W. H. D. Horsfall, architect, Tower Chambers, Halifax.

HORWICH.—Nov. 25.—For erection of an infectious diseases hospital in Fall Birch Lane, Horwich, Lancs. Messrs. Cressey & Keighley, architects, Morecambe.

HOUNSLOW.—Nov. 18.—For erection of twenty-two houses for the working classes. Mr. P. G. Parkman, A.M.I.C.E., surveyor to the Council, Town Hall, Hounslow.

HUDDERSFIELD.—Nov. 12.—For erection of a dwelling-house at Grange Moor. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HULL.—Nov. 28.—For supply of six rotary transformers for continuous-current transformation, 2,000 volts to 220 volts, 90 kw. each. Mr. T. G. Milner, city treasurer, Town Hall, Hull.

ILFORD.—Nov. 12.—For erection of tramway car-sheds, workshops, &c., for the Ilford Urban District Council. Mr. H. Shaw, 7 Cranbrook Road, Ilford.

INGLETON.—For additions to Broadwood Cottage, Ingleton. Mr. John Kassell, architect, Kirkby Lonsdale.

IRELAND.—Nov. 11.—For repairs of steam main and alteration of steam culvert at the Waterford District Lunatic Asylum. Mr. W. Friel, Asylum Office.

IRELAND.—Nov. 13.—For alterations and additions to the administration block at the Limerick District Lunatic Asylum. Messrs. Carroll & Batchelor, architects, 86 Merrion Square S, Dublin.

IRELAND.—Nov. 14.—For erection of tower and spire at the Roman Catholic church, Castleisland, co. Kerry. Mr. D. J. Coakley, architect, 1 Charlotte Quay, Cork.

IRELAND.—Nov. 14.—For providing the villages of Kiltyclogher, Drumkeeran and Dromahaire with an ample supply of pure water. The Presiding Chairman of District Council, District Council Office, Manorhamilton.

IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

IRELAND.—Dec. 16.—For erection of a viaduct for a single line of railway over the river Barrow, in the South of Ireland, consisting of thirteen fixed spans of 140 feet and two opening spans of 80 feet each in the clear, together 2,131 feet between abutments, and containing about 2,000 tons steel girderwork and 2,400 tons cast-iron cylinder pieces, with timber-protecting dolphins, electric-operating plant, &c., for the Fishguard and Rosslare Railways and Harbours Co. Sir Benjamin Baker, 2 Queen Square Place, Queen Anne's Mansions, S.W.

ISLINGTON.—Nov. 26.—For supply of electric-lamp columns, complete with crutches and bases of similar pattern to those now in use in the borough. Mr. W. F. Dewey, town clerk, Town Hall, Upper Street, N.

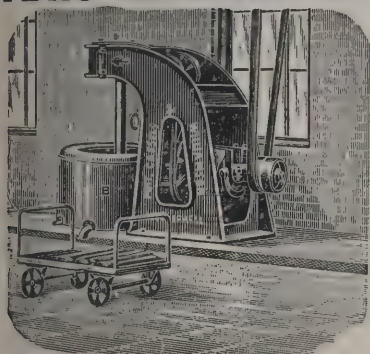
KETTERING.—Nov. 25.—For extension of the east and west outfall sewers and for alterations to flushing chambers on the town sewers. Mr. T. R. Smith, surveyor, Market Place, Kettering.

KEW.—Nov. 20.—For erection of a new wing to the herbarium at Kew Gardens. Drawings, specification, &c., may be seen on application at H.M. Office of Works, &c., Storey's Gate, S.W.

LEEDS.—Nov. 11.—For extension of leather factory at Millshaw, Beeston. Messrs. Buttery & Birds, architects, Queen Street, Morley.

LEEDS.—Nov. 18.—For various works required in erection of a new engine-house, stabling and boundary wall at the central fire station, Park Street. Mr. Percy Robinson, 72 Albion Street.

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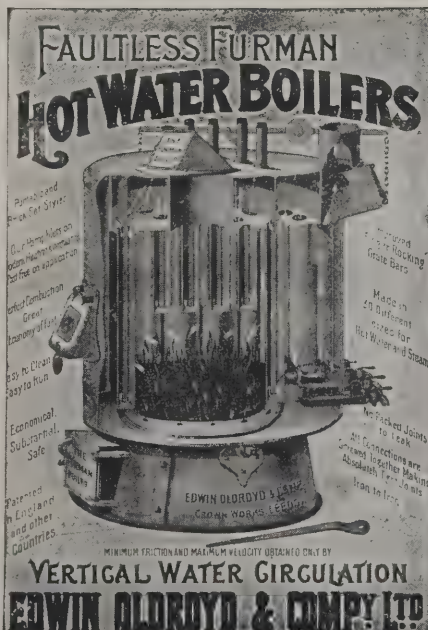
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HEATING



**HEATING AND VENTILATING
ENGINEERS,
CROWN WORKS,
LEEDS.**

LEEDS.—Nov. 18.—For erection of an engine-house, stabling and boundary wall at the central fire station, Park Street. Mr. Percy Robinson, architect, 72 Albion Street, Leeds.

LEEDS.—Nov. 23.—For erection of the free library at the junction of Nineveh Road and Marshall Street, Holbeck. Mr. William Bakewell, architect, 38 Park Square, Leeds.

LEWES.—Nov. 13.—For erection of six houses. Mr. Thomas Wm. Franks, architect, Lewes.

LIVERPOOL.—Nov. 25.—For overhead electrical equipment of tramway lines and car depôt. Messrs. Kincaid, Waller & Manville, consulting engineers, 29 Great George Street, Westminster.

LONDON.—Nov. 15.—For erection of a plain iron mission church to seat about 250. Rev. J. Ferguson, 10 New Cross Road, S.E.

LONDON.—Nov. 16.—For alterations and repairs at 203-205 Harrow Road, W. Mr. Duncombe Mann, clerk to the Metropolitan Asylums Board, Embankment, E.C.

LYMPSTONE.—For erection of a cottage at Courtlands Cross, Lymington, Devon. Mr. Ernest E. Ellis, architect, Exmouth.

LYMPSTONE.—For erection of stable and loft at Lymington, Devon. Mr. Ernest E. Ellis, architect, Exmouth.

MACCLESFIELD.—For improvements at the school. Mr. Jabez Wright, architect, Macclesfield.

MANCHESTER.—Nov. 13.—For rebuilding a portion of the boundary wall at the workhouse, Crumpsall. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Nov. 18.—For erection of engine and boiler-houses of the Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANSFIELD.—Nov. 11.—For erection of the municipal electricity and refuse-destroyer works, inclined roadways and chimney-stack on land adjoining the gasworks, Mansfield. Messrs. Vallance & Westwick, architects, Mansfield.

NELSON.—Nov. 11.—For erection of Whitefield schools, for the Nelson School Board, Lancs. Mr. T. Bell, Grimshawe Street, Burnley.

OXFORD.—Nov. 25.—For additions to the Littlemore Asylum, near Oxford. Names to be sent before 25th inst. to the county surveyor, Oxford.

PLYMOUTH.—Nov. 12.—For additions and alterations at the Laura Green school, Laura, Plymouth. Mr. H. J. Snell, architect, 11 The Crescent, Plymouth.

PLYMOUTH.—Nov. 12.—For painting, mason's work-plumbing, &c., at the dispensary, 13 North Street. Mr. W. Adams, clerk to the Guardians, 13 Princess Square, Plymouth.

ROCHDALE.—Nov. 13.—For erection of a retaining wall at Spotland Bridge. Mr. S. S. Platt, borough surveyor, Town Hall, Rochdale.

ROTHERHAM.—Nov. 12.—For wiring of the Rotherham hospital, preparatory to a supply of electricity from the Corporation mains. Mr. Edward Cross, engineer, Rawmarsh Road, Rotherham.

ROTHWELL.—Nov. 12.—For supply of 250 tons of cast-iron pipes and special castings, varying in size from 4 inches to 7 inches, delivered at Desborough and Rothwell station; valves and fittings, and the supply and delivery of hydrants, valves, floating arms, surface boxes, wall plates and other fittings required in carrying out water-supply scheme. Mr. W. T. Pearson, surveyor, Bank Chambers, Rothwell, Northants.

RUGBY.—Nov. 14.—For alterations and additions to the Royal Oak inn at New Bilton, near Rugby. Mr. Herbert W. Chattaway, architect, Trinity Churchyard, Coventry.

RUNCORN.—Nov. 16.—For supply and fixing of six fire-escape stairs, breaking through brick walls, forming doorways, and providing and fixing suitable doors at the workhouse, Dutton. Mr. Geo. F. Ashton, clerk to the Guardians, 71 High Street, Runcorn.

ST. ANNES-ON-SEA.—Nov. 15.—For supply and instalment of certain street mains at St. Annes-on-the-Sea, Lancs. Mr. P. J. S. Tiddeman, engineer, Electricity Works, St. Annes-on-Sea.

SCOTLAND.—Nov. 11.—For additions to Stotfield hotel, Lossiemouth. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

SCOTLAND.—Nov. 12.—For construction of sewage-tanks and filter-beds, and laying-off of land filters in connection with sewage-disposal works, Linlithgow. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

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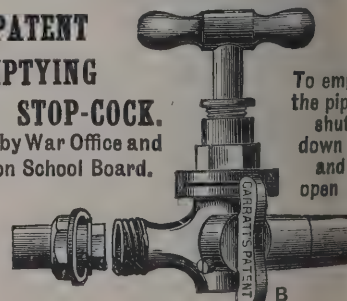
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SCOTLAND.—Nov. 13.—For alterations to 37 and 39 Charlotte Street. Mr. Simpson, town architect, Council Chambers.

SCOTLAND.—Nov. 18.—For constructing a storage reservoir, with relative works, on the Pinnacher Burn, and for providing and laying about $1\frac{1}{2}$ mile of cast-iron piping between Glendrishaig and Pinnacher reservoirs, Girvan. Mr. James Smith, town clerk, Girvan.

SHOREDITCH.—Dec. 3.—For boring an artesian well at the public baths, Pitfield Street, N., and providing a pump for same. Mr. H. Mansfield Robinson, town clerk, Town Hall, Old Street, E.C.

SOUTHEND-ON-SEA.—Nov. 12.—For an addition to the Sutton and Shopland National schools. Mr. W. Yendall Hobbiss, architect, 57 High Street, Southend-on-Sea.

STOCKPORT.—Nov. 18.—For construction of a new bakery at the workhouse, Shaw Heath. Messrs. James Hunt & Son, architects, 4 Warren Street, Stockport.

SWINDON.—Nov. 12.—For supply, delivery and erection of electrical machinery and plant. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

SWINDON.—Nov. 12.—For supply of electric machinery and plant as follows:—Contract No. 2, comprising three Lancashire boilers and economiser, two jet condensers, feed pumps, pipework and accessories; (3) water-cooling tower; (4) 10-ton overhead travelling crane. Mr. Robert Hilton, town clerk, Town Hall, Swindon.

SWINDON.—Nov. 23.—For construction at the gasworks, Gorse Hill, Swindon, of a brick gasholder tank, 124 feet 6 inches diameter by 30 feet 9 inches deep. Mr. John J. Jervis, secretary, Gas Offices, Queen Street, Swindon.

TYNE DOCK.—Nov. 13.—For re-roofing and extending the waggon works, including mess-room and office, at Tyne Dock, for the North-Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-on-Tyne.

WALES.—For erection of two villas at Ninian Road, Roath Park, Caerphilly. Mr. G. L. Watkins, architect, Caerphilly.

WALES.—For erection of Welsh Calvinistic Methodist church, Cardiff. Messrs. Habershon, Fawckner & Groves, 14 Pearl Street, Cardiff.

WALES.—Nov. 12.—For reconstruction of bridges and other works at Newtown goods yard, Cardiff, for the Great Western Railway Co. Mr. G. K. Mills, secretary, Paddington Station, W.

WALES.—Nov. 14.—For seating, pulpit, choir stalls, reading desks, for Bryn Church, near Port Talbot. Mr. Frank B. Smith, architect, Port Talbot.

WALES.—Nov. 18.—For erection of sixty or more houses at Pontlottyn. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—Nov. 19.—For erection of new sliding glazed partitions, new desks and sundry other works at the Garn schools, Blaenavon. Messrs. Lansdowne & Giggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysmeudw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Nov. 22.—For erection of house, out-offices and boundary walls, &c., at Newbridge, near Ruabon. Mr. W. H. Johns, Vroncyssyllte, Llangollen.

WANDSWORTH.—Nov. 13.—For erection of a bakehouse, &c., at the workhouse in Swaffield Road, Garrett Lane, Wandsworth, S.W. Mr. William C. Poole, architect, Prested Road, Clapham Junction, S.W.

WARWICK.—Dec. 5.—For erection of a union infirmary and appurtenant buildings to accommodate 151 inmates and staff at Warwick, and the supply of steam, hot-water, cooking and other apparatus and fittings for the infirmary. Mr. F. P. Trepass, architect, 8 Jury Street, Warwick.

WESTMINSTER.—Nov. 12.—For erection of new public offices at Westminster for the Commissioners of H.M. Works and Public Buildings. Conditions and form of contract, &c., may be seen on application at H.M. Office of Works, &c, Storey's Gate, S.W.

WILLESDEN.—Nov. 12.—For supply and erection of complete electric plant. Mr. E. T. Ruthven-Murray, electrical engineer to the Willesden Urban Council, Public Offices, Dyne Road, Kilburn, N.W.

WILLENHALL.—Nov. 13.—For supplying and fixing a Washington-Lyons patent steam disinfectant at the sewage outfall works, Willenhall, Staffs. Mr. T. Edgar Fellows, surveyor, Town Hall, Willenhall.

WIMBLEDON.—Nov. 14.—For the wiring of their electricity works, Durnsford Road, Wimbledon. Mr. F. Barnes Spencer Broadway, Wimbledon.

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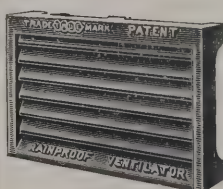
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TENDERS.

ARUNDEL.

For erection of a new stone porch at St. Philip's Church, Arundel, for His Grace the Duke of Norfolk. Mr. J. S. HANSOM, architect. Messrs. J. LEANING & SONS, surveyors.

Colls & Sons	£996	0	0
Whitehead & Sons, Ltd.	710	0	0
Patman & Fotheringham	676	0	0
Light & Son	640	0	0

BARNSTAPLE.

For erection of a dwelling-house and shop in Bear Street. Mr. W. C. OLIVER, architect.

J. Bryant & Son	£431	0	0
Harslake & Sanders	412	0	0
Cater & Hancock	399	0	0
W. COOKE, Bear Street (accepted)	399	0	0

BIRMINGHAM.

For erection of laundry. Mr. LEONARD H. COLLIER, architect, 71 Colmore Row, Birmingham.

J. A. Turton	£2,351	10	0
W. Lee & Son	2,225	0	0
Stafford & Mansfield	2,115	0	0
J. Webb	2,069	0	0
A. J. TEAL (conditionally accepted)	1,995	0	0
H. Allen	1,966	0	0

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British Thomson-Houston Co., 20 cars electrical equipments.

BRISTOL.

For the installation of a steam-heating system and hot-water supply for Blocks C and D at the workhouse at Southmead, Barton Regis: Messrs. THORP & COTTERELL, architects, Bristol.

J. WILLIAMS & SON, Queen Street, Cardiff
(accepted) £1,300 0 0

CAMBRIDGESHIRE.

For erection of a new wing at the Asylum, Fulbourn, Cambs. Mr. A. PAUL MACALISTER, architect, 9 Gray's Inn Square, London, and at Cambridge.

Charles Roper	£19,252	0	0
G. Jackson	17,100	0	0
Alfred Guy	16,996	10	6
John Shillitoe & Son	16,691	0	0
Coulson & Lofts	16,640	0	0
J. & J. Bloxham	16,569	0	0
Wm. Howard	16,402	0	0
Henry Martin	15,951	0	0
Oak Building Co.	15,495	16	0
Fredk. C. Thurman	15,439	0	0
W. Bell & Sons	15,428	0	0
Kettering Co operative Builders Co.	15,036	0	0
E. Willmott & Sons, Cambridge (provisionally accepted)	14,956	0	0
F. H. Coleman	14,944	0	0
John Cracknell	14,838	0	0
T. B. Thackray & Co, Ltd.	14,795	0	0
Architect's estimate	14,500	0	0

DARLINGTON.

For construction of a ladies' lavatory in the covered market.

Accepted tenders.

T. Harrison, Darlington, carpenter and joiner.
E. Smith, Darlington, plumber.

DAWLEY.

For erection of farmhouse at Dawley, near Harlington, Middlesex. Mr. C. W. MANNING, surveyor, Ashford, Staines.

Bull & Esdaile	£750	0	0
Kealey	687	0	0
H. C. Belch	598	0	0
W. PORTSMOUTH, Harlington (accepted)	562	0	0

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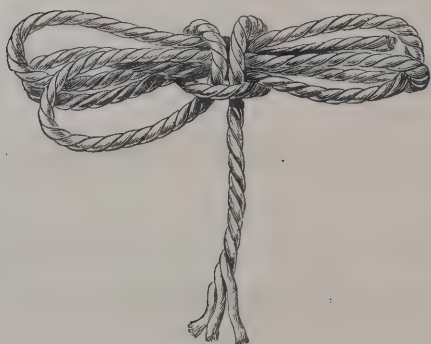
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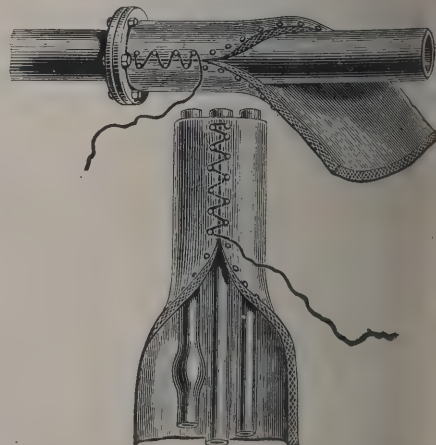
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DOVER.

For widening Folkestone Road, providing and laying kerbing, channelling and tar paving, building a retaining wall, &c. Mr. HENRY E. STILGOE, borough engineer.

G. Munro	£1,519	2	0
G. Grigg	1,470	18	4
Austen & Lewis	1,455	6	0
D. & G. KEELER, Buckland Avenue, Dover (accepted)	1,314	4	0

DURHAM.

For sewerage and sewage works at Cotterstone. Mr. J. E. PARKER, engineer, Post Office Chambers, Newcastle-on-Tyne.

S. Dart	£2,758	5	3
W. & J. Lamb	2,596	13	7
W. Carr	2,434	19	0
J. Kyle & Sons	2,380	0	0
G. H. Bell	2,305	9	11
P. O. Heatherington	2,253	6	3
Robson & Banks	2,240	1	3
S. Walker	2,150	0	0
I. HEATHERINGTON, Cotherstone (accepted)	2,074	8	0
R. Wilson	1,988	0	0

For street works at South Moor. Mr. J. ROUTLEDGE, surveyor.

W. GARNETT, South Moor (accepted)	£64	9	6
Surveyor's estimate	63	8	1

EASTBOURNE.

For construction of two public conveniences and alterations to existing shelters on the Grand Parade. Mr. R. M. GLOYNE, borough engineer.

Tapner & Co.	£5,200	0	0
J. Peattie	3,700	0	0
J. E. Johnson & Son	3,660	0	0
Finch & Co.	3,558	0	0
Jennings & Co.	3,516	0	0
J. C. LACEY, Willingdon Road, Eastbourne (accepted)	3,150	0	0

ERITH.

For supply and erection of the following electrical plant for the Erith Urban District Council:—(Section A) Two Lancashire boilers, with fittings, economiser, feed-pumps, &c.; (B) pipework, &c., in engine and boiler-house; (C) surface-condensing plant; (D) three steam alternators (vertical enclosed high-speed engines direct coupled to three-phase alternators; (E) main switchboard and connections; (F) 10-ton engine-room travelling crane; (G) transformers, sub-stations and equipment; (H) underground mains, conduits and roadwork for private and public lighting; (I) arc lamps (open type) and posts; (K) station lighting.

Accepted tenders.

Callender's Cable and Construction Co, Ltd, Victoria Embankment, E.C. (H)	£7,517	0	7
International Electrical Engineering Co., Strand (D)	3,070	0	0
Spurr, Inman & Co., Ltd, Wakefield (A)	1,870	0	0
British Electrical Transformer Manufacturing Co., Ltd., London, W. (G)	1,194	0	0
International Electrical Engineering Co., Strand (E)	980	0	0
Babcock & Wilcox, Ltd, London, E.C. (B)	921	3	0
Wheeler Condensing and Engineering Co., Ltd, Queen Victoria Street, E.C. (C)	607	0	0
Callender's Cable and Construction Co, Ltd, Victoria Embankment, E.C. (I)	254	18	0
Carrick & Ritchie, Edinburgh (F)	218	0	0
H. E. Keen & Co, Worcester (K)	29	10	0

FINEDON.

For asphaltting footpaths (about 4,000 yards super), for the Finedon Urban District Council. Mr. G. F. BEARN, surveyor, Wellingborough.

F. Barlow	Per Square Yard.
SCUDAMORE & Co, Northampton (accepted)	2s. and 2s. 3d.
O. P. Drever	1s. 5½d. and 2s. 1½d.
	1s. 11d. and 2s. 2½d.

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For street works in Whatman Road, Lewisham. FRV BROS., Norman Road, Greenwich (accepted) £338 0 0

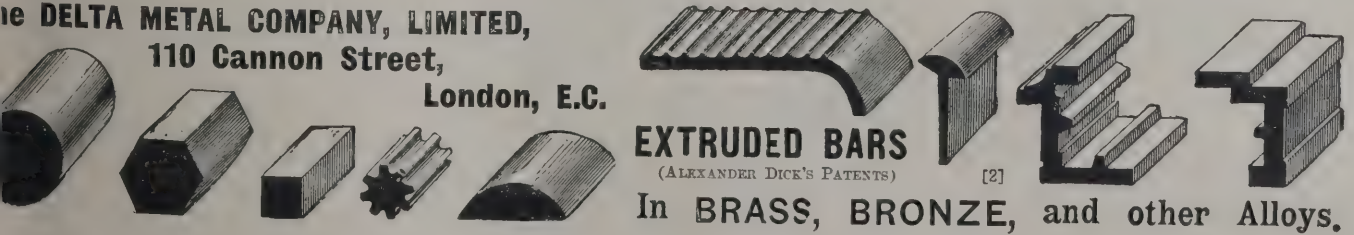
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FULHAM.

For street works in Margravine Road (Section 6), Bishop's Park Road (Section 2) and Rowallen Road, Fulham. Mr. CHARLES BOTTERILL, borough surveyor.

Rowallen Road.

B. Nowell & Co.	£648	0	0
E. Parry & Co.	630	0	0
J. Mears	618	0	0
G. Wimpey & Co.	615	0	0
A. Ball	608	0	0
Lawrence & Thacker	606	0	0
H. J. Greenham	602	0	0

Footway.

B. Nowell & Co.	354	0	0
Victoria Stone Co.	206	0	0
Imperial Stone Co.	205	0	0

Bishop's Park Road—Section 2.

Lawrence & Thacker	305	0	0
G. Wimpey & Co.	296	0	0
E. Parry & Co.	290	0	0
H. J. Greenham	289	0	0
J. Mears	287	0	0
B. Nowell & Co.	268	0	0
F. G. Minter	255	0	0
J. Ball	253	0	0

Footway.

Victoria Stone Co.	90	0	0
Imperial Stone Co.	87	0	0

Margravine Road.

G. Wimpey & Co.	362	0	0
B. Nowell & Co.	355	0	0
E. Parry & Co.	351	0	0
Lawrence & Thacker	350	0	0
J. Mears	348	0	0
H. J. Greenham	330	0	0

Footway.

B. Nowell & Co.	98	0	0
Victoria Stone Co.	60	0	0
Imperial Stone Co.	59	0	0

GLOUCESTER.

For erection of additional buildings to school at Churchdown. Mr. A. J. DUNN, architect, 31 St. Michael's Square, Gloucester.

R. W. T. Merritt	£1,372	19	8
W. Bowers & Co.	1,283	0	0
T. J. Williams	1,159	18	0
Collins & Godfrey	1,159	0	0
J. Gurney	1,148	0	0
A. J. Dolman	1,119	0	0
Freeman & Jones	1,097	0	0
A. KING & SON, Gloucester (accepted)	998	0	0

GREAT YARMOUTH.

For erection of car-shed and boundary wall at Caister Road. Mr. J. WM. COCKRILL, borough surveyor.

Carter & Wright	£2,165	0	0
J. F. W. Bray	2,048	0	0
J. Eastoe	1,976	0	0
J. Balls	1,971	0	0
A. Wright	1,956	0	0
J. D. Harman	1,868	0	0
F. GRIMBLE, 219 Northgate Street (accepted)	1,862	0	0

HOUNSLOW.

For street works on the Bushey Close Estate, Harlington, Hounslow. Mr. C. W. MANNING, surveyor, London Road, Ashford, Staines.

J. Macklin	£1,200	0	0
C. W. Killingback & Co.	1,050	0	0
A. Green	927	0	0
S. Kavanagh	883	0	0
R. W. Swaker	754	0	0
W. H. Wheeler	717	0	0
Felkin & Watson	697	3	0
C. Mott & Sons	625	12	0
G. HEBBURN, Hersham, Surrey (accepted)	567	0	0

ISLEWORTH.

For supply and fixing of an iron escape staircase at the branch workhouse (Warkworth House).

W. WISDOM, Isleworth (accepted) £160 0 0

For additions to the nurses' home at the Brentford union infirmary.

J. DOREY & Co., Brentford (accepted) £1,248 0 0

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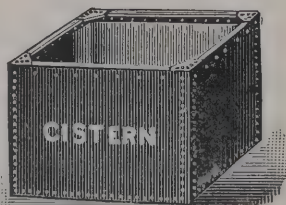
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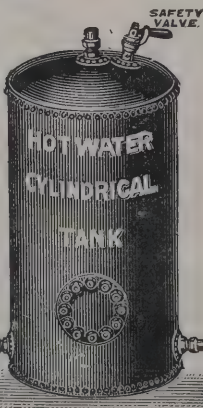
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ILFORD.

For erection of seven houses, Henley Road, Ilford, for Messrs. Lowe & Co. Mr. A. W. HUDSON, architect, 87 Finsbury Pavement, E.C.

	7 Houses.	Per House.
Hawkey & Oldman	£2,373 0 0	£339 0 0
H. Wilson	2,170 0 0	310 0 0
B. Hart	2,135 0 0	305 0 0
T. Wilson	2,051 0 0	293 0 0
Wicks & Capon	1,785 0 0	255 0 0

LEICESTER.

For sewerage work. Mr. E. GEO. MAWBEY, borough engineer.

C. Chamberlain	£349 15 0
J. Holme	315 12 0
Leicester Builders	296 3 9
H. Mason	244 15 9
Johnson & Langley	235 0 6
J. H. Smedley	233 4 6
T. PHILBRICK, Leicester (accepted)	205 0 0

For erection of competitors' room at the Belgrave baths.

T. C. Tyers	£125 0 0
J. E. Johnson & Son	125 0 0
H. Herbert & Sons	123 10 0
M. A. Tuffley	120 0 0
Riddett & Son	115 0 0
Hardington & Elliott	110 18 6
H. Bland	102 15 0
E. Black & Son	102 0 0
Leicester Builders, Ltd.	100 18 10
W. Moss & Son, Ltd.	97 13 0
Tyers & Yates	97 15 0
J. Holmes	97 0 0
J. Cole	97 0 0
S. Philp	97 0 0
F. Neal	93 17 9
W. G. Harrison	91 19 0
F. BECK & CO, Leicester (accepted)	89 0 0

LEWISHAM.

For street works in Ladywell Road (Part 1), Lewisham.

J. MOWLEM & Co., Grosvenor Wharf, Westminster (accepted)	£55 0 0
--	---------

For street works in Ladywell Road (Part 3), Lewisham.

FRY BROS., Norman Road, Greenwich (accepted)	£176 0 0
--	----------

LITHERLAND.

For completing passage at rear of 2 to 46 Tattersall Road. Mr. W. B. GARTON, surveyor.

J. Rowlands	£164 0 0
McKinley	125 17 11
J. Joynson	122 6 2
P. Balmer	115 13 11
W. F. Chadwick	120 12 9
F. IRELAND, School Lane, Seaforth (accepted)	110 12 8

LONDON.

For alterations and repairs at the Old Commodore, White-chapel, E. Mr. HERBERT RICHES, architect, 3 Crooked Lane, King William Street, London, E.C.

T. OSBORN & SON (accepted) £766 0 0

For alterations at the Shaftesbury Arms, Hoxton, N. Messrs. C. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, E.C., and Bromley-by-Bow, E. Quantities supplied.

F. & T. Thorne	£2,588 0 0
Todd & Newman	2,543 0 0
A. Rowe	2,488 0 0
COURTNEY & FAIRBAIRN (accepted)	2,375 0 0
Sheffield Bros. (withdrawn—error)	2,245 0 0

For alterations at the Barley Mow, Limehouse, E. Messrs. C. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, E.C., and Bromley-by-Bow, E.

E. F. & T. J. Walker	£825 0 0
C. North	789 0 0
W. Harper	680 0 0
S. SALT (accepted)	677 0 0

NEWHAVEN.

For sewerage and street works, &c. Mr. F. J. RAYNER, town surveyor.

J. G. Pickard	£1,740 16 0
H. Bentham & Co.	1,571 0 0
Peerless-Dennis & Co.	1,534 0 0
B. Cooke & Co.	1,465 0 0
Grounds & Newton	1,380 0 0
W. Langridge & Son	1,194 4 0
H. A. CHAMBERS, Seaford (accepted)	1,052 3 10

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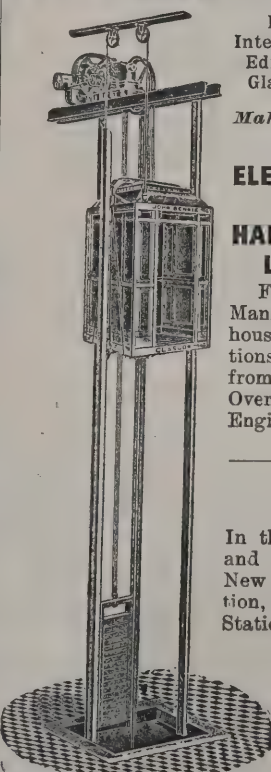
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MAIDSTONE.

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Cottages.

Goodwin & Jeffery	£855	0	0
W. T. Burrows	805	15	0
Corben & Co.	799	0	0
T. I. Barden	795	0	0
W. H. Ottewill & Son	789	0	0
G. Candler	767	0	0
Cox Bros.	738	0	0
J. Wood & Son	725	0	0
E. Wilkins	699	0	0
E. HADLER (accepted)	628	6	8

Offices.

W. T. Burrows	120	0	0
T. I. Barden	120	0	0
Corben & Co.	117	0	0
E. Wilkins	115	0	0
W. H. Ottewill & Son	113	0	0
Goodwin & Jeffery	110	0	0
E. Hadler	109	12	0
G. Candler	109	10	0
Cox Bros.	106	10	0
J. WOOD & SON (accepted)	103	0	0

NORTHAMPTON.

For erection of villa residence, Bective Estate, Kingsthorpe, for Mr. E. Branch. Messrs. MOSLEY & SCRIVENER, architects, Fish Street Chambers, Northampton. Quantities by architects.

W. Heap	£988	15	0
E. D. Sharman & Son	955	0	0
H. Martin	950	0	0
W. Beardsmore	930	0	0
A. J. CHOWN, Northampton (accepted)	859	0	0

For electric lighting of public portion of Emporium Arcade, for the Northampton Estates and Improvements Corporation, Ltd. Messrs. MOSLEY & SCRIVENER, architects, Fish Street Chambers, Northampton.

F. Watkin	£171	0	0
Lea & Warren	168	0	0
Mansell	130	0	0
NATIONAL ELECTRIC WIRING CO. (accepted)	117	18	0

SCOTLAND.

For carrying-out the drainage scheme of the burgh of Ayr. Mr. EAGLESHAM, engineer, Ayr.

Contract No. 9.

H. Hastie	£38,784	17	3
T. Crawford & Son	37,014	9	2
W. Clarke	33,530	7	4
BLAIR & WHITE, 95 Bath Street, Glasgow (accepted)	31,297	4	5

Contract No. 10.

T. Crawford & Son	2,650	11	8
Blair & White	2,615	16	7
T. Christie	2,520	10	0
MacKay & Co.	2,398	1	0
W. CLARKE, Sandgate Street, Ayr (accepted)	2,381	17	4

SWINTON.

For driving heading in a field adjoining the waterworks, Station Street, Swinton, near Rotherham. Mr. R. FOWLER, surveyor.

J. GLADDERS, Canklow, near Rotherham (accepted)	£426	4	3
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Note.—Six other tenders.

THORPE-LE-SOKEN.

For alterations and erection of an infants' room at the Rolph schools, Thorpe-le-Soken. Mr. CHAS. E. BUTCHER, architect, 3 Queen Street, Colchester.

F. C. Thurman	£1,099	10	0
R. Gooch & Co.	985	5	0
T. C. Canham	968	0	0
Pennick & Taylor	955	0	0
E. Mills	930	9	0
E. West	894	0	0
T. J. Ward	871	0	0
A. Diss	850	0	0
F. Dupont & Co.	838	0	0
H. Potter	835	0	0
J. McKay	807	0	0

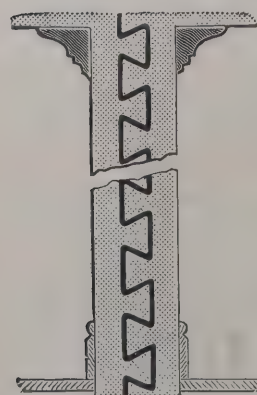
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TOTNES.

For laying 1,200 feet of 1-inch and 330 feet of ¾-inch (or thereabouts) of galvanised iron piping and other work at Halwell, near Totnes, Devon. Mr. W. F. TOLLIT, architect, 10 High Street, Totnes.

Ellis & Harris	£86	0	0
A. W. Cranch	64	10	0
A. S. Distin	59	10	0
C. H. Ellis	58	17	7
S. Treby	57	0	0
W. Butler	55	17	6
WINSOR & SONS, Ashburton (accepted)	50	0	0

WALES.

For private street improvement works at Ely and Llandaff Yard, Llandaff. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff

Private improvement, Ely.

C. Davies	£665	15	7
J. Rich	635	1	1
F. Ashley	605	12	8
J. E. Evans	596	10	1
T. REES, Crinallt, Ely (Glam) (accepted)	528	2	6

Private improvements, Llandaff Yard.

C. Davies	227	13	8
J. Rich	216	13	0
J. Rees	216	11	3
F. Ashley	204	0	7
J. E. Evans	189	16	6
E. REES, The Elms, Whitchurch (Glam) (accepted)	179	16	5

For erection of school at Brynmawr for 420 boys and for converting the three departments of present schools into two departments and executing various repairs at the Brynmawr Board schools. Mr. F. BALDWIN, architect, 13 Frogmore Street, Abergavenny.

D. W. Davies	£6,517	0	0
D. Thomas & Son	6,420	0	0
T. S. Foster	6,265	0	0
J. G. Thomas & Sons	6,180	0	0
W. & L. Price	6,062	13	0
J. Jenkins	5,990	0	0
F. G. Robbins	5,932	10	0
J. Newcombe	5,782	10	0
J. MORGAN, Blaenavon (accepted)	5,576	0	0

WALES—continued.

For erection of shop premises at 20 Terrace Road, Aberystwyth. Mr. J. ARTHUR JONES, architect, 7 Queen's Terrace, Aberystwyth.

Edwards Bros.	£790	0	0
Jones & Lewis	786	0	0
E. Owen	775	0	0
L. Bearne	737	0	0
OWEN BROS. (accepted)	735	0	0
D. R. Williams	692	0	0
D. Williams	689	0	0

WHITBY.

For wiring of the electricity works, Church Street, the substation under the Council's offices, the Council offices, Flowergate, and the public shelters, conveniences and bandstand, Pier Road, Whitby.

Cox-Walkers	£198	6	0
W. Wharam	196	10	0
Gresham & Stephenson	186	18	6
C. Clark	167	14	0
A Dickinson	166	9	0
L. G. Tate	149	5	0
Jackson & Co.	146	13	5
G. F. Wells	140	14	9
Tattersall & Smith	138	15	6
WALKER & HUTTON, Scarborough (accepted)	126	1	0

THE new church of All Hallows, Easton, Bristol, which is connected with All Saints (city), was consecrated on the 2nd inst. The scheme provides for a building capable of accommodating 800 worshippers, but this has not yet been completed, the work accomplished including choir, sanctuary, north and south transepts, chapel and three bays of the nave and aisles. The style is English Gothic of the Decorated period. The walls are faced externally and internally with red Pennant stone, Bath stone being used for the dressings, and an open timbered roof has been provided. The choir and sanctuary are large and lofty, the apparent height being increased by lofty arcades between the choir and transepts. The contractors are Messrs. R. Wilkins & Sons, of Surrey Street, and the architects Messrs. Crisp & Oatley, of Edinburgh Chambers, Baldwin Street.

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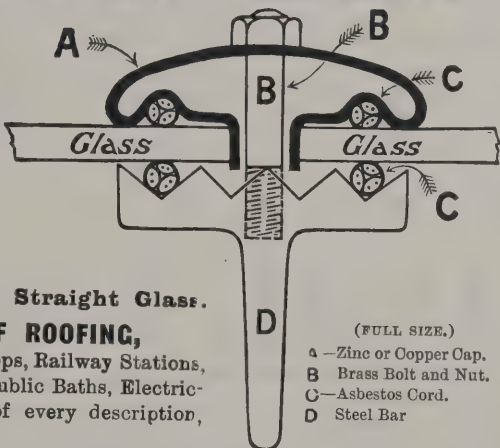
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ELECTRIC NOTES.

At a meeting of the Rhosllanerchrugog Parish Council it was resolved to invite Mr. George R. Peers, electrical engineer, Manchester, to give information as to the cost of an installation and working of the electric light.

At Hackney on the 31st ult. the inauguration took place of the electricity and refuse destructor works, which have cost 285,000*l.*, and occupy only so much of an acquired site of five acres on the River Lea Navigation Cut that ample space remains for future expansion.

An association of Northumberland coalowners has resolved to take up the matter of electrical power for working and lighting the mines as well as tramways in populous districts where the collieries are at a distance from the villages and homes of the workers. The syndicate contemplate, as the Northumberland Electric Power Company, applying for powers to Parliament.

The Coventry electric-light committee have issued a report in which they state they have reconsidered the existing tariff, and as the plant is not fully engaged they recommend that the charge for the third and subsequent hours of demand should be reduced from 3*d.* to 1*d.*, and the charge for purposes other than lighting be altered to 1½*d.* per unit.

The Russian Ministry of Ways and Communications appointed a special commission to discuss the project brought forward by a syndicate of foreign capitalists for the purpose of installing a system of electrical towage on the Ladoga Canal. The syndicate proposes to erect works which shall not only supply the necessary energy for towing purposes and for lighting the canal, but be capable of supplying manufacturers and St. Petersburg with power.

MR. H. PERCY BOULNOIS, Local Government Board inspector, held an inquiry at the Guildhall, Worcester, on Tuesday, into the proposal of the City Council to erect and equip a supplemental electricity generating station, at a cost of 31,111*l.* The new works have become necessary by reason of the conversion of the tramways to electric traction, and it is proposed to give the British Electric Traction Company, who have acquired the powers to run the trams in the city and district, notice fixing December 1, 1902, as the date for the commencement of the supply of current for traction purposes. The town clerk (Mr. S. Southall) laid the proposal before the inspector, and no opposition was offered.

ELECTRIC-LIGHTING works are being constructed at Hawick, N.B., by the Urban Electric Supply Company at a total cost of about 17,000*l.* The company, whose headquarters are in London, have twelve stations throughout the country, including that at Hawick. It is intended to supply customers with electric power, light and heat. An engine of 100 horsepower has meantime been put down in Commercial Road to give the necessary power for a temporary installation at the new theatre, to be ready within a fortnight. Cables are being laid in the principal streets, and it is expected that the works will be in full operation next spring. The cost of street-lamps will not be more than 3*d.* per unit, and for houses and business premises at rates varying from 4*d.* to 7*d.* per unit. It is calculated that electric light at 4*d.* per unit is equivalent to gaslight at 2*s.* 7*d.* per 1,000 cubic feet.

EXTENSIVE preparations for laying down the electric tramways at Ilkeston are being made by the contractors, Messrs. Dick, Kerr & Co. It is expected that the work will be completed within six months. The length of the line proposed to be made is over three miles, and extends from Cotmanhay to Hallam Fields, the northern and southern extremities of the borough. In the first instance, the Town Council proposed to erect works to produce their own electrical energy, but subsequently arrangements were made with the Derbyshire and Notts Electrical Supply Company to furnish the requisite energy for the tramways and electric lighting, the company undertaking to do so on or before August 7 next. The principal streets of the town are to be lighted by means of arc lamps.

A PROPOSAL is under consideration in Kilmalcolm, N.B., to introduce the electric light. A circular has been sent to the principal householders in the district, along with an inquiry form asking if the receiver is willing to introduce the electric light, and to state what number of lights he estimates he will require. The circular sets forth that a provisional committee of influential local men has been formed to see if electricity can be conveniently and economically introduced. At a recent meeting Mr. J. L. Napier, consulting engineer, read a favourable report on alternative schemes, and it was after consideration of that report that the committee decided to circularise the inhabitants. It is stated by the promoters that the light will be supplied at less than the cost of an equivalent amount of light from gas, and the more generally the new light is adopted the cheaper it will become. Negotiations have been entered into with the Clyde Valley Electric Power Company, and the

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committee intend going fully into the matter when the replies to the circular have been sent in.

A RATEPAYERS' meeting has been held at Holyhead Town Hall in connection with the proposal of the Urban District Council to acquire a provisional order for lighting Holyhead and its vicinity with electricity. The Rev. John Hughes said that the question of getting rid of the refuse of the town had been before the Council for many years, and the methods of dealing with it had proved totally unsatisfactory. By careful inquiry it had been ascertained that this nuisance could be effectually destroyed, and the town lighted cheaply and efficiently. At present 700*l.* was spent in lighting the town, which was equal to the interest of 20,000*l.* They would be able to construct a refuse destructor and supply electric light at a cost of 14,575*l.* with a net profit of 396*l.* The Council would require to borrow 16,000*l.* for this purpose, to be repaid in a period of thirty years. Councillor James Lansbury contended that the establishment of electric light was absolutely necessary. The proposal found supporters in some of the leading ratepayers, and was accepted by the gathering.

At a meeting of Glasgow Technical College Scientific Society on Saturday evening, a paper was read by Mr. J. Gray Scott, A.I.E.E., burgh electrical engineer, Leith, on "Electricity Works Load Factors." Mr. C. P. Hogg, M.Inst.C.E., president of the Society, presided over a large attendance. Mr. Scott explained the meaning of the term load factor, its importance in the generation of electricity, and the various uses to which it might be applied, and described the maximum demand system of charging which is based on this principle, and also referred to the various other systems of charging which are in vogue in other towns. He maintained that where the maximum demand system is in use it should be employed throughout, and deprecated the introduction of alternative systems of charging, and further urged that where employed the maximum and minimum charges should be adjusted to correspond with the capital and running costs of the undertaking. Referring to the undertaking of the Leith Corporation the lecturer showed by a number of charts the progress made and the influence of the load factor on the working costs of the undertaking. The system of charging in use at Leith, he said, was the flat rate system, and though no system was perfect, that one had a number of advantages. Thereafter he treated load factors accruing to the various classes of consumers, and pointed out the advantage to an electricity works of a tramway supply. The load factor of an electric tramway

would be about 60 per cent., and would, of course, increase the load factor of the plant provided, in consequence of its favourable effect on the load factor of the load. Cable tramways had, of course, a similar load factor, but unfortunately it was what one might term a dead load factor. The paper was illustrated by means of lantern slides referring to the Leith Corporation electricity works.

TRADE NOTES.

THE new chapel and school at Summerhill, near Wrexham, have lately been fitted with the well-known "small tube" hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool.

THE heating of St. Barnabas Church, Hull, is to be by Spencer's well-known low-pressure hot-water apparatus and patent heating and ventilating "Ventilo" radiators. The patentee, Mr. W. F. Spencer, Cross Bank Works, Oldham, is also installing the apparatus.

THE opening meeting of the session in connection with the Chester and North Wales Archæological and Historic Society was held in the lecture theatre of the Grosvenor Museum on the 28th ult., when Mr. Frank H. Williams, at the request of the Council, exhibited and described the various objects in the collection of antiquities recently presented by him to the Society. There was a fair attendance, and at the close Mr. Williams was accorded a hearty vote of thanks on the proposition of Archdeacon Barber, seconded by Dr. Stalterfoth.

THE church now in course of erection in Prince Consort Road has been designed by Mr. G. F. Bodley, A.R.A. The plan of the church will consist of a wide nave and chancel, the latter being formed only by a very open screen without the obstruction of a chancel arch; there are aisles, and on the one side they are double, this arrangement suiting the site; there will be wide and lofty piers and arches and traceried windows. The character will be that of a town church in the style and manner of the fourteenth century. It will be strictly English in conception and detail, treated in a broad and somewhat original manner. Stone arches of a bold character will be thrown across the aisles, and form, as it were, flying buttresses to strengthen the construction of the wide nave roof. The cost, inclusive of the site, will be 31,000*l.*

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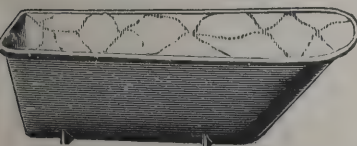
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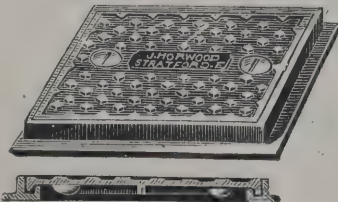
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BUILDING AND BUILDERS.

A NEW United Free church is about to be erected at Cults, Aberdeenshire, at a cost of about 5,000*l.*, and the first sod was cut on Saturday last.

THE Sedgfield Rural District Council have purchased a site near the County Asylum for the erection of an isolation hospital.

THE Local Government Board have authorised the Birmingham Board of Guardians to extend the farm buildings at the Marston Green cottage homes, and to build two labourers' cottages at a cost not exceeding 1,784*l.*

THE foundation-stones have been laid of a new Congregational church at Annan, N.B. The church, which will be built of red sandstone from Corsehill Quarries, will accommodate 450. The cost is estimated at 3,500*l.*

MR. WOODMAN HILL will read a paper before the Institute of Builders at St. James's Hall on the 20th inst. upon "Submarine Construction by Diving and Other Compressed Air Methods, Cylinder Sinking and Tunnelling under Compressed Air." Mr. Charles Wall will preside.

ON Saturday afternoon the church at Ash, near Whitchurch, Hants, was crowded, the occasion being the consecration of a new chancel, erected at a cost of 400*l.*, in memory of the Rev. Henry Brumell Finch, for eighteen years the vicar of the parish, and who died on November 8, 1899.

A STAINED-GLASS window which has been placed in Holy Trinity Church, Oswestry, in memory of the late Queen Victoria, was dedicated on Monday. The window represents the Queen in royal robes kneeling and laying down her symbols of earthly sovereignty at the feet of Christ and receiving the crown of everlasting life.

THE tenders for the erection of the Cheltenham Town Hall, the architect's estimate of the cost of which was put at 35,000*l.*, were opened on the 31st ult. They were nineteen in number, and included one from Birmingham and others from the neighbourhood and further afield. The highest (a Gloucester one) was 36,489*l.* and the lowest (a Nottingham tender) was 28,397*l.* Subject to inquiry and confirmation by the architect, the committee recommend acceptance of the latter.

AT the monthly meeting of the Longton Town Council the sanitary committee recommended that the tender of M. H. P. Embrey, of King Street, Fenton, should be accepted for the erection of the proposed new isolation hospital for the sum of 9,153*l.*, and, further, that application should be made to the Local Government Board for sanction to a loan of 12,000*l.* for the erection and furnishing of the hospital, instead of 10,000*l.* as previously agreed upon.

THE organising committees of the First International Exhibition of Modern Decorative Art, to be held in Turin in 1902, have recently decided upon the erection of buildings covering a space of 7,000 square metres, in addition to those already provided for, and perhaps even this addition will not prove sufficient. The Exhibition buildings, which at first were intended to cover a space of about 20,000 square metres will cover a surface of about 34,000 square metres.

THE block of buildings which have just been erected by the Parish Council of Kilmalcolm for Council offices, at a cost of about 1,400*l.*, were formally taken possession of on Monday night, when the Council met for the first time in them. The buildings, which are of artistic design, consist of a well-appointed inspector's office, board-room, &c., with house for inspector above. Mr. Alexander Gardener, 209 St. Vincent Street, Glasgow, was the architect.

A NUMBER of properties which the Leeds Corporation propose to acquire in connection with street improvements will have to be dealt with at the meeting of the City Council tomorrow, Saturday. These include the purchase, for 6,000*l.*, of the St. John's Inn, in Wade Lane, which is being widened; and that of the Bank Farm Hill estate, comprising some 2,364 square yards, for the improvement of Richmond Street. The price proposed to be paid for the latter is 4,000*l.* Another important undertaking that the Council will be asked to ratify is an arrangement with the Midland Railway Company, whereby the latter agree to dedicate some 997 square yards of land to Balm Road, and to widen Balm Road bridge to 50 feet within

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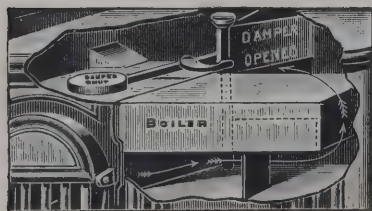
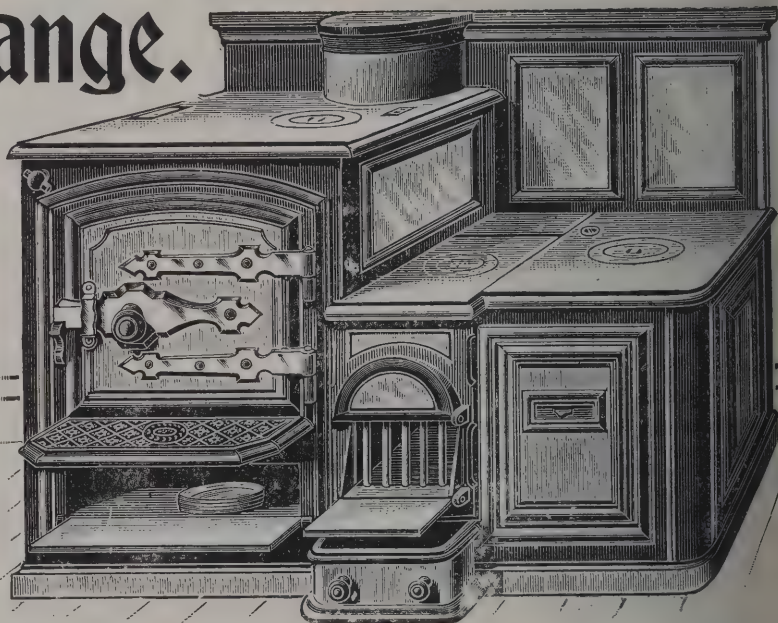
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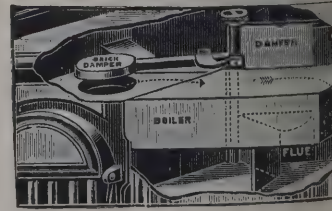
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three years. The Corporation will contribute 5,144*l.* towards the cost of the widening of this bridge.

THE foundation-stone was laid on Saturday of a new church which is to be erected at Palfrey, Walsall, a district of rapid growth, the whole population of which, numbering 5,000 or 6,000, has sprung up in quite recent years. The church is to take the place of an iron structure which has done duty as a mission church in connection with Caldmore parish, and a new parish is to be formed. The contract has been undertaken by Mr. W. Hopkin, of Birmingham, for 4,400*l.*, the architects being Messrs. J. E. K. & J. P. Cutts, of London.

THE annual meeting of the Building Trades Exchange of the City and District of Glasgow, Ltd., was held in Glasgow on the 30th ult., Colonel Bennett presiding. The eighth annual report showed that the treasurer's accounts brought out an income of 701*l.* 7*s.* 9*d.* and an expenditure of 666*l.* 10*s.* 5*d.* The executive recommended a dividend of 4 per cent. on paid-up capital. During the year there had not been any work of particular moment to which the Exchange could devote its energies, with the exception of the scheme for the extension of the Glasgow and West of Scotland Technical College. The report was adopted.

THE Local Government Board having demanded certain alterations in the plans of the infectious diseases hospital about to be erected at Langholm, N.B., a meeting of the district and burgh representatives was held in the Town Hall to consider a report by the architect. The architect reported that the alterations would involve an increased cost of 250*l.* This could not be provided out of the amount which the representatives had decided on as the maximum cost of the hospital. If, however, brick was used instead of stone for the building a saving of the required sum could be effected. The meeting declined to entertain the erection of a brick building, and it was unanimously resolved to vote an extra sum of 250*l.*

THE seventh annual meeting of the Scottish Building Trades Federation was held last week in the Cockburn hotel, Bath Street, Glasgow. Representatives were present from the various districts of the country, including Inverness, Keith, Aberdeen, Arbroath, Dundee, Perth, Stirling, Edinburgh, Glasgow, Hamilton, Coatbridge, Dumfries, Paisley and Govan. Mr. Alex. Beveridge, builder, Perth, the president, occupied the chair. Mr. James L. Selkirk, C.A., Glasgow, submitted the annual report, which narrated very fully the work undertaken during the past year by the executive to extend and consolidate

the organisation throughout the country. The consultative committee (which consists of four representatives from each of the four principal cities) had been keeping themselves informed as to the state of the building trades during the year, with a view to rendering assistance in any of the districts where such might be required. They found that much importance was being attached to their work, because by being kept informed as to the prospects of trade they were in the best possible position to render timely and suitable advice and assistance. The question of finances was specially dealt with, and energetic steps were resolved upon to place the Federation in a strong and healthy position financially. Various other matters were considered, and resolutions arrived at regarding them. Office-bearers for the ensuing year were appointed as follows:—President, Mr. Robert Lamb, builder, Edinburgh; vice-presidents, Messrs. Thomas C. Stock, wright, Dundee, and John Morgan, wright, Aberdeen, together with eleven members of executive in room of those retiring at this time; secretary, Mr. James L. Selkirk, C.A., Glasgow. The next half-yearly meeting of the Federation was appointed to be held in Perth, and the next meeting of executive in Dumfries. A hearty vote of thanks was awarded to the chairman for presiding.

VARIETIES.

THE new Roman Catholic church of St. James, Paisley, was formally opened on Sunday.

A NEW public library was opened at Blackpool on the 31st ult.

A LECTURE on "Design and Designers of the Victorian Epoch" will be delivered by Mr. G. C. Haité at the meeting of the Society of Designers on the 19th inst.

MR. FRANK CAWS will deliver his presidential address before the Northern Architectural Association on Wednesday next.

THE foundation-stone was laid on Saturday of a new church which is to be erected at Lower Sydenham, at a cost of 8,000*l.*, from designs prepared by Mr. G. H. Fellowes Prynne.

THE bells of Exeter Cathedral are to be rehung in an iron cage if sufficient money is provided; the cost will be about 1,200*l.* At present, owing to the state of the timbers, the sounds are generally discordant.

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A NEW technical institute—to be known as the Victoria Memorial Institute—was opened at Padiham on the 31st ult. The building, which will accommodate 400 students, has been erected on a site in Burnley Road given by Sir Ughtred Kay-Shuttleworth, M.P. The cost of the institute is about 6,000*l*.

THE foundation-stone was laid on the 31st ult. of the new church at Cricklewood, towards which the Hampstead Church are giving their thanksgiving fund of 2,000*l*. The new church is in Chichele Road, and the seating capacity will be for 750 persons, while the lecture hall beneath the church will accommodate 600 persons. The estimated cost will be 10,500*l*.

THE new church in Carnock Street, Greenock, erected for the congregation of St. Lawrence, was opened and dedicated on Sunday last. Built of red sandstone in the Early Decorated style of architecture, the church provides accommodation for 1,000 worshippers. A presbytery to accommodate the clergy has been erected adjoining the church. The cost of the buildings is about 12,000*l*.

THE Sanitary Inspectors' Examination Board have included the Bradford Municipal Technical College, the University College, Sheffield, and the Heriot-Watt College, Edinburgh, among the institutions whose syllabus of instruction is approved by the Board, and the certificates of instruction issued by those institutions are recognised by the Board as qualifying candidates for examination for the purpose of the Public Health (London) Act, 1891.

THE River Wear Commissioners have decided to construct and lease to Messrs. J. L. Thompson & Sons, a local shipbuilding firm, a graving dock 600 feet long. The work will probably cost the Commissioners 100,000*l*., and Messrs. Thompson engage to pay 6,000*l*. per annum, or 6 per cent. The Commissioners possess two graving docks at present, but these will not accommodate vessels of large tonnage, and the result is that Sunderland loses a great deal of repair work.

THE London School Board has decided to hand over the task of rehousing the families displaced by their building schemes to the London County Council, as the chief housing authority of London. The arrears of housing have accumulated for several years, and now amount to liabilities of some 10,000*l*. The School Board will simply transfer the whole of this work to the County Council. In regard to the future the School Board have decided to change their policy. They will, as far as possible, choose sites on unoccupied spaces, and, if not, in richer quarters, where there will be no duty of

rehousing imposed upon them. The Board take the view that they are not fitted by their organisation to be a housing authority, and the precedent of co-operation with the County Council is likely to be a valuable one for future purposes.

A MEETING of the Glasgow Architectural Association was held in their rooms, 187 Pitt Street, on Tuesday night (5th inst.), the president, Mr. Chas. E. Whitelaw, in the chair. A very interesting member's paper, by Mr. James Salmon, was read on "Voices in Stones," or "The Language of Architecture." At the close of the paper Mr. Alex. McGibbon A.R.I.B.A., led the discussion, which was continued by a number of members.

A PETITION has been deposited with the town clerk and will shortly be presented to the Corporation by Mr. Edward Lee (chairman of the law and city courts committee), praying that body to use its influence to bring about the further postponement of the Land Transfer Act to the City of London until a properly constituted inquiry has been held and concluded. The petitioners urge that the new system involves grave inconveniences, and largely increases the expense and delay incident to mortgages and purchases of property without any corresponding advantage, and that it would be peculiarly unsuitable in its application to property in the City and transactions connected therewith. It is further pointed out that the Act was passed by Parliament as an experimental measure only, and that, as under its provisions some 20,000 titles have been already registered in the country, ample materials exist for the suggested inquiry.

THE new rooms for the teaching of science at George Watson (boys) College, Lauriston, Edinburgh, were formally opened on the 1st inst. The new department has been secured by raising the height of the school buildings one storey. It has been placed on the top flat, and includes chemistry and physical laboratories, a store between them, a room for the teaching of advanced science and a teaching theatre. All are well lighted and ventilated by means of roof lights and electric fans, and are fitted up in the most approved modern fashion with chemical, physical and electrical tables and apparatus. The constructive work carried out under a committee of the Governors of the College, was executed by Mr. Macandrew, builder, and the fitting-up of the rooms was effected under the surveillance of Mr. T. P. Watson, M.A., B.Sc., F.R.S.E., the science master in the College. 4,000*l*. has been spent in building and furnishing.

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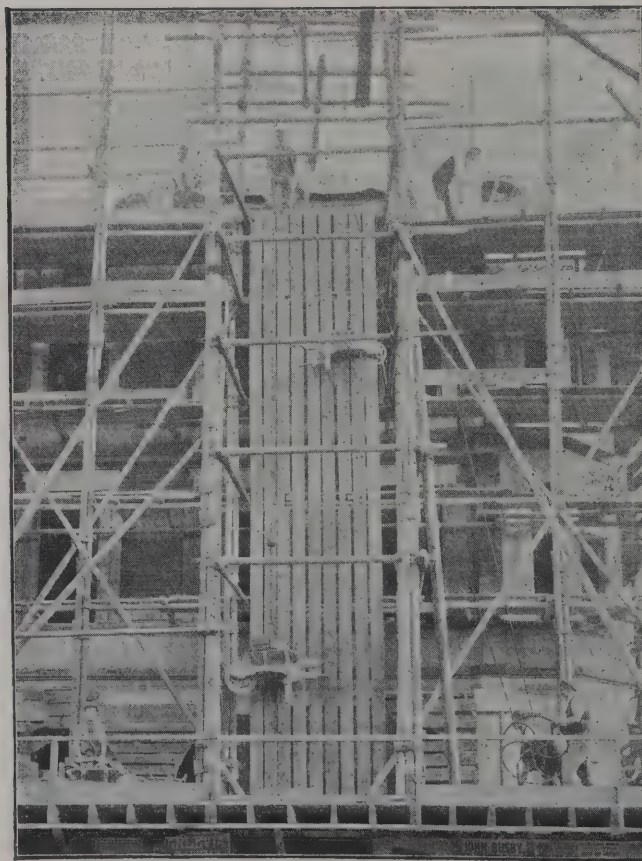
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THE large goods station which has been built at Avenue Road to meet the requirements of the London and North-Western Railway Company in the Aston district of Birmingham, has now been opened. The cost of the extensive depot, which covers some 6 acres, is 100,000*l.*; over 2,000 tons of steel were employed in its construction and accommodation exists in the grain warehouses for 10,000 sacks. A suite of offices has been built in which room will be found for eighty clerks, and the messrooms adjoining will meet the needs of the carters and carmen, for whom the depot will be the headquarters. Altogether 207 workmen will be employed there. The new goods station, affording as it does double the storage accommodation at Curzon Street, will be used not only in connection with the districts of Aston, Nechells and Saltley, but will deal with a large portion of the through traffic from the North, thus relieving Curzon Street of a pressure which has been increasingly felt. The modern character of the appliances at the Avenue Road warehouse will greatly facilitate this work. Built upon a solid foundation of 500 tons of cement, it consists of four floors 254 feet long and 150 wide. The basement, which is concrete throughout, will probably be used for bonded stores and for cold storage, whilst the ground floor possesses every equipment for unloading goods. Sixteen sets of rails lead into covered verandahs in which loading or unloading operations may be conducted with the greatest convenience by means of fifteen hydraulic and six hand cranes. Automatic lifts capable of holding tons of material communicate with the floors above, whilst outside the shed are two powerful cranes ready to cope with any emergency. Hops and general merchandise will probably be stored on the first floor and grain on the second, and shoots of an improved kind have been constructed to convey the sacks from the top to the bottom. The building is practically fireproof, the fact that the floors contain 7 inches of solid timber being regarded as an important guarantee in this direction.

WESTMINSTER WOOD-PAVING CONTRACTS.

THE works committee of the Westminster City Council, after fully investigating the matter, have prepared a report on the charges which have been made by the Westminster ratepayers' committee in connection with the action of the works committee in recommending, and of the City Council in accepting, on August 1, the tender of the Improved Wood-Pavement

Company for the relaying and maintenance of certain streets with 8-inch blocks, whereas 9-inch blocks were specified in the specification, and in adopting American red gum wood for a number of other streets. The report states that two of the tenders were ruled out of order on the ground that the tenderers had only tendered for the laying of the paving and not for the maintenance, and did not give any time for completing the work. The question was raised upon the tender of the Improved Wood-Pavement Company that they had tendered as for their usual work—viz. 8-inch blocks instead of 9-inch blocks, as in the specification. It was stated that the 8-inch block was the block which the Company used in all the districts in which they had laid paving, and it was before the committee that they had laid large quantities of similar paving in the City and that their paving had proved to be the best of the soft-wood pavings in use. Guided by the fact that it had lasted for a large number of years and that their tender was for the whole work, and was entirely in accordance otherwise with the specification, except that they stated that they could not guarantee any specific percentage of tar acids in the creosote oil to be used by them, the sub-committee decided that they would receive their tender, as they were *bona fide* tendering for work they were in the habit of doing, providing that they guaranteed the specified percentage of tar acids in the creosote. The consideration of these and the other tenders was then proceeded with, and the sub-committee reported on July 24 to the parent committee recommending that certain streets, including Whitehall, should be paved with creosoted yellow deal blocks and certain others with red gum wood blocks. When the matter came before the parent committee an amendment to pave Whitehall with red gum wood blocks was carried. The arguments laid before the committee were (1) the very much shorter time in which Mr. Alcott, in his tender for red gum wood blocks, undertook to do the work; and (2) the very much cheaper rate at which the work was to be done than with yellow deal blocks, taking into account the cost of maintenance. Various charges of undue influence were also made. The committee, after careful consideration of the whole of the allegations of the ratepayers' committee and of the statements of the members of the Council and of Mr. Monson, the surveyor of St. James's, and of the other facts before them, express the opinion that the allegations under consideration are either untrue or a distortion of facts, and submit that nothing has been done contrary to the interests of the Council and the ratepayers.

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DURHAM MINERS' HOMES.

ON Saturday last Sir Lindsay Wood opened a number of cottages at Shincliffe Colliery, near Durham city, designed for the use of aged miners belonging to the county. Twelve cottages have been repaired and made habitable, but the committee of the Durham Miners' Homes Association have secured sixty, and these they intend should be used by old miners who are past work, the object being to form a small colony of such men, with their wives. The Association have started a colony of the kind at Haswell Moor, in another part of the county, where 116 cottages are occupied by old miners and their wives, each man being in receipt of 4s. or 4s. 6d. per week from the Miners' Permanent Relief Fund. The Shincliffe houses, valued at 300l., were given to the committee by Mr. J. H. Love (Messrs. Ferens & Love, colliery owners). Three sites in the western part of the county have also been secured by the committee, and upon these it is intended to start similar colonies. A letter was read from the Bishop of Durham apologising for his absence, and wishing the scheme every success. Mr. John Wilson, M.P., who presided, said the Government required to be shown the way to deal with the problem of poverty in old age, and the Durham miners were giving them an object-lesson. For twenty-five years they had given the old men 4s. 6d. a week from the relief fund, but they now desired to add a house to it. Canon Moore-Eede, who is treasurer to the Association, and the Dean of Durham also spoke, wishing the scheme every success.

SOCIETY OF ENGINEERS.

AT a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on Monday evening, November 4, Mr. Charles Mason, president, in the chair, a paper was read on "The Main Drainage of Ilford," by Mr. Roger Gaskell Hetherington, M.A.

The author first observed that the population of Ilford had increased by 35,000 during the last fifteen years, which necessitated considerable additions to the sewerage. The first drainage scheme was prepared by the late Mr. Brundel in 1882, when the population was only 7,500. The present scheme has been designed for a population of over 100,000 by Messrs. John Taylor Sons & Santo Crimp, and the old system has been

incorporated with it. The drainage area is such that one portion of it only can be drained by gravitation. The various lines of sewers and their functions were described, and details of the construction of the main sewers were given. The general screening and pumping arrangements on the low-level sewers were also described.

The outfall works as first constructed became in time inadequate, and they were greatly enlarged in 1898 and the present system of dealing with the sewage was then started. This method consists of treating the crude sewage with milk of lime and ferrous sulphate, and then passing it through settling tanks. From the settling tanks the effluent is taken into coke breeze bacteria beds, and from thence to the river Roding, the sludge left in the tanks being pressed by sludge-pressing machinery. Owing to the works being required to deal with a considerably larger flow than that for which they were designed, the effluent has become unsatisfactory, and other modifications in the works are now being undertaken. The chief of these is the construction of an entirely new outfall to the river Thames. This effluent pipe will discharge into the Thames below the London northern outfall at Barking. As this outfall pipe, which is 30 inches in diameter, passes through a large tract of land lying below high-tide level, elaborate precautions have had to be taken to prevent tidal water being admitted to this low-lying land by any failure of the pipe. The scheme as a whole presents some interesting points as regards meeting the ever-recurring problem of treating the sewage of a district with a rapidly increasing population without discarding the existing system, which was never designed for great enlargement.

THE new Roman Catholic schools in South William Street, Workington, which have been built in consequence of the lack of accommodation at the old schools at Banklands, were opened last week. The school is a brick building of two storeys, and will hold 650 to 700 scholars. On the ground-floor is a schoolroom 25 feet by 90 feet, and two classrooms 26 feet square, besides lavatories and cloakrooms. Above these is a similar schoolroom and classrooms, while the staircase is of stone and fireproof. The architect is Mr. James Howes, and the sole contractor Mr. Beattie Towers, both of Workington.

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HEATING AND PLUMBING IN GERMANY.

ACCORDING to a report by the United States Consul in Brunswick on heating and plumbing arrangements in Germany, improved methods of steam or hot-water heating, sanitary plumbing and elevators have not been widely adopted in Central and North Germany. South Germany is said to be more advanced. In the city of Brunswick there are a large number of hotels, but as far as the Consul knows only one can boast of an elevator and steam-heaters. Last year steam-heating was introduced for the first time in four newly-built houses, and the apparatus was furnished by a firm in Geneva, N.Y. With a conservatism that is remarkable, the people adhere to the old system of heating by "Kachelofen," or stoves encased in tiles. These huge arrangements, standing in the corner of a room, look as if they would heat a whole house, but when their modest iron interior is examined one is convinced that they do not suffice to heat a room. There is no word in the German language for furnace, and this method of heating is known here as "central heizung," or central heating. Lately there has been introduced in a new flat a method of heating through steam or hot water, the apparatus standing in the hall or corridor of each storey. This system has not been tested yet. Most people in Germany live in flats, there are but few private residences. The difficulty in heating an apartment building from the basement has been the distribution of the expense, as each family must pay for its own fuel. This expense is not assumed by the landlord. As to plumbing, the kitchen ranges are without water backs, and when hot water is required for a bath a fire must be made under a stove surmounted by a boiler in the bath-room. There is unquestionably, adds the Consul, a large field which has not been adequately worked for American enterprise. Manufacturers and dealers in elevators, heating apparatus and plumbing materials who desire to introduce their goods should have advertising matter in the German language. Probably the best way of introducing goods of these kinds is to establish an agency or store where the articles can be inspected.

NEW ARCADES, BIRMINGHAM.

PERHAPS the most important improvement scheme which has been carried out in central Birmingham since the great Corporation Street scheme of the city authorities is that for the

construction of the City and Midland Arcades, which intersect the extensive block of business premises lying between Corporation Street, High Street, New Street and Martineau Street. These new arcades are rapidly approaching completion. They are, in fact, complete, and many of the 200 shops and offices provided are occupied, with the exception of one branch of the City Arcade, which is to provide a second outlet into New Street. The scheme has been planned and executed upon liberal lines, a sum approaching a quarter of a million sterling having been devoted to the work. The main arcade runs from High Street to near the junction of Union and Corporation Streets, and has two branches running off into New Street. The façades presented to the public streets are handsome terra-cotta erections in the Renaissance style, and the prevailing tone inside the arcades is green, the balustrading which fronts the balconies and the pilasters of the shop fronts being highly ornamented on Moresque designs with green faience, shaded to imitate malachite. All the shops have basements, and a subway runs underneath the thoroughfares to facilitate the delivery of goods. By means of the scheme a large area in the centre of the city, which has been almost derelict for business purposes, has been developed, and much space opened up in the principal shopping centre. The extension of the Grand Louvre has accompanied this work, as the City Arcade runs for some distance alongside the Louvre premises, and now provides a number of additional attractive shop fronts and entrances to this important drapery house. The undertaking has been carried through by Mr. E. J. Charles, contractor, on the designs of Messrs. Newton & Cheetham, architects.

INSTITUTION OF JUNIOR ENGINEERS.

AT the inaugural meeting of the twenty-first session of the Institution of Junior Engineers, Sir Lowthian Bell, F.R.S., the retiring president, occupied the chair during the first part of the proceedings, and announced that the Northcott prize had been awarded to Mr. William Powrie for his paper on "The Mutual Relations of Employers and Employed," and the Institution premium to Mr. Samuel Cutler, jun., for his paper on "Carburetted Water Gas."

Mr. P. Marshall moved, and Mr. L. H. Ruigg seconded, a vote of thanks to Sir Lowthian Bell, and this was carried unanimously.

Sir Lowthian Bell briefly acknowledged the compliment

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and introduced his successor, Sir John Jackson, whom he invested with the badge of office.

Sir John Jackson then took the chair, and proceeded to deliver his presidential address, in the course of which he said that fortunately contractors for public works, of whom he was one, had not been so much troubled by differences between employers and employed as their friends who were interested in the building of ships, manufacture of machinery, mining, building and otherwise. They now lived in the times of great factories, where so many men were employed that the employer or his chief representative came little in personal contact with the workpeople individually; hence they could not expect the same good feeling to prevail as if they were in the old days when factories were small, when men did not change their locations so often, and when master and man saw more of one another. In some trades one certainly saw with much regret on both sides a great lack of that mutual confidence and sympathy which should prevail between employer and employed—the men through their unions taking every advantage they could, and the employers, on the other hand, combining and doing likewise. He could find no fault with trade unions so long as they were conducted as they once were, only as benefit societies and as legitimate combinations of workmen for enabling them to sell their labour at the best prices; but when, as was the case now, unions not only tried to dictate to the employers as to the management of their business, but also interfered with the liberty of non-unionists, and intimidated with a view of bringing every workman under the control of their so-called leaders and of preventing a man's dealing with his labour—his own property—as he thought best, then he had to say everything against them. He was very pleased to read of the very satisfactory meeting of the Free Labour Association, which held its ninth annual congress in London the week before last, as a movement against the absurd pretensions of present-day trade unionism. The National Free Labour Association had now registered many thousands of men, who had been sent into almost every department of industry—a serious menace to the domination of the trade unions, whose claim, as one of the daily papers had very well put it, was to allow no working man to get his living except upon their terms and with their high permission, one of the most monstrous despotisms which was ever erected. The judgment of the House of Lords in the Taff Vale Railway case was very well described by one of the speakers at the meeting as a "charter of freedom to British industry." In the

name of freedom Mr. Chandler, the president, said "working men were bound hand and foot," and it was the fault of the leaders of the unions that in some trades employers have been forced to form a fighting organisation of their own. If the leaders of these unions had their way the non-union men would be doomed to compulsory idleness, and this, forsooth, in this grand old country of ours in the name of liberty. It had been said that in consequence of the Taff Vale decision some of the unions had proposed to dissolve; but if properly carried on there could be no just reason for this, but they must be made to realise that in free England every man should have the right to live and to sell his labour as he thought best. The ambition of the young workman of the old days was to excel not only in the quality of his work, but in the quantity. The ambition of the disciple of the present-day trade unionism, under which, it was argued, all men, competent and incompetent, should be paid alike, was to think and contrive how he could get the most money for the least work possible. If this spirit was to continue, he feared our nation as a nation of workmen would soon go to the rear. Why, he heard only the other day of an American ironmaster who explained that the reason why his people could cut us out, although they paid higher wages, was that the unions in England so restricted and held back the energy of the best of our workmen that these men emigrated to the States, where men were paid more in accordance with their capabilities, the result being that the American iron masters were getting into their works the very pick of the English and Scotch workers. Speaking of Americans, we had recently heard much of trade rings and combinations among producers in the States with a view of controlling certain raw materials and industries. This policy he could not agree with. For his part he had no sympathy with, but was altogether against what he might term any cut-throat competition among producers or manufacturers, which he was sorry to see so much of among contractors, but, on the other hand, he would look upon such combines as we had recently seen set up in the United States and suggested in England as combinations against the public weal, which should be prevented so far as possible by all legitimate means. Speaking more particularly to those who might be at some time engaged on the staff of a contractor, or even be contractors themselves, he would remind them of the great loss of life which, sad as it had always been, was unavoidable on public works, in the hope that they might realise how all-important it was, in whatever position they might be

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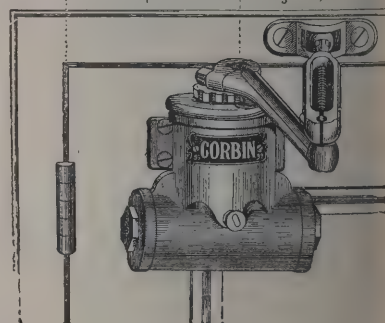
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placed, to use their very utmost endeavours to reduce this loss of life to a minimum. He thought he was right in stating that, according to the insurance companies' returns, the lives of no less than three men were lost by accident for every 100,000*l.* value of work carried out; and he was told the mortality from accidents in coal and other mines where explosives were used was even higher than that on public works. The strange thing in regard to contractors' accidents was that they did not so often happen to men engaged in work that was known to be dangerous as with work of a more ordinary nature. For instance, during the twenty-five years he had been a contractor he had employed many men as divers, and yet he could not recall to mind one single fatal accident to a diver in his employment. The calling was *prima facie* a dangerous one, and consequently those engaged in it were cautious and took every care; while with other work, such as excavating in timbered trenches, traffic work on railways, quarry work, and so forth, where the dangers were not so apparent, men got careless, and often, with no doubt commendable anxiety in their work, ran risks which were unnecessary and ended in the loss of life. Before concluding he would like to ask them all, each one, in whatever line of business he might be engaged, to do his best to uphold the old-fashioned high character of the English engineer.

A vote of thanks was passed to Sir John Jackson for his address.

PROPOSED UNDERGROUND TRAMWAYS IN LONDON.

THE following report of the highways committee of the London County Council was submitted to the Council, but the consideration of the recommendations must, however, be deferred, according to the standing orders relating to any proposed expenditure over 5,000*l.*, for one week:—

We have given further consideration to the resolution passed at the conference held on June 29 and November 7, 1900, between representatives of the Council, of the City Corporation and of the then existing vestries and district boards as follows:—"That this conference is of opinion that in all new leading thoroughfares subways should be constructed in which the water and gas mains, pipes, &c., could be placed." We may state that inquiries have been made by the Secretary of State for the Home Department as to what action the Council

proposes to take to give effect to this resolution of the conference, so that it may be presumed that the Government considers the matter of importance. The improvements committee reported on July 2 last that the resolution affirmed a principle which has been pursued by the Council for some years; but we think that, having regard to the enormous amount of inconvenience to the public and loss to the trading community by the continual breaking up of the public thoroughfares by companies and others having statutory rights, the time has arrived for the Council to seek power to construct subways in existing thoroughfares, where it may be deemed advantageous to do so, for the reception of gas and water mains and other pipes and wires connected with the various services of London. In this connection we have also considered the question of the desirability of the adoption for London of a system of shallow underground tramways, which was referred to us by the Council on June 13, 1899; and we are strongly advised by the tramways manager and electrical engineer, as the result of their observations during their recent visit to New York and Boston, where the system is in operation, that it is extremely desirable that an endeavour should be made at the earliest possible moment to introduce a similar system for London. They state that the adoption of the system of underground tramways in the cities above specified has relieved to a large extent the congestion, which was previously very serious, of the traffic on the surface of the streets, and that owing to the shallow depth at which the tramways-subways are laid, there is little or no difficulty as regards entrances and exits, which are provided by means of short flights of steps, and thus the expense of constructing and working lifts, which are necessities of the deep-level railways, is avoided. Moreover, we are informed that the atmosphere in these subways is preferable to that of the deep-level railways.

We think, therefore, that it is advisable that the Council should seek to obtain powers for the construction under the streets of such tramways-subways as may be considered desirable for the purpose of linking up the various surface tramways north and south of the Thames, and by this means of providing cheap and badly needed facilities of communication, and make the whole of the London tramways into a compact system of transit. We suggest that the tramways-subway should in each instance occupy the centre of the thoroughfare, and that a subway for pipes, &c., should be constructed on each side of it. We are fully aware of the fact that the con-

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struction of such a system of subways as we propose would be costly; but, even taking that into account, we are of opinion that in view of the public convenience which they would provide, and of the fact that not only would the tramways in them prove a source of profit, but that the placing of the pipes and wires in subways would remedy the great and crying evil of the continual breaking up of the public thoroughfares, it is desirable on all grounds that the system should be carried out.

It appears to us that at the present juncture an admirable opportunity presents itself of ascertaining whether the scheme would be, as we fully anticipate it would, a complete success. Under powers conferred upon the Council by Parliament, an important new thoroughfare between Holborn and the Strand is in course of construction, and in addition to the subways already authorised for the reception of the gas, water and other pipes and wires, it appears to us that this would be an ideal route for the trial of a first experiment of the shallow underground system of tramways. One of the termini of the Council's northern system of tramways (leased to the North Metropolitan Tramways Company) is at Theobald's Road, and the Council will apply next Session for powers to construct tramways along the Victoria Embankment. Our proposal is that a tramways-subway should be constructed from the level of the Victoria Embankment, under Wellington Street, across the Strand and through the new street thence to Holborn, under Holborn and Southampton Row, and that the tramway should be taken up an incline to Theobald's Road or to Rosebery Avenue, if that should be found more convenient. The estimate of the cost of construction of such a subway, and of the tramway for a system of electrical traction is 282,000/. If our proposal should be carried out the eastern parts of London served by the tramways converging upon the Theobald's Road terminus would have the advantage of being enabled to travel to the Strand and through to Westminster, and also to within an easy distance of Charing Cross. The Council will perceive from the above that, after having given the greatest consideration to the matter, we are convinced that it is desirable that, even taking into account the amount of the first cost, the experiment should be tried, and that the proposed underground tramways would not only be a means of improving the facilities of communication between the tramways systems north and south of the river Thames, but would prove a great success from a pecuniary point of view.

We have, in accordance with the standing order with reference to proposals for new legislation, consulted the

solicitor, who has expressed the opinion that the above proposal would come within the meaning of section 14 of the Metropolis Management Act, 1855, and that the Council would have power to spend money in promoting a Bill on the subject. The recommendations which we have to submit are as follows:—

(a) That the standing orders of the Council relative to applications to Parliament for powers be suspended in order that the Council may consider the following recommendation:—

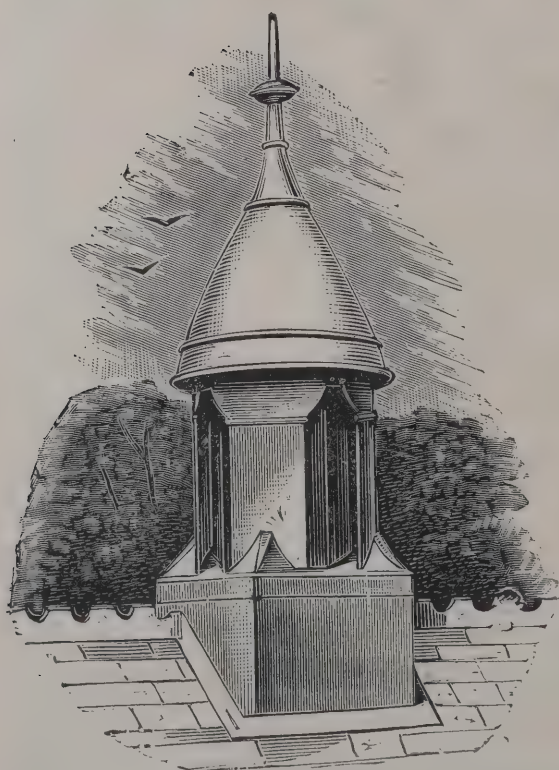
(b) That the Council do apply, in the next session of Parliament (1) for powers to make subways in streets for the reception of pipes, wires and other things where desirable, and for electrical traction and other purposes of locomotion; and (2) powers to construct a subway and to construct tramways therein for electrical traction from the Victoria Embankment, along Wellington Street, across the Strand, through the new street, thence to Holborn, under Holborn and Southampton Row, and to take such tramways by an inclined plane to the tramways terminus in Theobald's Road, or to the tramways authorised to be constructed in Rosebery Avenue, as may be considered most expedient.

SANITARY ARCHITECTURE.*

THE subject of my remarks is the art of planning and constructing buildings, and therefore the title "Architecture" would have sufficiently described what I am about to say; but with the immense growth of populations and the concentration of people in cities, with the busy lives we all live in consequence, it is often desirable to emphasise a simple description by the use of an appropriate adjective, hence I have made the title of my address "Sanitary Architecture." The architect is the chief workman, and as an architect speaking to clerks of works, builders' foremen and others, who have or hope to have to deal with the construction of buildings, I desire to speak as

* A lecture on "Design, Materials, Buildings, Workmanship and Supervision," at the Carpenters' Hall, London Wall, on October 17. By Mr. Mark H. Judge, A.R.I.B.A., Fellow of the Sanitary Institute, Associate of the Society of Medical Officers of Health, chief surveyor to the Sanitary Assurance Association. The lecture was illustrated by sketches on the blackboard.

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from one workman to others, and shall be pleased in that relation to discuss with any of you, at the close of my address, any points I may have raised or which may occur to you in connection with the subject we are about to consider.

Design is our starting-point, and in this the planning should be our primary consideration. With regard to site and aspect I do not propose to deal. Both are large questions, and every separate case must be dealt with on its own merits. In cities there is often no choice, and even elsewhere the situation, contour of the land, &c., often make it necessary to vary planning in relation to the points of the compass.

Given the site, and having the aspect of our building settled, the first consideration therefore should be to so design the plan of our building that it may best serve the purposes to which it is to be devoted. Doors for access at all convenient points, windows to secure ample light and ventilation, well-lighted corridors to separate and give access to the different apartments, will always give an irregular outline which will lend itself to architectural effect. This irregular outline, so desirable from an artistic point of view, will be accentuated where the water-closets, lavatories and sinks are so placed that disconnecting ventilation between these arrangements and other parts of the building is secured by means of lobbies with windows in opposite walls, which is the only method by which a through current of air can be obtained without complicated devices beyond the control of the ordinary residents. In this and all other matters connected with a building, it should always be our aim to so contrive that when it is handed over to those who are to occupy it, there shall be as little need as possible for the intervention of greater skill than the ordinary occupants may be reasonably expected to possess. In so far as specially skilled workmen may be necessary to insure a continuous satisfactory condition of the building, in just so far have those responsible for its construction proved their want of skill either in design or workmanship.

Having planned our rooms, corridors, &c., we proceed to design our elevations, sections and roofs, and here again the uses to which the building is to be put should be the first consideration. As the human face is an index of the character of the individual, so should the elevations of a building indicate the purpose for which the building was erected. There should be no attempt at deception. Where a rain-pipe is necessary the intelligent man desires to see that it has been provided, and is annoyed with a façade erected as if a rainy season never existed. He will also know that the pipe buried in the wall

may prove a source of danger to the building at any moment, and only through necessity would he make such a structure his place of abode. If this is important in the matter of rain-pipes, it becomes doubly important with pipes from sanitary fittings, despite the retrograde action of the London County Council in the matter of soil-pipes. Until this year the by-laws of the London County Council provided that all soil-pipes should be outside the building. It is not within my province in this address to consider the question as to whether it is desirable that the state or the municipality should have power to make and enforce such a by-law as the one to which I have referred, but I have no hesitation in saying that sanitary architecture requires all such pipes to be outside, and, further, it maintains that these pipes being necessary should be provided for in and form part of the design of the elevation of the building to which they are essential.

For some years the by-laws of the London County Council, under the Public Health (London) Act, 1891, provided that every soil-pipe in connection with a new building should be outside the building. This definite by-law has now been repealed, and with the approval of the Local Government Board, another has been substituted under the Metropolis Management Act, 1855. This new by-law runs as follows:—"A soil-pipe in connection with a new building or an existing building shall, whenever practicable, be situated outside such building." Of course there is nothing more practicable than the fixing of a soil-pipe in the open in connection with any building, new or old, where the will exists, but the words "whenever practicable" in the new by-law must be read in connection with the rescinding of the old by-law which was imperative and insisted on every soil-pipe being fixed outside. But, none the less, the absurdity of the present regulation may be illustrated by suggesting a by-law on similar lines with regard to open spaces at the back of buildings. Imagine the London Building Act amended by rescinding section 41, wherein it is enacted that "There shall be provided in the rear of every building an open space exclusively belonging to such building, and of an aggregate extent of not less than 150 square feet." Having rescinded this definite regulation to follow the example of the London County Council, Parliament would enact a section in the following terms:—"An open space in connection with a new building shall, whenever practicable, be provided in the rear of such building." The permission such a regulation might give for the erection of back-to-back dwellings would not be taken advantage of by anyone concerned in the

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erection of buildings which could be described as claiming to be in any way associated with sanitary architecture, and it is to be hoped that the by-law which permits buildings to be so designed that it is impracticable to fix a soil-pipe outside of them will not be taken advantage of by any who may be looked upon as worthy workers in the art and craft of building.

Our design must provide for secure foundations, for reliable damp-proof courses at suitable levels, and on all the lower floors it is desirable to have solid floors bedded on concrete. Externally care should be taken to provide for the underside of all projections being throated to protect the walls from wet. Copings, sills, tops of cornices and other projections should be weathered, *i.e.* sloped to drain water off, and where the material is not impervious it should be covered with lead or other metal, or with slates, tiles, or a rendering of cement trowelled to a smooth face. String-courses must not be considered as merely ornamental. When properly constructed they serve to protect the walls from wet.

The wood sills of window frames should be sunk and weathered, and where bedded on stone sills should have metal tongues to keep out wet. Cased window frames with double-hung sashes should have a rail between the sill and the lower bead as protection from rain driven under the sash and to admit of the lower sash being raised some inches, to secure ventilation without draught in the lower part of the room through the meeting rails of the two sashes. This is a better method than the practice of putting in a slip of wood below the bottom sash. Solid frames with casement sashes are best with the sashes hung to open outwards, and for purposes of ventilation it is always desirable to have opening fanlights above the casement sashes.

On the upper floors great care should be taken in the construction of the hearths for fireplaces, and perhaps the best plan to adopt is to fix a steel or wrought-iron cambered box with solid concrete to receive tiles or other facing to the hearth. The box to have a flange screwed to the trimmer and to have a bearing between two courses of brickwork in the chimney-breast.

To secure a water-tight roof attention must be paid to the inclination where slates or tiles are used, and where flat roofs are constructed especial care must be taken that the structure is of sufficient strength to prevent sagging or settlement, whether finished with concrete or asphalt or covered with lead or other metal. A slight sagging or settlement with pitched roofs covered with slates or tiles might be of little or no detri-

ment to the building, but would be very serious with all kinds of flat roofs.

With detached houses all drains should be external to the building. In cities where houses are in terraces and the sewers in the public roadways, the drains are often of necessity under the buildings, but in no case should there be junctions under the building, and there should be an inspection chamber on each side of the building in the open air, to admit of ready access for examination and testing the drain under the building. Inspection chambers are also desirable at all points where it would be necessary to have access to the drains for a thorough examination and test.

Drain-pipes are made of stoneware, concrete and iron. Except where a reliable foundation cannot easily be secured stoneware must, I think, always retain its superiority over concrete or iron, as when well-glazed and of sufficient strength, it fulfils all the requirements of a perfect drain. It is impenetrable by air or water; it permits of perfectly air-tight and water-tight joints being made between pipe and pipe, so that the drain when finished may be practically one pipe; it is imperishable in use, and can only be destroyed by breakage. The floors of inspection chambers should be entirely of stoneware where the drains are of stoneware, and of iron where the drains are of iron. Good work, however, may be done where the channels only are of stoneware or iron, as the case may be, with the benchings formed in cement, but it is better for the entire floor, channel and benching to be of the same material as the drain.

All connections with house drains should be outside the house, and the only pipes which should be directly connected to house drains are soil-pipes and ventilating-pipes. Rain water, waste water, and surface drainage should pass into the house drain through some kind of trap, of which there are many varieties.

Arrangements for providing a free passage of air into drains on the house side of outfall traps, to form an air brake or disconnection between sewers and house drains, are now admitted to be necessary by all sanitary authorities; indeed, the principle involved in their use is the cardinal principle of modern sanitary architecture. By means of the outfall syphon trap, with an air inlet which when near to buildings should be above all windows, and outlet ventilation above the roof, a building is thoroughly protected from the ingress of sewer air. That it is important that the admission of sewer air to our dwellings should be prevented is universally admitted, even

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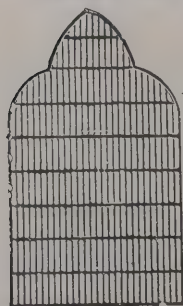
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when no infectious disease germs are present in the sewers, but it is often a matter of life and death. Who, indeed, would be bold enough to assert that the miles of London sewers into which every house is supposed to drain in this great Metropolis, with its five millions of inhabitants, are ever free from infectious disease-germs? These sewers drain alike the palace and the worst tenement-dwelling in which poverty and ignorance breed disease and invite death. With perfect house drains, properly disconnected from the sewer, the inhabitants of a town-dwelling may enjoy the blessings attendant upon cleanliness; but without such disconnection from the public sewer the cleanest possible household must share the dangers resulting from the sins of others against the laws of health.

In ordinary practice the ventilation of house drains can be effectively secured by continuing the soil-pipes up to the roof full bore. As I have already said, wherever practicable—and in all new buildings, of course, it is practicable—soil-pipes should be fixed outside the building; for ordinary buildings, where economy in cost is specially to be considered, strong iron pipes have an advantage over lead, inasmuch as that, while for all practical purposes they are as good, they are less expensive, and are less liable to be injured by ladders, &c. In cases where the first cost is not one of the principal considerations, of course, strong lead pipes should always be used. All iron used in sanitary work should be protected by galvanising or by a coating of Dr. Angus Smith's solution.

Sanitary authorities are not agreed about the use of cowls in connection with drain-ventilating pipes; while some recommend them, others dispute their use. There can be little doubt, however, that whether cowls are or are not useful in special cases, they are not necessary for the ventilation of house drains. A 4-inch ventilating pipe, open at top, well above the roof, with the sides perforated near the end, is a simple and effective outlet ventilator.

To those who may be entrusted with the duty of supervising the erection of buildings it is important to secure the intelligent co-operation of the whole of the workmen. The supervisor should regard each man as an intelligent craftsman, responsible for the quality of his work, and in a measure for the success or failure of the structure on which he is engaged.

How important the work of sanitary architecture is to the community I cannot better emphasise than by quoting some words of the late John Erichson, F.R.S., president of the Royal College of Surgeons, when addressing a meeting of the Sanitary Assurance Association.

Mr. Erichson said:—"We all know that the sound mind in the healthy body is the greatest of all blessings; but in order that the mind may be sound the body must be healthy, and for the health of the body it is necessary that the body should in its daily occupations be surrounded by influences that are, at all events, not detrimental to health. These truths are so self-evident at the present day that they scarcely justify repetition, for if there is any one circumstance which appears to me more specially to distinguish modern civilisation, it is the attention that is being paid by the educated classes to the laws and to the study of hygiene. There is nothing, I take it, that more distinguishes the civilised man from the savage, or the educated man from the man who is unenlightened, than the scrupulous attention that the civilised and educated man pays to what is, after all, the first law in hygiene—cleanliness in all the actions of his body and all the surroundings of his home. The culture of the civilised man inclines him to it. It becomes almost instinctive. The knowledge acquired by the educated man compels him to it, for if there is one truth that is more determinedly established by modern science than another it is this—that a vast number of those diseases which devastate mankind are preventable, and being preventable and not prevented, they are self-inflicted. And it is not only those more fatal diseases—the typhus and the typhoid and the plague and the diphtheria—that are so preventable, and that constantly, by want of prevention, we inflict upon ourselves; there is also a vast host of the minor diseases that tend to sap greatly the strength and to diminish the happiness of existence."

On the same occasion as that on which the late President of the Royal College of Surgeons made the remarks I have quoted, Sir Joseph Fayrer, M.D., F.R.S., said:—"I have become aware of what a great and crying want this sanitation of dwellings has become. I know and see constantly how people suffer from the want of it, and it has been always a marvel to me, in the present state of culture, intelligence and education, how people can have remained so blind as they do remain to the evils that surround them. My firm belief is that it is from want of appreciation of the nature of the causes that produce these evils that proper remedies are not applied. Many people, not seeing in their own household what is happening, therefore do not believe it. It is consequently necessary that knowledge should be spread abroad. If people came really to understand that foul emanations come from drains, and that the water we drink, if connected with that

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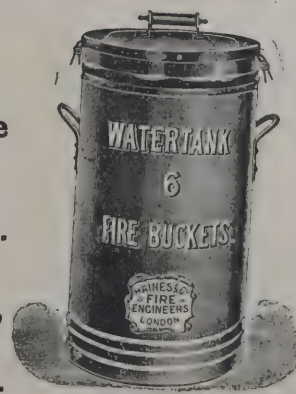
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with which we flush our sewers, will cause typhoid fever, sore throat and all the train of diseases, they would insist on sanitary architecture."

In conclusion, let me express the hope that what I have said on some of the main principles of sanitary architecture will be of service, will lead to thought on matters of detail connected with the design and construction of sanitary buildings for all sections of the community, and do something to raise the sanitary standard in the homes of the people.

BITUMINOUS PAVEMENTS.*

ALL forms of bituminous pavements, whether manufactured from natural or artificial asphalt, are in fact artificial stone pavements. The industry started with the use of the natural rock asphalt from the mines in the Val de Travers, Canton Neuchâtel, Switzerland. The mines were discovered in 1721, but it was in 1849 that its utility as a road covering was first noticed. The rock was then being mined for the purpose of extracting the bitumen contained in it for its use in medicine and the arts. It is a limestone found impregnated with bitumen, of which it yields on analysis from 8 to 14 per cent.

It was observed that pieces of rock which fell from a waggon were crushed by the wheels, and under the combined influence of the traffic and heat of the sun a good road surface was produced. A macadam road of asphalt rock was then made which gave very good results, and finally in 1854 a portion of the Rue Bergère in Paris was laid with compressed asphalt on a concrete foundation. In 1858 a still larger sample was laid, and from that time it has been laid year by year in Paris. From Paris it extended to London, being laid in Threadneedle Street in 1869 and Cheapside in 1870, and in successive years in other streets. It has also been extensively used in Berlin and other cities on the Continent.

The early success of the asphalt pavement in European cities led American contractors to seek the manufacture of an artificial asphalt which would have similar qualities, and the first idea was to utilise the tar produced at the gasworks, which was then almost without value. The result was about twelve to fifteen compounds, varying only in detail, being all essentially composed of tar or coal-tar pitch and sand, forming an

* A paper read before the League of American Municipalities by Fred J. Warren, Boston.

artificial sandstone. Large quantities of these pavements were laid in Washington and other cities between 1870 and 1874, the stone pavements on Fifth Avenue, New York City, being surfaced in this manner. A large number of cities, especially in New England, use this artificial mixture successfully on sidewalks, and the coal-tar sidewalk continues to be in greater use in Massachusetts than all other forms combined.

The result on street work was a general failure, and the impression has since generally prevailed that coal tar or its products are entirely unsuitable for roadway construction. The work was done at ridiculously low prices by contractors who had no previous familiarity with the construction of bituminous pavements or incentive to improve, and, in fact, at the time the pavements were laid no one in this country or Europe had any accurate knowledge of the requirements necessary to produce good work. A few of these pavements, however, are in use to-day even on roadways, and have been in use longer than any asphalt pavements in existence in this country or in Europe. I think all failures can be traced to the use of inferior grades of coal-tar, improper methods of preparing the cement and the use of improper sand in the wrong proportions.

The early failure of the artificial asphalt pavements put them almost entirely out of use in roadway construction. A German chemist, Professor de Smedt, had secured a patent on a formula for making a bituminous surface, using natural asphalt as a cementing material. Experiments were made with Mexican, Cuban and Trinidad asphalt; the so-called Albertite, Gilsonite and other bitumens found in this country were also tried, but generally without success. Small samples of the Trinidad Lake asphalt pavements were laid in Newark, N.J., and in New York City in 1870 and 1871, respectively, but it was not until 1876 that a pavement was laid on a large scale.

Chemists generally knew that there were physical properties in asphalt which made it impossible for them, by any chemical test, to determine the durability or utility of any given asphalt, and no city could be induced to adopt this form of pavement until, from actual test, it had stood in Fifth Avenue in New York, with an average daily traffic of 13,000 vehicles, for several years.

In 1876 Pennsylvania Avenue, in Washington, was in an almost impassable condition, being covered with a rotten wooden pavement. Congress directed its repaving, and appointed a commission consisting of General H. C. Wright and General Q. A. Gillmore, of the Corps of Engineers, and

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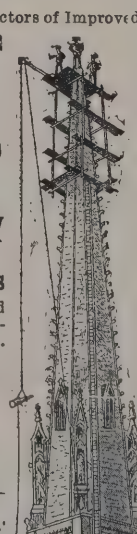
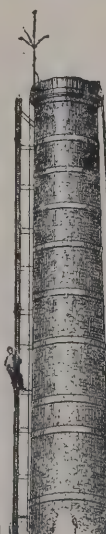
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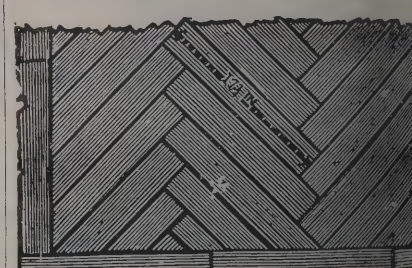
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Edward Clark, architect, to have supervision of the work. The terms of the law directed them to lay the best-known pavements. They advertised for proposals, making no restriction as to materials. They received forty-one proposals, for every variety of stone, wood, macadam and bituminous pavements. Out of them all the commission selected two, and laid these respectively on two-fifths and three-fifths of the avenue. These were the natural rock asphalt from Neufchatel and the Trinidad Lake asphalt mixture. Both pavements were completed in the spring of 1877. The Neufchatel pavement lasted ten years, while the Trinidad Lake mixture was not resurfaced until 1890.

After 1876, under the present permanent form of government, the asphalt pavement has become the recognised pavement of Washington. It has spread from Washington to many other American cities, Buffalo taking the lead, with something over 300 linear miles, Philadelphia and New York City also laying large quantities each year.

Many other forms of asphalt have from time to time come on the market, and have been laid with more or less success. The physical differences which existed in the new varieties of asphalt have made it necessary for their promoters to develop new formulæ, and to endure many poor pavements laid during experimental stages and under close competition.

It seems to be a fact that the early asphalt pavements caused as much annoyance to the promoters as did the early coal-tar pavements, but they were generally laid at a good margin of profit, under a guarantee system which justified and encouraged the most careful methods and immediate repair of defects; and considering the complications presented in the manufacture of the bituminous surface it is to the credit of the established paving companies that they have succeeded in laying asphalt pavements so satisfactorily.

As late as 1885 some of the pavements laid by the most experienced companies were complete failures when first laid, and the cost of repairs during the first five years sometimes amounted to twice the original cost of construction of the wearing surface, while the average cost of the most experienced companies for the maintenance of pavements laid since 1890 will hardly average 5 per cent. of first cost of surface during the first five years, and the pavements are frequently in perfect condition without repair at the end of that period. When it is considered that a slight variation from the proper proportions of ingredients brings about disastrous consequences, the improvements are quite remarkable.

Probably the greatest failures were due to improper selection of the sand or mineral grain. Sands which careful analysis show to be very different are frequently so closely alike in appearance that the most expert eye could not detect the difference. There was no record kept of the nature of the sand until recent years, almost any sand being considered suitable.

The bitumen is used to surround the grains of mineral matter for the purpose of cementing them together. In the Richardson patent formula, used in the Trinidad Lake pavement, the mineral grain is so fine that the aggregate surfaces of the grains to be coated approximate 1,000 square inches to each cubic inch of the wearing surface, and the coating of bitumen around each grain is about one four-thousandth of an inch in thickness.

If the sand is not of such graded sizes that the voids are approximately filled by the bitumen used, then on exposure in such minute particles early failure is quite certain, on account of evaporation and decomposition. A slight variation in the size of the grains makes a great difference in the area of grains to be coated with bitumen, and in turn, in the thickness of the coating when a given proportion of bitumen is used, and consequently upon the length of time which it would take to change its physical condition on exposure. So great is the difference that a given bulk of sand, of an even size, passing a No. 200 screen, contains about thirty times as much surface to be coated as does the same bulk standing between a No. 10 and No. 20 screen, and about 1,000 times as much surface to be coated as does the same size of grain passing a 2-inch screen and standing on a 1-inch screen. In the effort to duplicate the Neufchatel pavement, the entire development and practice has been to exclude from the bituminous mixture all mineral grains coarser than about 1-20 inch in diameter.

A form of bituminous roadway known as tar macadam has been used in England with very variable results for more than thirty years, and also in a few American cities. The process employed is defective in principle and does not accomplish uniformity. I feel that there is little permanent merit in the use of crude tar, or in coating stones of even sizes laid in courses, with an effort to roll the several courses together, as the very life of the bitumen depends upon its proper selection, preparation and use, in proper proportions, with a dense mineral mixture.

Considerable investigation has convinced me that both practices are wrong, and that the future development of bitu-

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minous pavements will be along the line of using a coarser mineral aggregate than is used in the asphalt pavement, and more modern methods than employed in tar macadam.

The advantages of a coarse grain are:—First, the coarse grain gives rigidity in itself not acquired by fine grains, and also gives a surface that will not wear slippery. Second, it is, therefore, possible to use a softer cement, which will have longer life. Third, a heavier coating will be secured around each grain, which will tend to increase the life of the bitumen if exposed. Fourth, the voids can be greatly reduced, thereby avoiding exposure of bitumen in minute particles. Fifth, lower temperatures can be used in mixing, and consequent saving in fuel and labour. Sixth, less danger of injuring the bitumen by overheating in the process of making cement or mastic.

The mixture to be used in any particular piece of work should always be determined by experts who will recognise the conditions present and the special treatment necessary, as the complications are many. Under proper instruction failures should be reduced to a minimum.

A pavement constructed on above principles would be a bituminous-concrete pavement, as distinguished from the bituminous-mortar surface of the asphalt pavement.

Owing to the nature of the mixture, I think the best forms of coal-tar, properly treated, will furnish the best form of bituminous cement for such a pavement. The coarse stone used should be the hardest procurable, and I can see no reason why, under proper development, the bituminous cement will not bind the mineral matter together until the stone itself wears out, under moderate traffic. I should not advise placing such a pavement on the heaviest-travelled streets of large cities at the start. It would be best to develop perfection under more moderate usage.

I think the term bituminous macadam is a suitable name for such a pavement, as it contains all the good points of a first-class macadam road, with durability and cleanliness added, and owing to the coarse grain it is not as slippery as other forms of bituminous pavements.

An equipment of 3,000 dols. to 4,000 dols. in machinery would be sufficient to lay 300 to 1,000 square yards per day of bituminous macadam, and municipalities under proper supervision could do the work themselves much cheaper than by contract. The largest sample of pavement laid on this plan is in the city of New Bedford, Mass. Lowell, Mass., has also borrowed a plant to construct 5,000 yards or more, and Holyoke, Mass., has tried a block, and seems well pleased.

The city of Pawtucket, R. I., was the first Eastern city in recent years to try the use of tar on its streets, doing the work itself under an old formula, but has recently had a sample of bituminous macadam laid on the above plan. Mr. Carpenter, the city engineer, was not satisfied with the lack of life of his first work, but he accomplished better results than others who have experimented on their own account.

PERSIAN CARPETS.

IN the last report of the British Consul-General at Tabriz on the trade of the province of Azerbaijan, he refers to the local manufacture of Persian carpets, and says it is a most interesting sight to see the looms at work. Eight or nine boys, whose ages range from eight to twelve, sit in rows at the looms, and with the wool, which they pull from reels suspended above them in their left hands, and a flat knife, crooked at the point, in their right, dash, with three movements, the thread through the web strings, hook it into the desired knot, and cut off the surplus ends, starting another knot before the spectator has realised what has been done. Having been shown the design and colouring of the carpet they are to work for the first 2 or 3 feet, these boys rely on their memories for the remainder of their task, for on only two or three looms is the design of the carpet to be seen affixed, and then only in plain pencilled drawing. When nearing complicated parts or medallions, a boy aged from twelve to fourteen, the foreman of the loom, who has the design seemingly imprinted on his mind, walks up and down calling out in a quaint sing-song manner the number of stitches and the colours of the threads to be used. A copy of the famous carpet from the Mosque of Ardabil, which is now at the South Kensington Museum, is being made in Tabriz. The design, flowering and colouring of the original are said to be unique, and here, although the boys were working without the design and at the rate of from thirty to thirty-five stitches a minute, a careful comparison of the hand-painted copy of the original showed the most minute attention in every detail. Nothing but handwork is employed in the manufacture of Persian carpets and rugs, and none but natural or vegetable dyes are used, and it is to this that Persian carpets and rugs are supposed to owe their reputation and lasting colours, although it is said that the secret of the beautiful dark-blue dye used in the older days has been lost. The dyes in general use in Persia are cochineal, madder-root, indigo, yellow-berries, yellow-root, walnut, and pomegranate husks and gallnut.

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The Architect.

THE WEEK.

Two important decisions have been given by the Court of Appeal in respect of the 30-feet height which somehow has found its way into the Workmen's Compensation Act, and the measurement of which there is no determining by any instructions contained in the clauses. In both cases the appellants were builders. One occurred in London, the other in Manchester. Messrs. CUBITT & Co. had contracted to take down a house in William Street, Knightsbridge, and to alter one adjoining it. For the demolition a sub-contract was entered into with a housebreaker, one of whose men was killed in the operations. When the accident occurred the walls were only 11 feet in height with the exception of the party wall, which was over 30 feet. The action was taken against Messrs. CUBITT & Co. by the widow of the man who was killed, and she was awarded 273/. Messrs. CUBITT appealed. Their counsel contended that the demolition was no part of their trade or business, and at the time the building was no more than 11 feet in height. The Master of the Rolls in giving judgment held that it was part of Messrs. CUBITT's business to demolish buildings, although for their own convenience they might employ a sub-contractor, and they were consequently undertakers in the sense of section 4 of the Act. As to the height of the building there was no doubt a substantial part of it, viz. the party wall remained, and was over 30 feet in height. There was consequently evidence in favour of the award of the county court judge.

THE second appeal was brought by Messrs. NEILL & SON, of Manchester, and turned on the question whether the height was to be measured from the level of the street or from the footings. At the time of the accident in question the height of the brick building from the bottom of the footings above the concrete foundations to the top of the building was 33 feet 2½ inches; from the top of the footings to the top of the building, 31 feet 2½ inches; from the basement floor to the top of the building, 29 feet 10 inches; and from the level of the street to the top of the building, 23 feet 5¾ inches. The judge of the Manchester county court considered that the proper measurement was from the bottom of the footings, which gave a height of 33 feet 2½ inches; he therefore awarded compensation to the applicant. The Master of the Rolls considered that all the mischief contemplated by the Act might arise though the greater part of the building was below the level of the ground or street. The fact that part of a building was below the level of the ground did not prevent it being over 30 feet in height. Probably the footings were covered in, but he could see no evidence that there was more than a flooring at the top of the footings. The presumption was that the flooring at the time of the accident had not got beyond that stage. In his opinion therefore the height of the building must, in this case, be measured from the top of the footings, and being so measured, the building at the time of the accident exceeded 30 feet in height. The judgment will remove some serious doubts. Hitherto it has been decided that measurements shall be taken from the floor of the basement, but some lawyers have considered that the outside ground level was contemplated by the Act. In neither case will the Manchester building be found to be within the prescribed height. Whether the new judgment is to be taken as generally applicable it would not be prudent to assert.

In the proposal of the County Council to apply for Parliamentary powers to make subways under the new street from the Strand to Holborn we have a recurrence to the example of the Metropolitan Board of Works. Indeed, one of the causes of the disfavour which attended the Board arose from the apprehensions of shareholders of the gas and water companies that their property was about to be seized. The lawyers contended that if the pipes were once placed in the subways the Metropolitan Board of Works could exercise proprietary rights over them. Consequently there was no compulsory power given to the Board by Parliament, and the money expended on con-

structing subways beneath Garrick Street and Southwark Street was wasted. It remains to be seen whether Parliament will in the next session take a broader view of the necessities of London and will not permit the companies to place their pipes near the surface, a position which allows of continual meddling with the roadway and interruption of the traffic.

AN appeal has been issued by the treasurer of Guy's Hospital for the sum of 180,000/., which is required for a renovation and building fund. "Guy's" was established in 1724 by a London bookseller, and he was able to secure a lease for 999 years of the land on which the hospital stands at a rent of 30/. On his death he bequeathed to the governors 210,499/. The appeal of six years ago produced 250,000/., one-half the sum that was then required for re-endowment. The buildings, however, which served in an earlier age are now insufficient and unsafe. Moreover, with 230 nurses a special home is required. It has been estimated that no less than 180,000/. is needed for the completion of the nurses' home, laundry, the provision of a central heating and lighting system, the extension of the casualty department, provision of open-air balconies and sanitary blocks to surgical wards, the renovation of wards and other works (not including the remodelling of the out-patient departments). None of the proposed works can be considered as more than essential requirements, but although the plans for them have been prepared they cannot be undertaken until a liberal response is given to the treasurer's appeal.

THE picture entitled *The Duchess of Devonshire*, and which in parts, at least, is the work of GAINSBOROUGH, can now be seen at Messrs. AGNEW'S gallery in Bond Street, with some other works. The sums received for admission will be given to the Artists' Benevolent Institution. Those who can recall the picture as it was exhibited a quarter of a century ago must admit that its escapade has not improved its appearance. The canvas has been shortened by about 16 inches in length and 18 inches in width, and it has not in consequence the suggestion of a gallery picture which it retained when put up for sale at CHRISTIE'S. When first seen in public it was accepted as the Duchess of DEVONSHIRE, but since then doubts have arisen. It does not recall any other likeness of the lady, who was as famous for beauty as for eccentricity, and no record of works by GAINSBOROUGH has been discovered by which it can be verified. In that respect, however, it corresponds with many famous pictures, and its value as a work of art is not diminished because there are doubts about the subject.

AN interesting report on explorations in the city of Mexico has been sent to the Anthropological Society of Vienna by Dr. EDWARD SELER. The city stands in an extensive plain, a part of which consists of large lakes, one of which is only about 3 feet lower than the Great Square of the city. Some of the lakes are brackish. The town was at one time liable to inundations in winter, and dykes were erected for protection. When CORTES and the Spaniards attacked the old Aztec capital it was situated on small islands, which were connected by large dams. CORTES destroyed the houses of the inhabitants in order to fill up some of the canals, and, in fact, no more regard was given to buildings and their contents than to the lives of the natives. No one of the ancient cities of the world was more thoroughly destroyed than Tenochtitlan. Care has been taken by the authorities that in modern exploration nothing will be broken or stolen which has archaeological interest. The scene of the operations is in proximity to the cathedral. The ruins of what appears to have been one of the towers of a temple have been found. From the quantity of human bones it is evident that sacrifices were offered on a fearful scale, with men as the victims. A figure of the god QUETZALCOVATL, in the form of a caryatid, and also a crouching figure of a fire god, with several other deities which remain to be identified, have been met with; vessels of clay and copper, golden plates and other examples denote the skill of the metal-workers. Altogether the results are creditable to the Aztecs, and form evidence of the civilisation they had attained.

THE SOCIAL POSITION OF ARCHITECTS.

ALL who have read Mr. ROBERT HICHENS's "Flames" are likely to have concluded that the writer was one with a brilliant career before him as a novelist. He could not be described as a master of character-drawing and development, but success of that kind sometimes only arrives after long practice. Where Mr. HICHENS was happiest was in the representations of the surroundings amidst which his people lived. In other words, the furniture, pictures, decorations and properties in general were more suggestive of the true artist than his men and women. It was easy to suppose that with sufficient money such a luxurious flat as that in Victoria Street was possible, and could be altered according to the varying moods of the occupant; but the reader was not convinced that the occult scenes which took place in the room, with the exception of the illuminations, were historically true. A writer with so much ability as Mr. HICHENS possesses is liable to the temptation to produce the class of work which is easiest for him, and in his last tragic extravaganza we have an example of what we may call his system carried to excess. There is no doubt that the reader's risibility is seized and he is compelled to enjoy the ridiculous occurrences in spite of himself. In that way the "Prophet of Berkeley Square" resembles its predecessor "The Londoners." In both if we seek for amusement we must allow prominent parts to be taken by furniture and other accessories, and they are in fact of more importance than the human dramatis personæ.

Like the Needy Knife-grinder, Mr. HICHENS can say he has no story to tell, but we may outline how some of the misadventures arise. The prophet, who is a Mr. HENNESSEY VIVIAN and about thirty-eight years of age, lives with his grandmother in No. 1,000 Berkeley Square. He has taken up astronomy, but prefers the practical to the mathematical interest of the science, and he has succeeded in foretelling a fall of snow. Then he attempts to study the horoscope of his aged relative, and finds she is destined to meet with an accident which he announces to her. He is so much alarmed that he writes for an interview with Mr. MALKIEL, the inspirer of the marvellous prophetic almanac, in order to have the conclusions verified. He meets that gentleman in a back room in Shaftesbury Avenue. Under the influence of the creaming foam of 4s. champagne MALKIEL becomes communicative to his brother prophet. He informs Mr. VIVIAN that his name is SAGITTARIUS, and that he lives in Sagittarius Lodge, at Crampton St. Peter, in the northern postal district. He cannot be known under his true name, because secrecy is indispensable for a prophet, but he has become tired of his false position or double life, and he resolves to go out of prophecy in a few years. His son and heir CAPRICORNUS is not destined for the prophet's vocation, but is to be an architect. According to the author:—"As MALKIEL pronounced the last words he flung his black overcoat wide open with an ample gesture, thrust one hand into his breast and assumed the fixed and far-seeing gaze of a man in a cabinet photograph. He seemed lost to his surroundings and rapt by some great vision of enchanted architects, busy in drawing plans of the magic buildings of the future ages."

To Mr. HICHENS it appears, we presume, no abrupt transition from prophecy to architecture; but an architect will be inclined to ask why the young genius was not to be made a writer of extravaganzas, a clergyman, soldier, doctor or lawyer? The reason is that Mrs. SAGITTARIUS had gathered round her "a very pleasant and select little circle, composed of architects and their wives." But the architects were not entrusted with the secret of how the funds were obtained for keeping up the establishment and its festivities. Mrs. HARRIS was not a more potent influence in Mrs. GAMP's experiences than the architects and their wives are in those of Mr. SAGITTARIUS. They are continually referred to. When he is told that his usual morning costume, including spats, is not exactly the dress for a dinner in Berkeley Square, he refers to the numerous dinners at which the architects and their wives were present, by whom no impropriety was seen in a frock-coat, and even the spats gained their approval. The unlucky VIVIAN is at last compelled to say that he will go mad if architects and their wives are again mentioned.

But he is still doomed to hear the expression under a variety of circumstances. If the architects were allowed to visit Sagittarius Lodge, it was because the owners, being in a false position, could not expect to attract a higher class of guests. But no sooner does the almanac-maker's wife discover that society has a weakness for prophets than "the architects and their wives began to seem to her uplifted fancy little better than the circle that frequented Hagglin's Buildings or appeared at the paltry entertainments given by the inhabitants of Drakeman's Villas."

All this is very silly, still, as in an old-fashioned pantomime, there are occasional if distorted glimpses of truth. It cannot be concealed that speaking generally architects are less favoured visitors in what is now called society than writers of romances, painters or sculptors, and one of them is not thought to impart professional dignity to a drawing-room like a physician or a barrister. Architects are usually believed to be wealthier than the majority of painters and sculptors; but there is less attractiveness about them, and although their knowledge is of use it has not the mystery of the physician's or the gravity of the lawyer's. Only a few days or nights ago we find the President of the Irish Institute of Civil Engineers pleading for the recognition of architecture as a learned profession. Whatever may occur in Ireland, it will require a great many after-dinner speeches to bring about that consummation in England.

If we ask how is it that such a state of things exists, the answer may not be readily forthcoming, but some of the causes can be indicated. What have been called "the classes" take summary and prejudiced views about the qualities of those intervening between them and the masses. They hear that architecture is taught in art schools, mechanics' institutes, polytechnics, &c., and they arrive at the conclusion that an education which is to be obtained at nominal charges, if not gratuitously, is hardly deserving to be accepted as professional, and does not of necessity make gentlemen. A magistrate or a county court judge who listens to lawsuits in which a few pounds are claimed as fees cannot help believing that an architect is on a level with the humblest class of medical practitioner. Men who have to be satisfied with such petty rewards as are revealed in the majority of actions for the recovery of fees must expect to be taken by the world in general as only fitting to participate in such gay and festive scenes as arise in places like Sagittarius Lodge.

Judged from the financial point of view, which in our time is regarded as the most important, the architect cannot compete with the civil engineer. Architects rarely obtain commissions outside their own country, and English architects least of all, while the civil engineer is treated as a cosmopolite, and sometimes he can claim the credit for colossal works costing millions of money in all parts of the world. He may belong to foreign Orders, and be accepted as the technical adviser of foreign Governments. In comparison with a power of which the influence is felt thousands of miles away, the architect with his modest villas and village churches and shops and schools must seem only a humble person in the eyes of society. Every thing with him appears on a small scale. On that account people who are acquainted with engineers, or who invest in foreign enterprises on the strength of an engineer's name, must be amazed at the outcry which arises whenever any public building is proposed, for it is supposed to be no more than the clamouring of competitors for the work. Engineers do not express their apprehensions whenever a railway or a harbour is contemplated, and what is still more remarkable, builders do not attempt to vindicate indirectly their individual claims to a contract. Architects alone exhibit their grievances when they are not assured of a commission, not thinking of the interpretation which is placed on their appeals and the injury consequently inflicted on the whole profession.

It was long ago pointed out by Sir GILBERT SCOTT that the bane of architecture was the mutual scorn of those who practised it. In the years which have passed since he delivered the address containing those words, it cannot be said there is any alleviation of the consequences of the relations which are peculiar to architects. It is only when a man receives a gold medal from the Institute or after his death that any words in praise of his works are heard. His friends may pay a tribute to him as a good fellow, but that

is merely to suggest the difference between the man and the architect. The criticisms get abroad, and a country reporter when he describes a building generally considers it is wiser to omit any reference to its designer. Need we wonder if under those circumstances authors of tragical extravaganzas employ architects for purposes for which men of no other class are supposed to be so suited, by lowering them to the level of the MALKIELS and other worthies of the same class?

ENGLISH BUILDINGS, 1725-32.

THE diffusion of knowledge by means of books, newspapers, engravings, photographs and other modes of illustration has been fatal to a class of correspondence which used to be prized. In the seventeenth and eighteenth centuries scions of the leisured classes, when they travelled for pleasure, prepared a kind of diary for the benefit of relatives or friends. The information conveyed in it would of course depend on the character of the writer. The story of "Eyes and No-Eyes," which at one time was popular, suggests a lesson which was exemplified by those old-fashioned diaries. Some writers preferred to relate what they heard, and the tittle-tattle with which they filled their communications still forms entertaining reading. Other writers, however, described what they saw which possessed interest for them. Lord HARLEY, who was the son of ROBERT HARLEY, first Earl of OXFORD, belonged to the latter class. His father, who was the associate of BOLINGBROKE, and afterwards his rival, acted for several years as Queen ANNE's Prime Minister and Lord Treasurer. After the Queen's death, OXFORD and BOLINGBROKE were impeached, but the latter fled to France and HARLEY was compelled to stand his trial alone. He was acquitted by the House of Lords, but ever afterwards—that is from 1717 to 1724—he lived in retirement. He was a great collector, and his son, having been brought up among books, pictures and other objects which were thought to be evidence of good taste, could hardly fail to have more interest in buildings and art than the majority of the fine gentlemen who were his contemporaries. The first tour by Lord HARLEY, who was afterwards to be the second Earl of OXFORD, consisted of a journey from London to Canterbury, while a second journey, undertaken in 1725, extended from London to Scotland and back. A third diary relates to travels in 1732. We have, consequently, in the diaries much information about churches and other edifices at a time which is a blank for most topographical writers.

His first journey commenced on August 26, 1723. His lordship with his friends and servants were mounted. Although the party consisted probably of fifteen men the route to be taken was kept secret, owing no doubt to fear of highwaymen. The servants with the horses left Dover Street and turned down by Buckingham Wall towards the Horseferry. The palace at Lambeth was visited, but was not much appreciated. HOLBEIN's portrait of Bishop VAREHAM was characteristically declared by the cicerone to be 800 years old. The route then lay by Greenwich to Dartford. In the church at the latter town they saw many monuments of antiquity, but most of the brasses and their inscriptions had been stolen. Lord HARLEY, who appears to have made a study of heraldry, was often disappointed through the vandalism of brass hunters. The interior of the church had been repaired, and was said to be very neat and handsome. Outside Dartford they saw a cricket match, a game "which of all the people of England the Kentish folk are most renowned for, and of all the Kentish men the men of Dartford lay claim to the greatest excellence."

On entering Rochester they were struck with "one of the neatest bridges across the Medway," which had been erected at the expense of Sir ROBERT KNOLLES. The cathedral was thought to look very poorly and desolate. As usual, the brass plates had been removed from the tombstones. They also visited WATTS's Charity, the interest in which was revived by CHARLES DICKENS. It offered bed and board for one night and a groat in the morning to all needy travellers, except to those who were contagiously diseased, rogues, or proctors. The roads of the district

in those days barely sufficed to allow two single horsemen to pass without very great inconvenience, and the narrowness was said to be required "to make amends for the great havoc that is made of their soil all along the banks of the Thames by the dealers in lime, who convey it in great quantities from hence for the support of the London builders, so that in this sense those traders may be said as properly to carry 'Cantium in Londinum,' as ÆNEAS did 'Ilium in Italiam.'" Near Ospringe they visited Jugg's Folly, so-called because the big residence was so costly, it was the cause of the ruin of the owner of the powder-mills at Faversham. The town of Faversham was reached at half-past seven, so the journey from London was rather slowly performed. The town, we are told, sent no members to Parliament, but "seems as factious and as full of discord as if it did." In the church they saw the Isles Monument, which was erected by a man who was once a poor boy in the town, and who left 20s to the sexton, who had to expend two bottles of oil every year upon the railings of the monument. The party safely arrived at the Red Lion in Canterbury, but the account of the visit to the cathedral and other churches of the city is not forthcoming.

In May 1724 the second Earl of OXFORD succeeded to the title, and on April 10, 1725, his lordship set out on a new journey northwards. The party went by Caxton, Huntingdon, Stilton, Stamford, to Belvoir Castle. The Derbyshire marble seen in some tables was much admired. It was described as chocolate colour, interspersed with white. In Ancaster Church several ancient flat stone monuments were irreverently utilised for the coping of the churchyard wall. One bore the inscription, "Priez pur le Alme Sire Joh. Dolman, Chivaler." The lettering was in a metal resembling brass, and fixed into the stone by nails. In the neighbourhood of Lincoln oxen as well as horses were at that time used for ploughing and the drawing of conveyances. The cathedral was found to be "in a very poor condition, and has all the tokens of entire ruin approaching. They told us Mr. GIBBS [the architect of the church of St. Martin-in-the-Fields] had been lately there to view it, in order to think of some method of securing it against an utter desolation, and that the first thing the chapter designed to do was to pave it, which I thought but an odd conceit to prevent the tumbling down of the tottering roof and pillars. The chief spire was blown down in Queen ELIZABETH's time, and has never since been put up again; the other two were blown down of later years. There have been some new ones put up in their places, but are very ill-proportioned and much too small for the height they are placed at." The palace was reported to have been burned down by OLIVER CROMWELL in 1643, and a few weeks before Lord OXFORD's arrival an old organ-blower was living who remembered the building previous to the destruction. The city in 1725 must have been in a wretched state, for ruin and desolation met the eye everywhere throughout it. The diarist writes:—"Though the ruins are so many here that one would think it could hardly suffer more, yet they find means every day of letting matters go further to wreck, and there is a parish church, St. Michael's, very lately fallen to pieces and so much neglected that nobody will so much as take care of the bells which lie in the ruins, and the very cathedral itself, if not immediately taken care of, may not improbably be seen converted into a heap of rubbish by some who are already born."

After visiting Sherwood Forest, Clumber, Welbeck and Worksop, the travellers came to Doncaster. The parish church, on which Lord GRIMTHORPE so vigorously operated at a later time, was considered to bear some resemblance to St. Mary's at Oxford; the inside was well fitted up. The writer adds:—"The tower stands about the middle, has no spire, and on the angles of it all the way up are some juttings out in the similitude of horns, as if meant for people to climb up by them on any emergent occasion, or perhaps they may have been meant by the architect for a mere ornament which I do not understand." The travellers bear testimony to the good order in which they found the cathedral at York. A man was employed cleaning the outside walls, who was said to have devised a chair for that purpose which he could fix wherever he pleased. The nave was used for promenading in after

evening service in summer time as the substitute for a park, and to meet the public convenience a benefactor had the stone seats covered with wood. A building of another class was inspected with interest. It was not until 1775, or fifty years afterwards, that JOHN HOWARD began his crusade for improvements in prison life. But in 1725 what is called a very handsome, commodious building, which had been lately erected, was to be found within the precincts of the castle. It is described as so "very open and convenient that it must doubtless very much contribute to the health of the poor creatures who have their dwelling-place there, and it were to be wished that all the counties in England would be induced to follow this example, which would be a very great piece of public charity, and would redound to the health of all those who are near them as well as of the prisoners themselves." The next remarkable building noticed is Castle Howard. One of the wings had not been completed, but it was said "the whole may be easily known to have been under the direction of VANBRUGH. There has certainly been great expense laid out here, and is generally thought not to have been less than four score thousand pounds. There is some Derbyshire marble spread up and down the house, which looks very well, and a great deal of stuccowork that looks very ill and mean." Lord OXFORD does not appear to have been an admirer of VANBRUGH, and he could hardly have enjoyed the friendship of SWIFT and POPE without being adverse to the architect and his works. Subsequently we read of the arrival of the party at Durham. In spite of the wealth of the princely see the cathedral was said to have made only an indifferent appearance, as the stone had been worn away by the weather. The interior had been recently whitened when the visitors saw it.

After passing through the Border country, the travellers were disappointed with their first experience of Scotland. But the notes confirm what is often asserted in SCOTT'S novels about the excellence of the wine which was to be found at the inns. In Haddington, for instance, the host is stated to have been a surly, scolding, drunken, peevish sort of man, but had "admirable good claret." At Dunblane the cathedral struck them as a very handsome church. "The west part of it lies now all in ruins, excepting the walls and pillars, which are still standing. The east part of it is covered in, and makes the 'paroch kirk' for the Presbyterians." Over a century and a half had to elapse before this fine building was secured against destruction. Scotland in 1725 must have been very bare, but the owners of the ground had shortly before commenced to plant, and the difference between the planted and unplanted parts was very striking. The travellers were surprised by the appearance of Perth, and especially by the new Free School, with its upper master who received a salary of 30*l.* a year sterling, an under master paid 20*l.*, and two ushers who received 10*l.* each. The boys were evidently kept in awe, for, unlike those in English schools, not the least hacking or scratching by them could be seen on the benches. St. John's was as much of a puzzle to the travellers as it is in our time. The diarist says:—"The church here was designed for a much larger building than it is at present, but how the progress and finishing of it came to be interrupted I do not learn. As it is at this time it contains two distinct preaching places under its roof; that at one end of it is very lately fitted up, and contains a much less space than that at the other end, but those new seats will hold a very large congregation, being so contrived as to have no room for those that sit in them to kneel at their devotions, which is thought to be too great a compliment to be paid to the Almighty in this part of the world, as likewise to be uncovered in any part of their devotions."

At the period of Lord OXFORD'S visit many of the Scottish proprietors were absent owing to the troubles which followed the rebellion of 1715. One was the Earl of MAR, who had proposed to convert his old house into as excellent a habitation as could be found in Scotland. We are told that "his gardens which he designed and laid out himself are at this time kept in tolerable good order, and in them we walked upon gravel which was brought thither from the pits at Kensington; it was taken in at London for ballast, and ships of a considerable burden (perhaps 500 tons) sailing up the Forth just by the end of his garden made

the expense not so very material as one would imagine, upon barely hearing that Kensington gravel was conveyed hither purely to make up the walks." It seems hardly credible that in Edinburgh in 1725 there were no inns, as in English towns, which could receive mounted travellers. It was the custom for people of fashion, if they remained in the city no more than a night, to lodge in one house, have their meals in another, and to allow their horses to be accommodated in a third place. The Earl of OXFORD and his friends accordingly supped at Mrs. DON'S, commonly called "Lucky Donne," in the High Street, an eating-house of good credit; lodged at Mrs. SCOTT'S in the same street, and their horses were put up at stables. The travellers were surprised at seeing houses from ten to fourteen storeys high; but in Parliament Close the fourth or fifth storey was occasionally on a level with the street. Holyrood was described as being very handsome and noble, and very fit for the residence of a prince "were it completely furnished." The time was not favourable to see Scotland at its best, for after ten years the effects of the insurrection were to be found in neglected estates and farms. It must have been with satisfaction they found themselves again in England.

The eighteenth-century archæologists somehow gained for themselves a notoriety for carrying off relics, and it is not surprising to find it stated that a Dr. MANGEY, a prebendary, conveyed from the wall near Hexham several stones with Roman inscriptions, which were the property of Lord OXFORD, to Durham. At the time the parish church of Hexham, which once was the choir of the old cathedral, was in a ruinous state, but 700*l.* had been collected towards its restoration. The monuments suffered violence equally with the church, and Dr. MANGEY was again mentioned in connection with the destruction. There were some who believed he made no scruple to beg, borrow or steal whatever he could lay his hands on, but he had a rival in the Bishop of ELY. Carlisle Cathedral was described as being in no better condition than the church at Hexham; the part converted to a parish church was in wretched disorder. At Penrith an inscription was seen which recorded the numbers of the deaths from plague, which were:—Penrith, 2,260; Kendal, 2,500; Richmond, 2,200; Carlisle, 1,196—terrible figures if we take into account the thinness of the population.

In 1738 we find the Earl in Chichester, and mention is made of the ancient cross and the spacious and noble cathedral. "Some ancient paintings behind the screen" were not worth his notice, for they are no more than copies of a pseudo-Germanic version of the early history of the building. In describing Winchester Cathedral, it is stated that the building, library and school were preserved from plunder by Mr. LOVE, who commanded under CROMWELL. He was educated at the school, and had then taken oath to preserve and defend it, and he had honestly kept to his word.

The Earl of OXFORD was severely critical upon some of the fashionable architects of his time. In writing about Rainham, the property of Lord TOWNSHEND, which is believed to have been designed by INIGO JONES, KENT'S alterations are condemned in the following words:—"The rooms are fitted up by Mr. KENT, and consequently there is a great deal of gilding; very clumsy over-charged chimney-pieces to the great waste of fine marble. KENT has parted the dining-room to make a sort of buffet by the Arch of Severus; surely a most preposterous thing to introduce a building in a room which was designed to stand in the street." Houghton, which was the seat of Sir ROBERT WALPOLE, the rival of the first Earl of OXFORD, is also judged with rigour, for we read:—"This house has made a great deal of noise, but I think it is not deserving of it. Some admire it because it belongs to the first Minister, others envy it because it is his, and consequently rail at it. These gentlemen's praise and blame are not worth anything, because they know nothing of the art of building or anything about it. I think it is neither magnificent nor beautiful; there is a very great expense without either judgment or taste. The two best rooms are the hall and the saloon, which take up just the depth of the house. The measure of the hall, as well as the plan of the house, are exhibited in that ignorant rascal's book called 'Vitruvius Britannicus,' the editor COLIN CAMPBELL; there is some small alteration, as the roofs of the towers, else it is exact."

It is further said "that the house after an alteration by GIBBS" is a composition of the greatest blockheads and most ignorant fellows in architecture. As the owners of Rainham and Houghton had been enemies of his father it would be expecting too much magnanimity if he were absolutely impartial in his criticisms. But in other places there was less reason to be biased, and what is said about the condition of cathedrals and churches can be taken as possessing more than the average amount of accuracy.

THE SURVEYORS' INSTITUTION.

THE first ordinary general meeting of the session 1901-02 of the Surveyors' Institution was held on Monday at 12 Great George Street, Sir John Rolleston, M.P., the president, in the chair.

The President, in the course of his opening address, said that the two distinguishing characteristics which marked the period of his professional career were commercial and urban prosperity and agricultural and rural adversity. The results of the prosperity of the towns had been, concurrently with good trade and employment, a considerable rise in value and an abundant market for those wares in the exchange of which the surveyor was so largely concerned. There seemed, moreover, every prospect of the continuance of this condition of prosperity. On the other hand, the man of the country had a different story to tell. The wave of prosperity, the flowing tide of progress which had swept over the country had not only passed him by, but had left him wrecked amongst the shoals, and for his parlous state the man of the city had neither pity nor concern. From the prince to the peasant the people of this country had ceased to consume, as a matter of course, the food products of the country; and his point was that the landowner and farmer, being deprived of the home market to so large an extent by the foreigner, and no other market being open to him, must begin to consider whether the production of food, on any extensive scale at least, was worth his while, and whether under the circumstances the land could not be turned to some other use, such as the extended cultivation of timber and possibly textile materials which were once grown to a considerable extent in this country. All schemes for the improvement of agriculture appeared to be devoted to the greater production of food which the people did not want when it was produced, and he could only suggest that the inventive faculties of mankind might in the future be directed to the discovery of some other purpose to which land might be profitably applied. He referred, of course, to agriculture as a trade, as a calling pursued with the expectation of gain, for the purpose of producing articles for profitable sale, and not to that class of agriculture which was followed merely for the sake of hand-to-mouth sustenance, and which afforded little or no saleable surplus. We had always been accustomed to hope for something better for the land than to see it become the mere habitation of colonies of needy squatters. Our ambition had been to see its cultivation a great and prosperous industry, employing vast numbers of people, breeding a sturdy and healthy race, and, with the aid of science, furnishing a maximum of production most useful to mankind. This would be progress, the other reaction. He saw no sign of progress, but had come to the conclusion that the prospects of British agriculture, so far as the production of food was concerned, were well-nigh hopeless, and that, while the consumer was content with comestibles which were not British, which were not the same as British, but which satisfied the appetite, there could be no improvement in the market for home products. But if the prospects of agriculture were gloomy they had to be faced, and there was double reason for the removal of any injustice which might lay upon the land. In this connection he discussed the Agricultural Rating Act of 1896, and dealt with the criticism raised against it. He expressed his approval of the Act, which he had always regarded as the first advance in the path of a great reform, although in itself it was but an act the barest and most meagre justice. If the Act needed any defence this might be supplied by the fact that two Royal Commissions, before the first of which he gave evidence, had reported on its principle, and that both had approved and recommended it. Among the Commissioners who indicted the words "That their statement will show that the policy of the Act of 1896, whereby land is rated at one-half, and which has been the subject of so much misrepresentation, was only a measure of justice which had been too long delayed," was the town clerk of one of the largest cities (Mr. H. Clare) and the town clerk of another large town (Mr. Stuart). It might, therefore, be supposed that the report had been sufficiently considered from the urban point of view, and that it needed no defence. The measure brought to the front at once the inequality in the incidence of rates as between real and personal property, and singled out the most glaring instance for adjustment. The

reference to the rating of personal property was, in his opinion, the weakest part of the otherwise excellent report of the Rating Commissioners. The Commissioners did not recommend the taxation of personal property. The investments of this country abroad probably amounted to three thousand millions sterling. This huge capital had been employed in the enrichment of other countries, and the possessors of the colossal income from it lived, most of them, in this country, used our roads, received the protection and the security which the country afforded and took houses in country parishes where the rates were low, and where under our system of local taxation the farmer paid the rates for them in a preponderating proportion. Their contribution to the local rates bore no proportion to their incomes, while the farmer's did, and he paid rates on an assessment which was largely in excess of his gross income. Was it to be wondered at that there was a growing feeling amongst rural ratepayers that property which was invisible and hidden away in safes and strong rooms should be brought out to bear its share of local taxation in a more equal degree with that which was visible and spread out before the eyes of every one? He pointed out further, that the liability of the rural ratepayer was by no means limited. The tendency for town people to settle in rural parishes raised the local rates, and in this and other ways the town sponged upon the country. He contended that if the adjustment or readjustment of the burden of taxation took the weight off a back on which it had been wrongly placed the effect of its redistribution could not be a subject of justifiable complaint. One of the chief causes of offence against the Act had been the claim of one of the great political parties and their supporters in the country that the money intended for the relief of the tenant went instead into the pocket of the landlord, contrary to the intention of Parliament. He believed such a contention to be absolutely unfounded. After a reference to the cultivation of timber as a valuable product, the President discussed among other subjects the nationalisation of the land, which he said would never appeal to surveyors as an object worthy of accomplishment; the nationalisation of water, which might commend itself more to their consideration; the establishment of small holdings, labourers' housing in the country and pure beer.

A vote of thanks was accorded to the President for his address, and the proceedings closed.

NATIONAL MEMORIAL TO QUEEN VICTORIA.*

THE following description accompanied the design by Mr. R. Rowand Anderson, LL.D.:—The plan of the Mall prepared by the Board of Works and sent to architects along with the instructions seems a good one, and I follow it generally.

Avenue.

The centre avenue on this plan is shown to be 70 feet wide. I increased it to 80 feet, with a 10-foot footpath on each side. The first line of trees and shrubs, where the statues are placed, I make 33 feet wide, then a secondary avenue on each side 27 feet wide, with a second line of trees and shrubs 20 feet wide, then the park railings. The total width is 260 feet, the same as on the Board of Works plan.

Preservation of Trees.

The two southernmost of the three centre rows of trees shown on the Ordnance Survey plan must be removed. The trees and shrubs on the north side can be preserved, and also most of the trees and shrubs on the two lines on the south side of the Mall.

Position of Monument.

On the Board of Works plan the centre of the monument to Queen Victoria is 345 feet from the palace wall. I make it 437. This admits of a freer exit and entrance for carriages from and to the palace.

York Stairs and New Avenue.

The only important alteration I suggest on the present lines of road is opposite the York Stairs. The present line of traffic curves round to the Horse Guards Parade. The position, plan and dimensions of these stairs suggest an avenue as a continuation. What I propose is shown on the general plan, and the result on a small, coloured, perspective view. As this is no part of the scheme, it is therefore only put forward as a suggestion.

Architectural Treatment of Monument.

In working out the architectural treatment of the project, I felt that the monument to Queen Victoria must be the keynote of the whole scheme. I have therefore given much study and thought to the production of a design worthy of so great a subject. After preparing a number of drawings, I found that they so inadequately expressed my ideas of such

* See Illustration.



a monument that I decided to prepare a sketch model which I submit along with my other drawings. In this design I have endeavoured to express something of the moral grandeur of the Queen's reign, and also the great national event which culminated at its close in the consolidation of the Empire. The Queen is the crowning feature. At her side is the British Lion, and her left hand is placed on its head, typical of the confidence between the throne and the nation, the result of the wisdom and noble life which characterised her long reign. On a stage immediately below the Queen is a circle of young lions typifying the growing colonies and dependencies of the Empire. On a stage below this are four female figures supporting a continuous wreath. These symbolise India, Canada, Australasia and South Africa. The background of these figures is covered with a suggestion of heraldic decoration. On the short stage below this are four bronze panels for inscription, which should have reference to her wise and beneficent rule and thought for all her people. Immediately below this is a space for the dedicatory inscription. This must be regulated by the space available, and must be easily read. The suggestion I make for this is:—"Erected by the Empire to commemorate the virtues and the greatness of Victoria, Queen and Empress, 1901." On the lowest stage of this part of the monument are four large panels, which I suggest should be filled with representations of the great Naval Review at Spithead and the Jubilee Procession of 1897, when representatives of the whole defensive power of the Empire assembled in London and swore allegiance to the Throne.

All this part of the monument is placed on a podium, with four projections serving as pedestals for four groups of figures. Two of these represent the defensive power of the Empire, the Navy and the Home and Colonial forces. They are treated, not in an active attitude of defiance, but in a calm attitude of defence. The other two groups illustrate the peaceful occupations of the nation. One is science, art and literature, the other agriculture, commerce and the industrial arts. The monument is then surrounded by a balustrade, with four

entrances to the space round it. The pedestal on each side of the entrance carry symbolical figures representing Fortitude, Justice, Truth, Temperance, Mercy, Concord, Prudence and Peace—qualities which may be taken to represent leading features of Her late Majesty's character, and also the characteristics of a great, powerful, but peace-loving nation, whose leading maxim is liberty and equal justice to all under her flag.

Dimensions of Monument and Materials.

The total height of the monument is 60 feet, and the diameter at the base 75 feet. The architectural part of the monument should be constructed of Pentelic marble, Istrian marble or Portland stone, and all the figurework in bronze. Pentelic marble, which is very durable and tones beautifully, would be the preferable one to employ.

Space in front of Palace.

The architectural treatment of the open space in front of the Palace is dictated, first, by the position and shape of the Victoria Monument; and second, by the two lines of traffic to and from Constitution Hill and the Mall.

The coloured bird's-eye perspective view of this shows the general arrangements in front of the Palace. The enclosing architectural features of this space might be varied. A colonnade is a possible treatment, but I do not feel that this would harmonise well with such a building as Buckingham Palace, and that it would diminish the importance of the monument, and the great cost of it would limit the expenditure on the other features of the scheme. I have, therefore, adopted the balustrade with larger pedestals at intervals for statues, and smaller intermediate ones for electric lamps. On each side of the Victoria Monument an enclosed space is formed in the centre of which I show a fountain. Alternatives to this would be a canopy over the fountain or a group of statuary.

Seeing that there are a number of statues on the line of the balustrade, I feel that fountains would give more variety and



play to the design. The statues on the balustrade should represent men of the Victorian period.

Berlin Processional Avenue.

In Berlin the Sieges Allee is laid out in the same way as is proposed here, a centre avenue and two side ones, separated from the centre by lines of trees. The architectural treatment at Berlin consists of sixteen semicircles on the outer side of each of the two side avenues. They are all of one size and plan, spaced at equal distances, the arrangement of the statues is the same in each, and they are all made of white marble. The effect is monotonous, and the marble used is so white that it does not tone with the surrounding foliage. In the plan I submit, I place the statues and other architectural features next the centre avenue, so that they may contribute to the general effect of a procession passing to and from the Palace. The architectural treatment of these statues would be varied, and would be either single ones or in groups.

I take advantage of Clarence and Marlborough Gates to introduce special features.

Historical Statues.

The arrangement of the statues between Marlborough Gate and the Palace illustrates historically the title of the present royal family to the throne. At Clarence Gate I place a statue of Alfred as representing the line of Saxon kings. On the other side of the road I place an equestrian statue of William the Conqueror, who, over and above his title by right of conquest, was a kinsman on his father's side of Edward the Confessor, eldest son of Æthelred, by his marriage with Emma, daughter of Richard the Fearless, Duke of the Normans. To the east of William the Conqueror I place Edward I., as representing the Plantagenets, who came to the throne through Henry II., son of Geoffrey Plantagenet and Matilda, the granddaughter of William the Conqueror.

To the west of William the Conqueror I place the House of Lancaster, as represented by Henry V., the victor of Agincourt, grandson of John of Gaunt, the fourth son of Edward III. of the House of Plantagenet.

Opposite Edward I. I place a group of statues representing the origin of the Stuarts, namely, Robert the Bruce, his daughter Marjory, and Walter the Steward, who married Marjory.

Opposite Henry V. I place a group representing the alliance of the royal families of England and Scotland—Henry VII. of the House of Tudor, his daughter Margaret, and James IV. of Scotland, who married Margaret.

Between this group and the Victoria Monument I place a statue of James VI. of Scotland and I. of England, as marking the period when the crowns of England and Scotland were united in one family.

Opposite this is a statue of George I., as representing the House of Hanover, who came to the throne through his marriage with the granddaughter of James I.

Opposite Marlborough Gate I propose a large semicircle representing one of the greatest periods of English history. In the centre of the semicircle is an equestrian statue of Queen Elizabeth, at the two ends of the semicircle are Burleigh and Shakespeare, the four intermediate statues representing Sir Philip Sidney, Sir Walter Raleigh, Howard of Effingham, and Drake.

Electric Lights at Marlborough Gate.

At this part of the Mall I set up four great electric lights, forming a square, and on the top of them I place the emblems of St. George, St. Andrew, St. Patrick and St. David.

Between this and the east end of the Mall I show where a number of statues, either single or in groups, could be placed, but it does not seem necessary in the meantime to name them.

Arch.

I place the great arch at the Spring Gardens entrance to the Mall, and at the corner of the Admiralty buildings. It is at this point that the roadway is deflected, and by placing the arch here the change will be masked.

In designing this arch I have avoided the Roman form, of which there are already examples in London, and have adopted the English type of Italian architecture. The upper stage of this arch is designed to provide a place for a royal and equestrian statue.

Electric Lighting.

All the balustrading at the Palace end of the Mall is provided with electric lamps, and four are shown round the base of the Victoria Monument. When all lighted up the effect would be very fine.

Along the Mall I place electric lamps on each side of the Central Avenue next the roadway, and one row of lamps in each of the side avenues.

At Marlborough Gate four great lamp pillars, already noticed, and on the Elizabethan semicircle electric lamps between the statues, and a large one at the dividing of the road opposite the York Stairs.

The Society of Arts will hold their first meeting on Wednesday next. Before Christmas papers will be read, "Leather for Bookbinding," by J. Gordon Parker; "The Identification of Wood and its Application to Scientific and Commercial Purposes," by Herbert Stone; "Aluminium," by Professor Ernest Wilson; December 18, "Range Finders," by Professor George Forbes, F.R.S.

The Committee of the Land Law Reform Association propose to hold a conference on Tuesday, December 3, at the Westminster Palace Hotel, to consider the questions of town and country housing in their widest aspect.

NOTES AND COMMENTS.

THE discoveries which have been made at Molino Fienzo, in the neighbourhood of Pompeii, would appear to be of unusual interest, especially as it is easy from the remains to imagine one of the incidents of the catastrophe of A.D. 79. The owner of an estate near the mouth of the river Sarno, being incited by the recent discovery of gold plate in another part of the district, decided to undertake excavations. It was not necessary to sink deeply before the ruins of a building were found. Whether it was simply a residence of some proprietor who carried on a variety of businesses or was a collection of shops has yet to be ascertained; but there is proof of the existence under the same roof of a dealer in wine, a joiner, a vendor of fish and a baker. Near the house was the road leading to the Porta Stabiana in Pompeii, and along which many of the scared inhabitants must have fled from the city. Between seventy and eighty skeletons, evidently those of a poor class of people, have been exhumed; the only coins they possessed were of copper. Under the verandah about twenty skeletons of men, women and children were discovered, and they all appear to have belonged to a better class, judging by the necklaces, wristlets and rings which they bore. On one was a chain of sixty-four links, two armlets and a heavy gold signet-ring, besides a dagger with an ivory handle in a fine sheath. Near the figure were some household gods. Up to the present no photographs have been allowed to be taken of the discoveries, and as the ground is private property there is difficulty in obtaining information. It should, however, be the duty of the Italian Government to obtain records of all the stages in the exploration and to preserve remains which must add a new interest to Pompeii.

A CURIOUS case has arisen under the Metropolitan Building Act. A Mr. ELLIS was lately summoned for having erected a new building beyond the general line of frontage in the street. He was convicted by Mr. D'EYNCOURT, and the demolition of the new building was ordered. The magistrate was asked to state a case, but declined on the ground that there was no question of law involved on which to seek the opinion of the High Court. Application was then made to a divisional court for a rule *nisi* for a writ of mandamus directing Mr. D'EYNCOURT to state a case. This was also refused. An application to the Court of Appeal was, however, successful. At the hearing which followed an objection was raised that the Court of Appeal had no jurisdiction to consider the matter because the proceeding was a criminal cause or matter. The Court allowed the objection as there was no jurisdiction, and the rule *nisi* which had been granted was accordingly discharged. The magistrate's order for demolition remains in force.

THE decision which was given in the Court of Appeal on Wednesday in *WARREN v BROWN* will help to remove one of the uncertainties relating to ancient lights. The plaintiffs owned a factory in Leicester which was erected in 1860, and was lately used for the production of hosiery. The defendant owned a building on the opposite side of the street, to which in 1899 he added some storeys, and, as was alleged, in that way diminished the light which entered through plaintiffs' windows. The action taken by the plaintiffs, in which they claimed to be entitled to the amount of light enjoyed for twenty years, was tried by Mr. Justice WRIGHT. His lordship found that the plaintiffs had suffered substantial damage, and he assessed that of tenant at 100*l.* and that of the owners at 200*l.*; but as the plaintiffs had an abundance of light left for all ordinary purposes of inhabitancy or business, he considered they were not entitled to the mandatory injunction claimed by them on the ground that their extraordinary use had not been interfered with. This conclusion was arrived at partly through consideration for public convenience. As his lordship said:—"Unless, indeed, there is some such limitation of the right to light

for ancient windows, it is difficult, as Lord HARDWICKE observed in *Fishmongers' Company v. East India Company*, to see how the ordinary extensions and improvement of towns could be carried on. If every house which has existed for twenty years is entitled to have all or substantially all the same light come to its windows as during the twenty years, no new houses could be built opposite to old ones unless at a distance which would impose on servient tenements an unreasonable burden, and might involve great public inconvenience." The plaintiff appealed, and the Court of Appeal reserved judgment until Wednesday. Their lordships said that Mr. Justice WRIGHT appeared to consider there was a standard of light, and that there might be interference with light so long as it was not brought below the standard. That was an erroneous view. Some houses became extremely valuable through having particularly advantageous ancient lights, and any substantial interference with them would cause great damage to the house. Lord Justice MELLISH had stated it was impossible for the law to say there was a certain quantity of light to which a man was entitled and which was sufficient for him. Their lordships therefore decided for the plaintiffs. The case exemplifies two theories which have their supporters among lawyers, and which turn on the extent to which general interests are to be admitted. If the case could be taken to the House of Lords, as it ought to be, there might be a confirmation of Mr. Justice WRIGHT's opinion.

THE Temple in Paris is not one of the places which of late years were comprised among the monuments or curiosities which every visitor was bound to see. It acquired notoriety in the First Revolution, which it is not well to have perpetuated. It will soon, however, pass away, like the great order of Christian warriors who once inhabited the fortress which stood on the site, and which was as large and important as the Louvre. The Municipal Council have at last determined on its demolition. Like all places where old clothes are exposed for sale without undergoing a process of disinfection, it became a possible source of danger, and even poor people kept away from the gloomy arcades. The ground would be well adapted for one of the magasins which are believed to bring happiness to the womenkind of Paris. The Municipal Council, knowing that apartments are still required in Paris, have resolved that the property shall not be sold in one lot, but in several. In case one company might purchase all the lots and then erect an immense building on them, it has been stipulated that under no pretext whatever is any communication to be formed between the buildings on the different lots, and the walls between them are not to be pierced for doorways.

ILLUSTRATIONS.

THE NATIONAL MEMORIAL TO QUEEN VICTORIA.
DESIGN BY MR. R. ROWAND ANDERSON.

CATHEDRAL SERIES.—CHICHESTER NORTH TRANSEPT AND CAMPANILE. SOUTH DOOR IN CLOISTERS. EAST END OF SOUTH CLOISTER.

FOUNTAINHALL CHURCH. MAY FIELD, EDINBURGH.

BUSH LANE HOUSE, CANNON STREET, E.C.

THIS block of professional and commercial offices is situated a few yards from Cannon Street station. The elevation has been carried out in red bricks with Portland stone dressings; while the entrance, which forms the subject of the illustration, has been executed entirely in Portland stone. The building has a frontage to Bush Lane of about 115 feet, and comprises six floors, containing ninety-six rooms, served by a stone staircase and a passenger lift. There are ranges of water-closets and lavatories on each half-landing, and the whole of the floors are fire-resisting and the entire building is lighted by electricity. The contractor was Mr. HENRY LOVATT, and the architect Mr. DELISSA JOSEPH, F.R.I.B.A.

STAINED GLASS IN ENGLAND SINCE THE
GOTHIC REVIVAL.INCLUDING SOME ACCOUNT OF ECCLESIOLOGICAL
PROGRESS, FROM 1860 TO THE PRESENT TIME.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays
among The Glories of France," &c.

(Continued from page 266.)

THE parcelling out of the old unwieldy parish of Haggerston into more manageable districts, and their provision with churches, originated with several munificent persons. Mr. Richard Foster, at that time resident in Upper Clapton, always to the fore in the cause of church extension, "floated" the scheme with several thousand pounds, while Robert Brett, then churchwarden of St. Matthias, Stoke Newington—a church founded by his devotion and completed on so grand and com-



ST. CHAD, HAGGERSTON, FROM THE N.E.
(James Brooks, Architect, 1867-69.)

plete a scale by his indomitable energy and perseverance—executed the work very considerably, not only by the proceeds of such manuals as "The Doctrine of the Cross" and "The Churchman's Guide to Faith and Piety," but by issuing appeals recorded in such a manner as only he knew how. The result, then, of these joint efforts was the completion in 1865 of St. Michael's, Shoreditch, and of St. Saviour's, Hoxton, in the year following; of St. Augustine's, York Street, Hackney Road, in 1867; of St. Chad's and St. Columba's, Haggerston, in 1869; and of St. Stephen's, in the same parish, in 1872.

Although St. Michael's, Shoreditch, and St. Saviour's, Hoxton, should, as earlier works of their architect, be examined before his two Haggerston examples, the latter may be more conveniently visited first on leaving St. Mary's, assuming the ecclesiologist to have made that interesting early effort of Mr. Brooks's skill his *point de départ*.

St. Columba's and St. Chad's having several features in common, it may not be inappropriate—confining our attention to the most prominent points in these two remarkable buildings—to describe them in face of each other, indicating the

points of strong likeness and equally strong dissimilarity existing between them.

Their construction in red brick, a material to whose exigencies their design is in a great measure subordinated, and the employment of a very Early Pointed of a French type, are perhaps the two most striking points of resemblance these churches bear one to another. Both are cruciform, but their transepts projecting little, if at all, beyond the line of the aisles, neither St. Columba's nor St. Chad's appears so on the ground plan.

Externally this is not detrimental to the general effect, the transepts being sufficiently dimensioned to insure an air of simple quiet dignity, while inside they impart an appearance of grandeur and spaciousness without appearing mere useless excrescences.

In the two churches under review the cross form has, however, been differently worked out.

At St. Columba's the crux is groined for a central tower, which, as may be seen by reference to an illustration of this church in *The Architect* of February 15 last, rises but little above the roofs.

Here the four tower arches, carried on slender banded shafts, constitute one of the most telling internal features of the church; but at St. Chad's they are absent, provision being made for the bell at the intersection of the four limbs in a timber turret of open character, having a short quadrilateral spire of slates.

Probably the extreme awkwardness attendant upon roofing the crux when the central tower is absent led Mr. Brooks to minimise the cruciform character of St. Chad's by prolonging the nave roof across his transepts, while permitting them to open into the nave by graceful arches on slender attached shafts, which, reaching as they do almost to the top of the clerestory, detract somewhat from the length of the church.

The late William White, in his remarkable church of All Saints, Notting Hill—described, it will be remembered, at some length in an earlier number of these papers—carried the nave arcade boldly across the transepts, superimposing it with an open arcade. In this instance, however, the transept roofs gable out from that of the nave at a much lower level, whereas, as at St. Chad's, they are equal in dimension.

The two-bayed chancel of St. Chad's terminates in a semi-circular apse of graceful sweep, the whole being vaulted in red brick. At St. Columba's—the most noble and imposing of this group—the tower forms the chancel, the eastern limb which "gives" so grandly upon the Kingsland Road being used exclusively as a sanctuary.

This is square ended, but by giving its brick vaulting a double cell, and by causing its ribs to start from a slender shaft between the two eastern lancets, Mr. Brooks imparted to it a quasi-apsidal character somewhat after the style of St. Cross at Winchester or St. Honorine at Gravelle, near Havre. The lierne vaulting, both in St. Columba's and St. Chad's, is very peculiar, in that carrying out the idea of stilted the architect did not commence his vaulting till a height of from 10 to 15 feet above the wall-plate had been reached, thus gaining so much additional height. To counteract the thrust of this vaulting thickness of wall was alone relied upon, no buttresses being used either to chancel or nave, even in cases where, as at St. Columba's, there is ample unoccupied space on the site, and where many architects would have used them, if only to break up the long unfenestrated aisle walls.

The form of vaulting used in these two churches requiring but little centreing, there was a considerable saving in the cost of groining, and the face of the spandrels being, as observed just now at St. Columba's, slightly curved, each course of bricks forms a kind of arch from rib to rib.

The extremely domical section of the sanctuary vaulting at St. Columba's causes the central boss to totally disappear when the visitor is but a short way down the nave, and this, together with the size of the cells, contributes to diminish the appearance of length about this portion of the church. Here the whole space eastward of the nave is groined, the transepts barrel-wise, with stone ribs sprung from slender attached shafts. Of great beauty is the vaulting of the south chancel aisle at St. Chad's, which, having an apsidal termination

forms a spacious chapel for the daily offices. This, one of the earliest examples of a most useful and nowadays indispensable appendage to a large town church, does not appear at St. Columba's, which, from its size, would appear to have had greater claims upon its employment, but conditions of site doubtless stood in the way.

A small chapel fitted up beneath the organ loft in the south transept having, it is presumed, felt to be inadequate to parochial needs, a third altar has been erected at the west end of the south aisle immediately opposite the principal entrance to the church, which is through a transept commensurate in width with the last bay of the nave, a feature serving not only to break up the outline of the church very agreeably but also the purpose of a baptistery. Besides this, it constitutes a very dignified approach to the interior, creating that effect of space at the west end so desirable in a large town church. The trellis-like pattern formed of brickwork on the western wall is characteristic of its architect.

St. Chad's is entered from the west by a lean-to narthex with inner doors placed eccentrically, outer ones north and south, and small foliated circlets in its western wall.

Coming now to the feature that imparts such character to a church's interior, the nave arcade, we find that in St. Chad's having an inner order of stone, perfectly simple, and an outer one of brick, springing from low cylindrical columns, rather stout, but with very thin capitals as yet in the block. In the chancel the arches are entirely of stone, and rise from massive circular columns with sculptured caps—a strange square block with an incised cross on each face occurring just at the spring of the former.

At St. Columba's the five nave arcades, moulded entirely in red brick, are of the most graceful curve, and agree happily with the stone piers which, suggested probably by those in St. Pierre aux Corps at Bourges, are of the "compound" type. Their four slender shafts, disposed around a cylinder, are just detached from, though connected with it, by bands cut from a single stone, all the capitals being as yet *en bloc*. Mr. Brooks's treatment of his responds was an extremely clever and graceful, and at the time of the inception of St. Columba's, nearly forty years ago, a novel one, composing them as he did of red brick, and crossing them at the intervals marked out by the rings on the slender attached shafts with stone bands. The nave aisles of both churches are destitute of windows, being spanned, at St. Columba's, by half arches of brick brought down upon corbels and spacing out panels destined for pictorial enrichment. Light, therefore, is depended upon from the clerestory, which in both instances is an exceedingly grand feature, the windows being large ones of two uncusped lancets, with a large foliated circle treated plate-tracery wise. At St. Columba's the clerestory windows are placed regularly above the arcades, the most western window on the north side being unglazed, so as to look into the transeptal narthex above alluded to with captivating effect. At St. Chad's, where the clerestory windows are grouped into two pairs, but not ranging with the voids or supports of the three bays below, a pair of the same type of window lights the west front above the narthex, St. Columba's being closed westward by two tiers of lancets. Composing a fenestration of much grandeur, they are not a little reminiscent of some Early Pointed Yorkshire work.

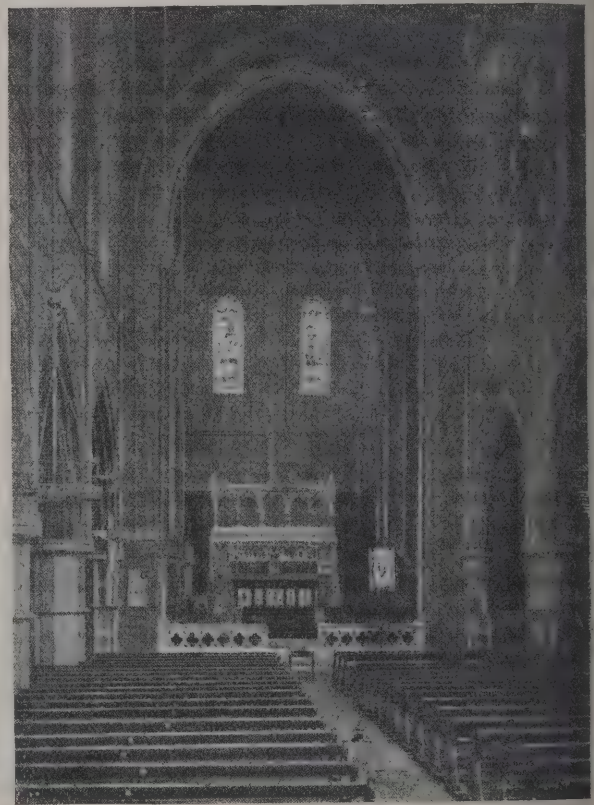
For either transept at St. Chad's a triplet of lancets surmounted by a plate traceried rose is employed, while the northern arm of St. Columba's derives its light from a triplet of windows, miniatures of those in the clerestory, and surmounted as at St. Chad's, by a rose.

Throughout the chancel of both churches the large single lancet prevails. Of these there are nine in the clerestory of St. Chad's, the three serving for the apse being filled with remarkably fine stained glass by Clayton & Bell. The Session in Majesty within the central lancet—rivalling in its tinctures and ensemble some of the finest productions of the thirteenth century—was in position at the consecration of the church in April 1869. The effigies of the Blessed Virgin to the left—inserted by the Marys of England in response to an invitation from the daughter of the late venerable vicar, Rev. W. R. Sharpe—and that of St. Chad to the right are both

later insertions and equally meritorious. All these windows, to which the size of the figures filling them imparts a much more striking appearance than a multitude of small subjects treated medallionwise, must be seen to be appreciated.

At St. Columba's, the stained glass in the pair of lancets at the east end is by other hands and not satisfactory, the best vitreous decoration in the church being in the small circle which surmounts the two tiers of western windows and in the two lancets which light the north-western transept above the doorway—all by Clayton & Bell. The iconography of the glass filling the latter, and setting forth the Fall and the Atonement, is curious.

Thus, commencing at the bottom, in the left-hand lancet we have the Creation of Eve—a somewhat difficult subject—paralleled by the Nativity. Eve offering the forbidden fruit to Adam typifies the Temptation. The Expulsion from Paradise is placed side by side with the Procession to Calvary, while the Sacrifice of Abel balances the Crucifixion. The manner in which the groups composing this interesting series are arranged in squares, and not within foliated or vesica-shaped medallions, is worthy of notice—treatment which, while it has the merit of novelty, diminishes to a considerable extent that idea of verticality which the old mosaic arrangement invariably secured for



ST. COLUMBA'S, HAGGERSTON, INTERIOR LOOKING EAST.
(James Brooks, Architect, 1867-69.)

windows of this age of Pointed. Be this as it may, the bold employment of grisaille, the brilliancy of the tinctures, and the clearness with which the groups stand out, give these two lancets at St. Columba's greater claims upon the admiration than many a more ambitious work in which colour has been lavishly supplied.

Those who take the trouble to study these two striking and abnormal churches will easily discern that the qualities mainly insisted upon in their capacity of town churches have been solidity of construction and a general air of religious impressiveness. Upon elaborate detail, either inside or out, little has been expended, yet, despite their dignified severity, the architect contrived to infuse into them just the right spirit of originality which enabled them to appear neither commonplace on the one hand nor bizarre on the other.

With regard to their fittings, a bit at a time and done well has been the order both at St. Columba's and St. Chad's, starving the roof-tree to gild the altar being in either case apparent.

Tall, light chancel-screens and parcloes are, however, in both churches desiderata, though preparations for the former have in either instance been made in the shape of a low wall, pierced at St. Columba's with rather large quatrefoils, and faced at St. Chad's with trefoil-headed arcades, the upper parts of which have a species of tracery formed of three small circles, and the lower strips of coloured tile. From insufficiency of data, it is not possible to say whether the surmounting portion in each case is to be of wood or metal, though the substantial character of the bases seem to point to the latter. In the former material Mr. Brooks has given us several interesting specimens of his ideas respecting this important item in a church's furnishing, and in a style quite *sui generis*, as for instance in the two churches presently to be passed in review, St. Andrew's, Plaistow, and that of the Annunciation, Chislehurst. The screen in St. Matthias, Stoke Newington, imparting the fifteenth-century idea of a *cancellum* with paintings on its base and doors, translated, so to speak, into the Pointed of two centuries earlier, was, if I mistake not, Mr. Brooks's earliest work of this kind, but it labours under the fault of being a little too early for the style of the church, while the upper portion not being sufficiently "ouvert au jour," as our vivacious neighbours across the Channel would say, is perhaps open to criticism.*

At St. Chad's the reredos is completed, at St. Columba's only partly so. In either instance it is raised upon a stone base relieved with that species of trelliswork in thin strips of green tiling which was so favourite a method of decoration with the architect. In this portion of the reredos at St. Chad's a trefoil-headed niche is introduced comprising piscina and credence, thus obviating a good deal of passing to and fro on the part of the server, besides being very convenient for the celebrant should he by any chance be deprived of such assistance at the holy table.

The St. Columba reredos is in two stages, the one immediately above the altar presenting a series of small trefoil-headed niches, and the upper one five rather wide compartments also trefoiled and gabled. These latter are intended for pictorial enrichment, the application of which will do much to modify the somewhat heavy appearance at present worn by the composition.

In the reredos at St. Chad's—a most graceful but modest work, illustrated in *The Architect* of June 21 last—sculpture takes the place of painting, its stilted central compartment being filled with a group of the Crucifixion, flanked by effigies of those present at it, viz. Joseph of Arimathea, the Centurion, St. Mary Cleophas and St. Mary Magdalene. This and the reredos in the neighbouring church of St. Augustine may be taken as examples of how differently architects and sculptors of eminence can manipulate such a feature.

EGYPT EXPLORATION FUND.

A GENERAL meeting of the Egypt Exploration Fund was held on the 7th inst. in the rooms of the Society of Antiquaries. The president, Sir John Evans, was in the chair.

The treasurer's report stated that while in the last two years there was an excess of expenditure over income in the case of the fund proper, this year there was a very substantial balance. This was due to the generosity of friends on both sides of the Atlantic. First, in the exploration fund the total disbursements had been 2,351*l.* 1*s.* 8*d.*, which was made up as follows:—By the expedition account 1,443*l.* 2*s.* 10*d.*. This amount was incurred on the work alone at Abydos, under Professor Petrie, as M. Neville was unable to carry out his proposed task at Deir-el-Behri. By publications they had spent 565*l.* 1*s.* 11*d.* The total receipts over the same period had been 3,788*l.* 11*s.* 8*d.* Next came the archaeological survey. The total disbursements of the survey during 1900-01 had been 523*l.* 6*s.* 5*d.* The next account was that of the Græco-Roman branch, in which the payments had amounted to 1,016*l.* 16*s.* On the three funds there was thus an increased

balance on last year's account of 1,791*l.* 1*s.* 1*d.*, the relative figures being 5,597*l.* 6*s.* 4*d.* as against 3,806*l.* 5*s.* 3*d.*

The President in his address said that losses by death had not been so numerous as in previous years. They were, among others, Sir John Henry Greville Smyth, of Ashton Court, near Bristol, who contributed most liberally to the Fowler Fund for excavations at Tunis, and was for many years a subscriber to the Exploration Fund; Mr. Arthur Cates, the well-known architect and architectural adviser to the Woods and Forests; and Mr. Joseph John Tylor. The scene of operations had during the past season been in the main the same as last year—near Abydos, on the site of the royal tombs. There, notwithstanding the previous researches of M. Amélineau and other explorers, Professor Flinders Petrie had been able to reap an abundant and valuable harvest. It should be added that two royal tombs of the third dynasty had also been explored, and that Mr. MacIver had found much of pre-dynastic and first dynasty remains at El-karab, while Mr. A. C. Mace had continued his work among eighteenth-dynasty tombs at Abydos. Mr. J. Garstang, working for the Egyptian Research account, had found in a cemetery of the sixth and seventh dynasty some fine alabaster vases, a gold chain and other interesting objects. The share of the spoil which was allowed to come to England was, in accordance with former precedents, exhibited during the month of July at University College. They had reason to be thankful to the museum authorities at Cairo for the equitable if not, indeed, liberal manner in which the produce of their excavations had been divided between themselves and the fund. The whole collection exhibited last summer at University College had now been divided mainly between the United Kingdom, including her colonies and the United States of America, but portions had also been assigned to some European States, the principle of division adopted being that each country should, so far as possible, share *pro rata* in accordance with the amount that each had contributed to the fund. In addition to Part II. of the royal tombs a special extra publication of the fund had been produced by Professor Flinders Petrie, with some little assistance from Mr. A. C. Mace. It was entitled "Diospolis Parva, the cemeteries of Abadiyeh and Mû," and gave an account of their examination in 1898-99, illustrated by nearly fifty plates, among which there are several of the highest importance. Another publication of the fund, which would now shortly appear, was "The Temple of Deir El Bahari," No. IV., which would comprise plates 87 to 110, relating principally to the Temple of Hather and the Southern Hall of Offerings. The wall-paintings were of great interest and the long religious texts subsequently incorporated into the Book of the Dead were worthy of notice, especially as M. Neville had offered a translation of one of them which somewhat differed from that of other authorities. The Archaeological Survey had, during the past year, produced two volumes, one of which, however, was only on the point of being issued. The first of these, "Ptah-hetep," Part II., was presented to subscribers to that branch in June last. The second was a detailed account of the rock tombs of Sheik Said, prepared by Mr. N. de Garis Davies, though the spot had already been visited by Professor Petrie, Mr. Griffith, Messrs. P. and J. Newberry and Mr. Carter, whose works are mentioned and some of them utilised. The tombs, according to the list, were 102 in number, and belonged in the main to the ancient kingdom. With regard to the Græco-Roman branch, the report was less satisfactory, though the volume of Fayoum papyri had for some time been in the hands of subscribers. The examination and publication of Lord Amherst of Hackney's fine collection was a grave undertaking, and the editors, Messrs Grenfell and Hunt, were to be congratulated on the completion of their work. It was to be hoped that ere long the work on the Oxyrhynchus papyri would be resumed. There was, he was informed, a large fragment of a lost comedy, very likely by Menander, among those that were still unpublished which was sure to prove of the highest interest. Messrs. Grenfell and Hunt would probably return to the Fayoum in the course of next month with the view of making further discoveries of papyri. He wished incidentally to mention the remarkable discoveries of new forms of extinct mammalia that had been made in the lower tertiary deposits of Egypt by Captain H. G. Lyons and his staff. He was glad to say in conclusion that Messrs Thomas Cook & Son had most kindly and liberally agreed to insert a prospectus of the fund in every ticket that they issued to travellers in Egypt. The Society of Biblical Archaeology had also issued their prospectus to all their members. Apart from America, subscribers last year were 700 in number; this year they were 721. Might they still increase, and even in larger proportions.

The Hon. Secretary said that from an administrative point of view the chief feature of the past year had been the strengthening of their connection with the United States. The two old affiliated branches of Philadelphia and Chicago were now both represented on the committee by Americans—Major Cassatt, military attaché at the Embassy, and Mr. Louis Dyer

* The writer once heard that this screen in St. Matthias, Stoke Newington, was originally designed for St. Stephen's, Lewisham—a graceful Early Pointed work of Sir Gilbert Scott's in a Northern French edition of that epoch—and to which it would have been better suited. An illustration of the screen at Stoke Newington appeared in *The Architect* of November 3, 1899, and of that in the Church of the Annunciation, Chislehurst, in the number for June 21 of the present year.

who was as well known at Oxford as at his original University of Harvard. From the Boston office they had received this year the equivalent of 10,000 dols., instead of 6,000 dols. last year. It must always be borne in mind that these liberal contributions from America were frankly sent in view of a return in the form of antiquities and papyri for American museums and libraries. In accordance with their rule of following strictly the proportion of local contributions, the American share had been divided between five great museums—at New York, Boston, Philadelphia, Pittsburg and Chicago.

Professor Petrie then delivered the following address:—
This year we have the satisfaction of completing the most important historical work that has yet come into our hands. The continuous order of seventeen kings has been established, and the very foundations of Egyptian history have been settled in a manner which had hitherto seemed entirely beyond hope. The royal cemetery of the tombs of the kings at Thebes, belonging to the eighteenth-nineteenth dynasties, and that of the pyramid builders at Memphis, of the fourth-sixth dynasties, were the only series of royal tombs yet known; and neither of those had added anything to the history which was already fixed by other monuments. But the recovery of the royal tombs of the earliest dynasties has given us not only another royal cemetery, but has provided the only contemporary history of their time, and completely vindicated the historical character of the lists which had been preserved by later ages. The criticism of myths had told us that Mena, the founder of the Egyptian monarchy, was but a form of Mena, the law-giver of India, and of Minos, the hero of Crete; and to hope for tangible monuments of his time was but seeing castles in cloud-land. Now the long line of a dozen kings back to Mena is clear before us; we have seen and handled the gold, the crystal, the ivory, with his name and engravings, and even the kings which went before him are better known to us by actual objects than are half the Saxon kings of England. No such complete materialisation of history has been obtained at one stroke from any other country or age. And such a result was least to be expected from ground which had been pronounced exhausted, the last clearance of which unhappily had just been made before our work there. That previous clearance had not restored a single detail of the succession of the names, nor identified the historical position of a single king. It had only swept away the great part of the materials, and left a chaos of destruction behind it. The whole of what we have covered by our work was from the overlooked residue which had escaped all the plunderers; that invisible margin was the total of what we had to use, and that hundredth of all that had existed there has sufficed to reconstruct the historic fabric. So difficult is it to really destroy history that we may now say that our methods—which will doubtless be improved—can resuscitate knowledge of a period of which the remains have been destroyed time after time by zeal and greed. By the use of a trained body of workmen, who had been taught in past years to notice and preserve the objects in their work, we recovered a far larger amount of material than we had hoped for. The splendid bracelets of gold and jewels, the gold bar of Mena, the gold sceptre, the gold-capped vases were beyond all expectation; and the more instructive remains include about twenty engraved tablets and dozens of fragments, five royal tombstones and 150 private tombstones, over 200 different sealings, nearly 100 inscriptions on stone vases, 800 stone vases restored and many hundreds of small objects of the greatest interest as illustrating the civilisation. Altogether in the two volumes issued to you there are over 500 photographs, over 2,000 drawings, and nearly 2,000 marks, beside the full and detailed plans and sections of the whole of the tombs. None of this mass of material, which alone has enabled us to restore the earliest dynasties, would ever had been known had we been content to leave the subject where the common routine of excavation had already abandoned it. You see before you on the largest scale an object-lesson on the futility and destructiveness of a mode of work which was no worse than the greater part of what has been perpetrated in Egypt in the name of excavations during the last 100 years. Now there awaits us yet the great temple site of Abydos, the ground of the earliest temple, that of Osiris. It has been largely dug over for earth, and some monuments have been removed, but the lower levels of it are yet untouched. It seems that this was probably the burial-place of the head of Osiris, the great relic which drew around it the burials of the historic times, and probably also was surrounded by those of the earliest dynasties, as one such grave has been found there by accident. The site is a very large one, about 500 feet by 1,000 feet, or three times the size of the whole of Trafalgar Square and its roads, and it will have to be turned over 12 feet deep. If we get a third of that, or as much as Trafalgar Square, turned over in the course of a season, that will be as much as one can expect, so that some three years will be occupied in undertaking this great site. It is in that ground that we may hope to find tombs of the earliest historic time, and carvings in stone and ivory of the primitive kings, like those

from Hierakonopolis. Our treasurer must appeal to you to insure that this most promising site of all Egypt is thoroughly and finally explored. It is now twenty-one years since I first began work in Egypt; Mariette then ruled and this fund was yet unborn. In these days the pyramid of Khufu was our boundary of history, nothing whatever was known of the archaeology of Egypt as a comparative science, and no trace of Europe in Egypt was thought of earlier than the Ptolemies. The situation now is completely different. The monumental history has been carried back to the very beginning of the written record, which has been entirely confirmed, and beyond all that, the whole course of the prehistoric civilisation has been mapped out for perhaps 2,000 years more completely than has been done for such ages in any other land. The archaeology is better known than that of the most familiar countries, not a vase nor a bead, not an ornament or a carving, but what falls into place with known examples and can be closely dated. The connection with Europe has been led back to the beginning of Greek records, then to the Mycenaean times, next to the twelfth dynasty, and now even to the first dynasty, and Egypt is the sounding-line for the unmeasured abysses of European history. No such opening of new fields to the mind has come to pass since the days when the Renaissance scholars burst into the world of lost classic authors; even the surprising unfolding of Assyria and Babylonia lacks the historic completion of the Egyptian record, and is still almost untouched in its archaeology and development. We cannot expect the next twenty-one years to be as potent as that which we have seen, for the great outlines are now laid down, but many a dim passage in the long course of the history yet awaits the light, and it will be the duty of the new century to fill in, as far as possible, the details of the picture which has been sketched in the last few years.

AMERICAN OFFICE-BUILDING ELEVATORS.*

WITHOUT an efficient elevator service the office building is a failure; yet, notwithstanding the many elevators which have been installed, the elevator service causes the operating engineer and the manager of the building more anxiety than any other single item of the installation.

Each tenant of the building must be carried at least four times a day, and provision made for the outside public. The transportation should be as rapid as possible within the limits of safety.

The number of passengers carried in some large and densely populated buildings amounts to from 10,000 to 20,000 per day.

In the Drexel building, Philadelphia, ten storeys high, and having 120,000 square feet of office space above the first floor between 1,500 and 1,600 passengers were carried in one hour.

After the building is completed it is always difficult, and sometimes impossible, to modify the elevator installation, so that the proper number and size of the elevators is an important question to determine.

The speed and size of the car, the height and office floor area of the building and the method of operating must be considered. In tall buildings where more than four cars are installed, the service may be improved by running some of the cars to stop at all floors and others to run "express" beyond the lower floors and "accommodation" above.

TABLE NO. 1.

Building.	Storeys.	Office-area above first-floor.	No. of cars.	Square feet per car.	Area car, sq. ft.
St. Paul Building, New York .	25	83,200 sq. ft.	6	13,900	23'6"
Empire Building, New York .	21	150,000 "	10	15,000	42'0"
N. American Building, Philadelphia .	18	90,500 "	5	18,100	27'6"
Real Estate, Philadelphia .	17	151,650 "	10	15,160	23'7"
Bowling Green, New York .	16	222,000 "	9	24,700	—
Land Title, Philadelphia .	15	66,400 "	5	13,300	29'6"
Stephen Girard, Philadelphia .	13	67,000 "	4	16,750	29'6"
Drexel Building, Philadelphia .	10	130,000 "	6	21,700	21'1"

The writer has attempted to formulate a rule, based upon the operation of elevators in various buildings, by taking factors in the calculation the office floor space, the number of trips per hour and the size of the cars, which is subject to modification for "express" service.

An idea of the practice in elevator installations may be obtained from Table No. 1, which gives the storey heights, the approximate area of office space above the first floor, the number of cars, the office area per car and the area of each car.

To determine the number of trips and car-travel per

* Extract from a paper by Mr. Charles G. Darrach read before the American Society of Civil Engineers and published in the *American Architect*.

hour, observations were made at four office buildings in Philadelphia:—

Drexel building, ten storeys high; Stephen Girard building, thirteen storeys high; Land Title and Trust building, fifteen storeys high; Real Estate Trust building, seventeen storeys high.

TABLE NO. 2.

Building.	Storeys.	Height, feet.	Travel per trip, feet.	Trips per hour.	Average feet per minute.	Miles per hour.
Drexel Building	4	40	80	60	80	.910
"	5	50	100	52	87	.984
"	10†	108	216	35	126	1.431
"	10†	108	216	35	126	1.431
Stephen Girard Building	13	130	300	30	150	1.704
Land Title Trust Building	15	180	360	27*	162*	1.840†
"	15	180	360	24†	144†	1.636‡
Real Estate Trust Building	17	200	400	25	167	1.894

From these data the following are estimated:—

Bowling Green	16	190†	380	26	164	1.87
Empire	21	250†	500	22	183	2.08
St. Paul	25	300†	600	20	200	2.273

In the Drexel building, which has six elevators, one elevator ran from the first to the fourth storey, one elevator from the first to the fifth storey, two elevators from the first to the tenth storey, stopping, if required, at any of the floors, and two elevators ran to the fifth storey "express," and served all the storeys above.

At the Stephen Girard building there were four elevators, which ran "accommodation" through.

At the Land Title and Trust Company's building there were five elevators which ran on schedule time "accommodation" to all floors except the second

At the Real Estate building all the cars ran "accommodation" through.

Table No. 2 shows the results obtained, and also an approximate estimate of the running time for the Bowling Green, Empire and St. Paul buildings, New York City.

From observations at the Drexel building in 1897 during the noon hour, the up-travel from the first floor reached 800 passengers, with a maximum of twelve to thirteen passengers in the car. The cars were also overtaxed all day, from 10 A.M. until 4 P.M.

At the Land Title building, running twenty-four trips per hour, the service was very satisfactory. There was a slight crowding during the noon hour; this, however, can be remedied by the use of the improved car-signalling apparatus.

At the Stephen Girard Building the cars are crowded during the noon hour, and also between three and five in the afternoon

All three of these buildings are well filled.

The Real Estate building is not fully occupied, so that the elevator service there cannot be fairly judged. At present the installation is very satisfactory.

Using the trips per hour as observed and estimated, and equating the car area by the formula—

a = A / (T x 22)

a=square feet of car area.
A=square feet of office area.
T=total trips per hour.

TABLE NO. 3.—EQUATED CAR-AREAS.

Building.	Storeys.	Number of cars.	Sq. ft. of office-area per car.	Actual car-area in sq. ft.	Equated car-area in sq. ft.	Estimated trips per hour.
St. Paul	25	6	13,900	23.6	31.5	120
Empire	21	10	15,000	42.0	31.0	220
Real Estate	17	10	15,560	23.7	28.3	250
Bowling Green	16	9	24,700	—	43.1	234
Land Title	15	5	13,300	—	22.4	135
"	15	5	13,300	29.6	25.0	120
Stephen Girard	13	4	16,750	23.0	25.4	120
Drexel	10	6	21,700	21.4	28.2	210

At the Drexel building, the two cars which ran "express" to the fifth floor, and the two cars which ran "accommodation" through, made the same number of trips, and carried practically the same number of passengers. It would be interesting to know whether similar results are obtained in any other buildings, and the advantage gained in arranging the travel of the various cars to serve "accommodation" through the entire trip "express" part way, or providing separate service to different heights in the building.

Using the same formula, and equating to obtain the square feet of office space per car, with given sized cars, and the

number of through trips heretofore used, we have the following results with cars of 25 and 30 square feet area:—

TABLE NO. 4.—SQUARE FEET OF OFFICE-AREA PER CAR.

Storeys.	Car-area=25 sq. ft.	Car-area=30 sq. ft.
25	11,000 sq. ft. per car	13,200 sq. ft. per car
21	12,100 " " "	14,500 " " "
17	13,750 " " "	16,500 " " "
16	14,300 " " "	17 160 " " "
15	14,850 " " "	17,820 " " "
1	16,500 " " "	19,800 " " "
1	19,250 " " "	23,100 " " "

The style of elevator will depend upon the kind of power adopted, the space which can be provided for the operating machinery, and the location of the elevators in the building.

The lifting machinery is driven either by electricity or by water under pressure.

Electric elevators are operated by a motor revolving either a drum carrying a hoisting cable, or a screw with a travelling nut connected with a system of multiplying sheaves and cables.

In another type of electric elevator two independent motors are connected by endless ropes which run over travelling pulleys suspended from overhead sheaves, the hoisting cable being connected with one of the travelling pulleys. The direction and motion of the car is regulated by varying the speed of the driving motors.

Hydraulic elevators are operated by water from a tank at the top of the building, or from a pressure tank containing compressed air, or by pressure obtained by weights. The car is moved either by a vertical ram or hoisted by cables attached to the car and running around overhead sheaves to pistons in horizontal or vertical cylinders, the length of the cylinders being reduced by multiple power transmission in the hoisting cable.

The elevators descend by their own weight and the cars are counterbalanced so that they may descend empty at the required speed.

The water is pumped either directly by steam-engines or by electric motors

The apparatus should be as simple in construction as possible, to obtain speed and efficiency, with economy in power and cost of repairs, and should be so devised that the failure of the principal parts of the machine, or even of some minor part or safety device, will not be the cause of accident.

Increased economy in power by complicated mechanism may be more than counterbalanced by the cost of the machine and by repairs and supervision.

To provide against accident each hoisting machine should whenever possible have a speed-governor to prevent the car from running faster than the maximum required running speed, and in addition the car should be provided with independent automatic safety clutches to clamp the car to the guides should the speed-governor fail or the car fall. The clutch should stop the car gently, without jolt or jar, and should be under the control of the operator

The power-operating machinery should be automatically cut off and stop the cars gently at the top and bottom landings.

The overhead sheaves and beams should be sufficiently high to prevent the counterweights striking them when the car is at its lowest limit of travel, or to prevent the car from striking when at its highest limit of travel. Clearance should be provided at the lowest landing of sufficient depth to prevent the car striking when at the lowest limit of travel.

A device should be provided to prevent the opening and closing of the hatchway doors, except when the car is at the landing, so arranged that the doors must be closed before the car is put in motion, and opened only when the car is stopped.

The hatchway should be kept clear of all operating machinery, and the machinery should be placed where it can at all times be conveniently inspected and repaired.

The cars in electric elevators are controlled by electric contact, in hydraulic elevators by either a hand-wheel or lever operating the starting valves. The lever arrangement requires a pilot valve, which controls a small hydraulic motor operating the main valve. The lever and pilot valves reduce the labour of the car attendant, but add extra mechanism to the apparatus.

The car doors are operated either directly by hand or by a pneumatic apparatus controlled by the foot or by the starting lever.

Where a large number of elevators is installed, a successful signalling device, operated by electricity, is in use. Two push buttons only are placed on each floor, one signalling the cars going up and the other those going down. When the push button is pressed a light is shown in the next arriving car, and notifies the attendant in time to stop at the proper landing. Other lights are located over the hatchway door notifying the passenger, a white light for the up trip and a red light for the down trip.

The hydraulic elevator, unless complicated with a differential

* Actual. † Estimated.

water-supply, uses the same amount of power for light as for heavy loads.

The hydraulic ram elevator is limited in speed and range.

The electric elevator uses power in proportion to the load, and is more economical than the hydraulic machines.

The objection to this form of elevator has been the difficulty in controlling the large starting current, which makes the lamps fluctuate when the elevator is operated from the same source of electricity that serves the lamps.

With this defect remedied, all the machinery in the building, including that serving the electric lights, may be driven by electricity from the same source.

In addition to the transportation of passengers from the street to the various floors, special elevators are frequently installed to serve several storeys occupied by the same tenant.

Provision must also be made to carry freight and heavy safes to all the floors.

Elevators must also be provided for furnishing supplies to and removing ashes and wastes from the basement.

THE "HANGING BRIDGE," MANCHESTER.

A MEETING of the Lancashire and Cheshire Antiquarian Society was held on Friday in the library of Chetham's Hospital. Professor W. Boyd-Dawkins presided. Mr H. T. Crofton read a paper in which he discussed the various theories as to the origin of the name "Hanging Bridge." He quoted from old records to show that the name, and that of Hanging Ditch, were of considerable antiquity. Discussing the theory that "hanging" was derived from the shape of the place owing to the lofty and suspended appearance of the bridge at the edge of a shelf of table-land, as it would appear in early times, Mr. Crofton said there was nothing to show that the word hanging was in local use to describe such a position. On the contrary, the Lancashire usage was in favour of "bank" or "brow" for such a declivity. It was pure conjecture to suppose that the name "Hanging Bridge" as applied to the existing stone structure was a survival of the name given to a previously existing drawbridge. There was no evidence of such a drawbridge, nor of any fortifications such as were usually connected with bridges of that character. The existing stone bridge was probably built about 1420 to provide a convenient access on foot for the inhabitants resorting to their parish church, which was rebuilt at that time, or perhaps the bridge was built when the old bridge over the Irwell was erected, namely, in 1368. Mr. Crofton went thoroughly into the claims of the ditch and bridge to have derived their names from the alleged circumstance that capital punishments were carried out in their vicinity. There was no explicit mention in the old records, he said, of any definite place for executions, but they showed no restriction on the sheriff as to the place where executions were to take place. If sentences were carried out in Manchester, this part of the town would be as likely as any for the purpose, on account of the junction of highways thereabouts, where criminals and suicides were buried, and its nearness to the only prisons in the Salford Hundred, namely, the old prison at Hunt's Bank and the dungeon on the old bridge, which was built as an oratory in 1368, and was converted into a prison in 1580. The county session of the Manor Court was also held in a building in Market Street, which was within a stone's throw of the bridge and ditch. It was clearly proved that the Lords of Manchester had power to inflict the death penalty, and the whole evidence pointed to the conclusion that the ordinary meaning of the word "hanging" had the strongest claims to acceptance.

TESSERÆ.

Influence of Roman Methods of Building.

CIVIL and military construction preserved something of Roman art even when the last traces of this art had long since been abandoned in religious architecture. There were then two quite distinct modes of building dating from the end of the twelfth century—the religious and the civil—and this state of things lasted until toward the middle of the sixteenth century. The monasteries even use both of these methods together; their domiciles have no relation so far as construction goes with their churches or their chapels. Nevertheless, one of the principal attributes of construction at the moment when it abandons Roman traditions, daring, is found also in civil as well as ecclesiastical architecture; but it is evident in civil architecture that the positive ideas, the daily needs, the inherited habits have a more direct influence on the methods adopted by the builder. Thus, for example, rock-faced rubble is used in civil architecture for a long time after all religious constructions were made of cut stone; horizontal arches of stone were everywhere applied to dwellings in the twelfth,

thirteenth, fourteenth and fifteenth centuries, at a time when no trace of them was longer to be found in churches.

Repose in Egyptian Art.

In all the relations of life the sentiment of death was present in some form or other to the Egyptians. In this manner the straight line, the natural expression of eternal repose, in contrast to the wavy line, which represents the animal and vegetable movements of life, became the motive and spirit of their art. The anomaly of death in life was present in every development of the creative faculty, and no architectural or decorative feature could be so slight and unimportant as not to be thoroughly permeated with this sentiment. The tender and graceful lines of the lotus became sublime and monumental under the religious loyalty of Egyptian chisels. Whether used in construction or decoration, these lines, so stiffened and formalised, seem to bring us into the presence of a strange phase of human life and thought long since passed away from any other contact with living creatures. When applied to the rendering of the human figure, especially in the heroic forms of Egyptian art—in the statues and portraits of kings, in the sphinxes, in the colossi of Memnon and the royal tombs—these solemn and fateful lines appear in effect to overwhelm the idea of human mutability and movement in the awful repose of immortality. It seems sufficiently evident that this process of formalising the lines of the human figure in Egyptian art was not the result of the limitation of the powers of the artist to express movement and life, but rather of a consecration of his art to the service of a fundamental religious dogma. "Solid set and moulded in colossal calm," all the lines of this lost art thus recall the sentiment of endless repose, and even the necessary curves of its mouldings are dead with straightness.

The Pedestal.

In Egyptian and Assyrian architecture the columns generally stand upon the ground, or where they are raised upon a stylobate (as, for example, in the small temple at Philæ, commonly called the Bed of Pharaoh) the latter is of a height which gives it rather the importance of a leading feature than an accessory. The pedestal, properly so called, belongs altogether to a later and more complete style of art, and seems a natural step in the development as well of sculpturesque as of architectural composition. Even with the Greeks this feature is but rudimentarily treated in the earlier works, the stylobate of three steps being the only approach to the idea of a pedestal until the introduction of the Ionic order. The Temple of the Giants at Agrigentum is supposed to be the only example in which a base is applied to the Doric order. This and a greater number of steps in the stylobate seems to show marked progress in the development of the principle involved in the use of the pedestal. As in the earlier architecture, so in the sculpture, there is an entire absence of what may properly be called a pedestal. The sphinxes of the Sacred Way at Philæ have only a low square plinth without architectural features of any kind. The colossi of the plain of Thebes, of the rock-cut temple of Ipsamboul, and many other examples are treated in the same way. It should be observed, however, that in none of these examples is the secret of scale—namely, the subordination of parts and gradation of dimension—entirely omitted, though it is not applied by means of architectural accessories. The colossi are surrounded by smaller figures of nymphs and divinities, and the sphinxes and caryatid figures have hieroglyphics and incised ornaments upon the square plinths, which assist materially in giving importance to the principal object.

St. Sernin, Toulouse.

The most noble monument of Romanesque art in Toulouse—and, indeed, of the South of France—is the celebrated church of St. Sernin. It is built of brick and stone, as a three-aisled Latin cross basilica, with a semicircular apse and five apsidal chapels. There is a west entrance, with two north and two south ones. The general character is large and massive, the ornament pure and good Romanesque, and the brickwork very careful, judiciously relieved by courses and dressings of warm-coloured stone. The whole is surmounted by a peculiarly fine brick tower of five tiers of arcades, with which we are so familiar through engravings and photographs. The church is stated to have been finished and consecrated A.D. 1090. The best sculpture is to be found on the doorway, and the south porch (nave entrance) is an excellent example. The cornice of the projecting wall shows the peculiar ornament and patera of Nîmes Cathedral, combined with the brackets of Notre-Dame du Port, at Clermont. The archway is semicircular, and in the centre is the Saviour in glory, attendant seraphim and angels, and the twelve apostles beneath. The angle corbels of doorway are formed by David seated on a lion's back playing the viol, on one side; on the other, two men seated cross-legged and caressing lions. The capitals of the columns are carved with subjects from the life of the Saviour, monsters, foliage, &c. There are two columns

on each side; the mouldings are the plain, hollow and round; the corbels of the cornice show in succession a monkey with a lion's head in his paws, a bunch of grapes, a lion, a monster vomiting his own legs, a young woman's head with wild dishevelled hair, a matron hooded, a goat, and an animal too much broken to be made out. It would be difficult to explain the two saints carved on each side of the portal with allegorical sculpture above and beneath. But however interesting the exterior may be, the interior is equally remarkable, and the marble slabs of the Saviour and the Apostles on the choir wall, stated to be saved from the old church built by Charlemagne, particularly merit notice.

Kant and Art.

"Nature was found beautiful," says Kant, "when it looked at the same time as if it were art; and art can only be called beautiful if we are conscious that it is art, and it yet appears to us as if it were nature." The words hint, but scarcely express, the relation between the beauty of nature and the beauty of art. Kant, while contending that an interest in the beauties of art is no evidence of an attachment to moral goodness, declares that it is always a sign of inward loveliness to take an habitual and immediate interest in the beautiful forms of nature. But the reason of the distinction is not germane to the matter, for the superiority of the taste for natural beauty is merely founded on the circumstance that, by showing itself where there is no admixture of social and other extraneous interests, it displays more unequivocally the susceptibility to beauty for its own sake. And we may therefore, as Kant seems to imply, consult the analysis of the conditions of art production to throw some light on the beauty of nature. Whereas taste, or the faculty of æsthetic criticism, only contains part of the secret, genius, or the faculty of æsthetic production, gives the true key. Art realises the beauty of nature.

German Sculpture.

When from the primordial moulds of architecture, that mould which is common both to painting and sculpture, there issued the statue, the living figure complete in itself, an event took place in the world of art similar to that which was witnessed in the world of reality, when man, free and master of himself, emerged from the bosom of nature. In the one as in the other creation, form, in the highest degree of abstraction and power, disengaged itself from the envelope of matter and the vague depths of space. Painting, which is the common offspring of architecture and sculpture, is involved in relations more complex, and has ever remained in a state of dependence, which the fictions of art have been unable to conceal. Now sculpture being, of all others, the art of form, has, for this very reason, always been difficult of access to the German race. We may account for this, compendiously, but not the less truly, by observing that the Teutonic migration was accompanied by the system of Oriental pantheism—a system which, in multiplied diversities of form, and varying with every phase of human circumstance, is peculiar to the German mind, and seems destined to reappear at the completion of each cycle in its intellectual existence. This system merges all distinctions of form in the mysteries of a unity eternally changing and eternally persisting. The monuments that have been bequeathed to Germany by the remoter epochs of the Middle Ages show no traces of national sculpture capable of rivalling the originality or power the schools of painting that then flourished in that country. The sculpture of the Byzantines, that of the French, that of the Italians, each in its turn, has exercised an influence almost sovereign over the ancient conaternities of German artists. The revival, indeed, gave to some of those who succeeded the ancient statuary a certain particularity of character; but it was not national, and the artists themselves remained, in their sphere, far behind their countrymen who achieved immortality by labours of the pencil. Looking, then, at what was done of old, the conclusion would be irresistible that a German sculptor will have more trouble in overcoming the difficulties of his art and gaining celebrity than will a German painter not his superior in talent.

Architectural Taste.

The taste intellectual as well as the taste organic is more materially affected by habit than perhaps by any other agency, and habit in this instance is only another word for association. The palate may be trained to a relish of the most nauseous substances, as every one must know who has had the resolution to overcome a quid of tobacco. The Greenlander is in like manner brought to relish a feast of train-oil, though he probably could turn with aversion from the choicest of our viands. As it is in the physical so it is in the spiritual man, for here, as rarely, taste may be elevated or degraded by the nature of the culture it may happen to receive. Some men there are whose æsthetic taste has been so quickened by use, or, in other words, by cultivation, that they are enabled to detect the minutest differences between the most nearly identical flavours—such, for example, as the wine of different vintages, and the quantity

of tea of one particular kind in a mixture of different samples. In literature, again, and indeed in the whole of the fine arts, a similar delicacy of taste or rather of perception, is occasionally to be met with; and those powers, which to ordinary observers appear well nigh miraculous, are traceable altogether to a careful cultivation. A taste in architecture is to be acquired by the same arduous and persevering toil as a taste in more vulgar things, and there is no man, if his heart be only warm and his intelligence of ordinary quality, who, if he only resolve, may not arrive at a fine taste in the particular walk in which he aspires to renown.

Roman Roads.

Vitruvius does not disdain to give directions for making roads; he recommends that the engineer should choose solid ground and level it, and upon this lay his first covering, and that if there be any looseness in the soil he must consolidate it by means of wooden piles, "*Fistucationibus cum magnâ curâ solidetur.*" We should hardly imagine that this is a subject for poetry, but yet it is from a passage in the poet Statius that we chiefly learn how a road was commenced. First they cut two parallel furrows, to indicate the width of the road, and then they cut down between those until they came to the hard bottom, and then began the levelling. As the construction proceeded the road assumed a slight convex shape; the middle or top was called the *dorsum*, or backbone of the way, or, as it is called in Virgil, "*in aggere viæ*;" roads that were left in the rough material were said to be "*munite*," but when covered with rough polygonal blocks it was a "*via strata*," from whence is derived the Italian "*strada*." Specimens of this "*opus stratum*" are still existing on the *Via Ostiensis* and the *Via Appia*, in the neighbourhood of Rome, but a piece in the best preservation is on the *Via Albana*, the triumphal way that led up to the Temple of Jupiter Latialis, on the Alban Mount; the letters V.N (*Via Numinis*) may still be read upon this pavement, which has kept its place for near 2,000 years. All these remains, and many others that might be enumerated about the hills of Frascati, Præneste and Tivoli are of the same description, being composed of large polygonal blocks of basaltic lava, found in many places near Rome, particularly in the quarries near the Lake Regillus, under the Capuchin convent, near Bovillæ, also near the sepulchre of Cecilia Metella. This sort of stone was called by the ancient Romans "*silex*," or "*lapis siliceus*," and the places where it was got were called "*lapidicina siliceæ*." The Roman *viæ* were edged by a step on each side; these were called *crepidines*, margins or umbones; they were about 9 inches in elevation. The other materials used in roads were a mixture of broken fragments of all sorts, called "*rudus*," which we should call in plain English, rubbish; *terra-cotta*, called *testa*; and that most plentiful of materials used in the works of Rome, *tufa*.



Liverpool Cathedral.

SIR,—The thanks of the entire body of architects are due to the Press for its powerful help in the cause of architecture generally, even more than in that of the Liverpool Cathedral in particular. By opening its columns to a discussion of the original conditions of competition issued by the Liverpool Cathedral committee, and to the protests made by architects against the committee's claim to prevent freedom of thought and expression amongst those who should submit designs for the cathedral, it has done much to obtain a better appreciation of architecture. The withdrawal by the Liverpool Cathedral committee of their first conditions of competition, and the issue by them of amended conditions wherein the word "*Gothic*" is omitted, is a great act of moral courage, which will have far reaching effects. Indeed, it would not be surprising if, from that act of the cathedral committee, there should date a very general recognition of what architecture truly is, viz. the art of building, not the science of reproduction.

But the committee must take a further step if the Liverpool Cathedral is to be all that it might be. They must, in fact, boldly abandon all idea of using the cheap and makeshift site of St James's Mount, and they must stake their all upon the site first selected, viz. that of Monument Place. They are already possessed of sufficient funds to secure the latter site, even if not to also commence building operations; but even as a magnificent site would inspire architects to magnificent architecture, so would it inspire those to do so who are able to provide the means for its realisation.

The relative merits of the two sites are well understood in Liverpool, and, as they were referred to in my letter in the *Times* of the 8th ult., it is unnecessary for me to add references

thereto. But that a very strong opinion is rapidly growing throughout the country, as well as in Liverpool, in favour of the adoption of Monument Place site there is no doubt whatever, and the cathedral committee must be fully aware that such is the fact from the practical cessation of contributions towards their St. James's Mount site scheme. The committee would therefore only be far-seeing and wise to note the trend of popular opinion, and to launch a new and bolder scheme without delay. It would perhaps require some greater moral courage than the committee have already evinced to issue further amended conditions of competition; but the success of the competition nevertheless demands that even this step should be taken, as an analysis of the existing position will show. For under the present conditions there will be held a competition for a cathedral to be erected upon an unknown site, upon unknown foundations, with unknown levels to be dealt with, and for unknown accommodation. And the drawings in explanation thereof may be working drawings or mere sketches; may be drawn to various scales or not to scale; may be in ink or pencil, coloured or uncoloured, and may be further illustrated by perspective views or by photographs, and, moreover, the designs may represent ideals or accomplished facts. From this heterogeneous mass of information, to which the whole world is permitted to contribute, the cathedral committee undertake to decide which of the competitors, whether one or more, is to be adjudged by them worthy to submit further designs for the cathedral. And the committee will pay the sum of three hundred guineas to one or more competitors, if they decide to hold a second competition, for work which, if it is to be efficiently performed, would involve an expenditure by each competitor of from eighteen months to two years of time and thought and some 500*l.* to 600*l.* of expenses. Surely it must be very obvious that such a form of competition will not only fail to call forth the best possible design, but will also result in a hopeless imbroglio, from which even their professional advisers would be quite powerless to extricate the committee.—I am, Sir, your obedient servant,

T. MYDDELTON SHALLCROSS.

6 Dale Street, Liverpool:
November 8, 1901.

The Date in Roman Characters.

SIR,—There seems to be no general consent as to how to express the present year of grace.

On clocks and watches we see IIII written for four, but I have seen an early Florentine mosaic picture on which is a clock dial for six hours only, and on that four is expressed by IV; the present method may be due therefore to the convenience of teaching children the time or to having a balance to the 8 opposite.

Nowhere else are four indicators used. VIII, LXXX, DCCC may each express the power of nine, but the Roman method was IX, XC, and presumably CM for these.

For nearly two years now MCM or MCMI has been the reasonable Roman method of expressing the year current, and it is confirmed by penny table-books, and at my instigation was cut in stone, although, sad to relate, the chairman of committee thought it must be wrong because he did not understand its signification, and asked, "What does it mean?"

MDCCCLXXXVIII, for 1888, takes 13 indicators; when another unit was added IX represented it, and later XC disposed of the L, and now that another century is turned the indication of fifth power disappears. In 2888 they will all be back again. There is no law to compel any to use Roman indicators, but it must be bad antiquarianism to use them otherwise than in the Roman method.—Yours faithfully,

H. W.

Re Broad Street Place.

SIR,—As the architect for the new building on this site, I have read with much interest the letter of your correspondent, Mr. Funston, in your last week's issue, but fear he has misread the third paragraph in the description given on October 18, which does not suggest that previous to 1817-20 there was any building on the site. In fact, I have in my office evidences of the marsh ground which have been recently brought to the surface, together with a map one hundred years old showing the open space. The object of the paragraph in question is simply to endeavour to trace, if possible, the previous home of the Catholic community before it settled at St. Mary's.

The other statements referred to are extracted from a treatise by the Rev. William Fleming, who resided in the house adjoining the chapel. I was fortunate enough to obtain a copy of this small pamphlet at St. Mary's, and I considered that that gentleman could be relied upon in compiling a history of his own church and its site. He distinctly states on page 5 that the Moorfields congregation met in "a large house in White Street (where the present City of London College stands) from 1780-1820," and not in "a chapel in White Street," as your correspondent suggests, and on the same page Mr. Fleming affirms that the site was purchased from the

Fishmongers' Company as a result of subscriptions in response to a circular dated June 20, 1816, issued by the rector, the Rev. Joseph Hunt, and no mention is made of the Corporation as the vendor.

Your readers must, nevertheless, thank Mr. Funston for kindly going to the trouble of investigating these little points affecting so important a site, and I am now informed that he is correct in saying the new chapel is not in Ropemaker Street but in Eldon Street.—Yours faithfully,

G. D. MARTIN.

3 Pall Mall East, S.W.: November 13, 1901.

GENERAL.

The First Ordinary Meeting of the Society of Architects fixed for Thursday, November 21, is unavoidably postponed to Thursday, November 28, at 8 P.M., when the president, Mr. Silvanus Trevail, F.R.I.B.A., will give his inaugural address.

The New Students of the French school at Athens were invited by M. Loubet to a déjeuner at the Elysée prior to their departure.

The Corner-stone has been laid of a new church at Peter sham Lodge, to be erected at a cost of 10,000*l.*, with seating accommodation for 600 people. The building is Romanesque in style, with a nave, two aisles and a tower. The architect is Mr. John Kelly.

Mr. Fredk. Bristowe, engineer, announces that his present address is Albany Buildings, 47 Victoria Street, S.W.

The Great Pyramid will probably be reproduced at the St. Louis Exposition. It is declared that the structure could be duplicated with a steel framework and stiff covering at comparatively small expense.

The Nave of St. John's Church, Gainsborough, Lincolnshire, is to be lengthened by three bays, the cost being estimated at over 2,000*l.*

The Liverpool Architectural Society will hold the first members' meeting of the session on Monday in the Free Library, William Brown Street, by permission of the city librarian, when the valuable collection of books on architectural subjects will be on view.

The Berlin Municipal Council have rejected a proposal that the Council should build dwelling-houses for the officials and workmen in its employ, as also a proposal to establish a municipal bureau for furnishing information as to suitable dwellings free of charge.

The Windsor Rural District Council claim to have jurisdiction over the new stands on the Ascot racecourse and buildings on Crown land, except those for the use of the Royal family.

A Factory in Newcastle has collapsed through the falling in of an old pit shaft which had been covered up and forgotten since 1842.

Sir William Forwood, the chairman of the executive committee of the Liverpool Cathedral, says that the site has been definitely fixed at St. James's Mount, and no alterations will be made. The foundations have been proved, the levels are now being taken, and in due course a plan will be at the disposal of architects.

M. Georges Picard, who has already adorned the cupola of the Galerie Lobau in the Paris Hôtel de Ville, has received a commission for paintings in four of the panels in the gallery.

The London County Council have decided that the name "Little Dorrit's Playground" be applied to the open space at Falcon Court, Southwark, near the site of the Marshalsea Prison.

Mr. Edwin O. Sachs, chairman of the British Fire Prevention Committee, will read a paper on "Fireproof Construction" before the Royal School of Military Engineering at Chatham on November 21, the date being selected as near as possible to the anniversary of the great Cripplegate fire of 1897, which, it will be remembered, took place on the afternoon of November 19. Mr. Ellis Marsland, district surveyor of Camberwell, and chairman of the committee's testing station, has similarly consented to read a paper on the committee's work at Glasgow before the Insurance and Actuarial Society of Glasgow on December 9. Mr. Marsland is the master of the Tylers and Bricklayers' Company for the current year.

At the Monthly Meeting of the Council of the Sanitary Assurance Association held at No. 5 Argyll Place, Regent Street, W., on Monday last, Mr. Andrew Stirling in the chair, the death of General H. K. Burne, C.B., was reported, and the motion of Sir Vincent H. Kennett Barrington, seconded by Mr. W. S. Halsey, and supported by Dr. Willoughby and Mark H. Judge, the following resolution was adopted: "Resolved, that the Council of the Sanitary Assurance Association, recording the death of General H. K. Burne, C.B., desire to acknowledge the services which he rendered to the Association during the seventeen years he was a member of the Executive Council, and the loss the Association has sustained by his lamented death."

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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BARNSELY.—Nov. 22.—Competitive drawings are invited for the adaptation of property situate in Pitt Street, Barnsley, for union and relief offices, &c. A premium of 20*l.* will be awarded for the accepted design. Mr. C. J. Tyas, clerk, 7 and 19 Regent Street, Barnsley.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive designs for laying-out about 12½ acres of land for ornamental grounds. Premium of 20*l.* offered for the selected design. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BEXHILL.—Nov. 23.—The Bexhill Urban District Council invite competitive plans for an isolation hospital. Premium of 50*l.* offered. Mr. E. Sholto Douglas, clerk, Town Hall, Bexhill.

BURSLEM.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded for the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

DARTMOUTH.—Nov. 20.—Plans are invited for offices and dwelling-house, to be erected on the South Embankment, Dartmouth. All particulars may be obtained from the Channel Coaling Co., Ltd.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

KINGSTON-UPON-THAMES.—Nov. 14.—Designs are invited for a new public library. Mr. Harold A. Winsor, town clerk, Kingston-upon-Thames.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

CONTRACTS OPEN.

ALDERSHOT.—Nov. 19.—For repairs to machinery of the steam road-roller. Mr. W. E. Foster, District Council Offices, Aldershot.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ASHTON-UNDER-LYNE.—Nov. 18.—For extension of the mechanics' shop and erection of a new engine and boiler-house. Messrs. Thos. George & Son, architects, Old Square, Ashton-under-Lyne.

ASKAM-IN-FURNESS.—Nov. 23.—For erection of two houses in Dale Street, Askam, Lancs. Mr. Cowley, 10 Marsh Street, Askam-in-Furness.

ASKAM-IN-FURNESS.—Nov. 28.—For erection of new Primitive Methodist Sunday schools, and heating same and existing chapel. Rev. W. Carr, minister, Slater Terrace Dalton-in-Furness.

AYLSHAM.—Dec. 2.—For conversion of dormitories into sick wards at the workhouse at Aylsham, Norfolk, installation of a hot and cold-water supply, heating by hot water, construction of invalids' lift and iron emergency staircase. Mr. John B. Pearce, architect, 15 Upper King Street, Norwich.

BAMBURGH.—Nov. 29.—For erection of new coastguard buildings, consisting of quarters for two men and a look-out house, at Ross Links, near Bamburgh, Northumberland. Particulars may be seen at the Coastguard Station at Bamburgh, and at the Director of Works Department, Admiralty.

BARROW-IN-FURNESS.—Nov. 18.—For erection of a block of five shops and dwelling-houses in Vickerstown, Isle of Walney, Barrow-in-Furness. Plans and specifications can be seen at the offices of the Isle of Walney, Estates Company, Limited, Walney.

BARROW-IN-FURNESS.—For wiring the new technical school for between 500 and 600 lamps. Mr. C. F. Preston, town clerk, Town Hall, Barrow-in-Furness.

BETHNAL GREEN.—Dec. 10.—For water-supply works at the workhouse and for the infirmary, comprising—(1) Enlarging the existing well and lining with iron cylinders; (2) supply

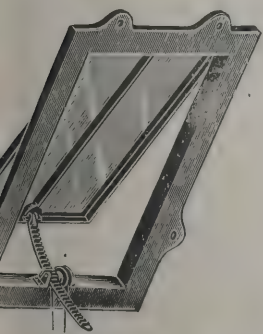


Fig. 9.

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and fixing of two gas-engines and pumping machinery; (3) erection of water-tower; (4) supply and fixing of cast-iron tank, about 70,000 gallons capacity; (5) supply and laying of 6-inch mains, &c. Mr. G. H. Hughes, engineer, 97 Queen Victoria Street, E.C.

BIRKENHEAD.—Dec. 11.—For laying a 14-inch pumping main, spigot and socket, lead joints, from Station Road, Hooton, to the reservoirs on Prenton Hill, Birkenhead, a distance of 6½ miles. Mr. W. Martin Jones, secretary, Cheshire Water Co., 9 Hamilton Square, Birkenhead.

BLACKBURN.—Nov. 18.—For alteration to shed roof at the Witton outlet works. Mr. William Stubbs, borough engineer.

BOLTON.—Nov. 19.—For erection of a cotton and machinery shed and re-erection of a timber gantry at Halliwell goods yard, Bolton, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

BOURNEMOUTH.—Nov. 18.—For erection of engine and boiler-houses and chimney-shaft. Mr. F. W. Lacey, borough engineer, Municipal Offices, Bournemouth.

BRADFORD.—Nov. 19.—For erection of four houses at Great Horton. Mr. Horace E. Priestley, architect, 17 Bertram Road, Manningham, Bradford.

BRENTFORD.—Nov. 20.—For erection of an isolation hospital, with administrative buildings, &c., at Clayponds Lane, Brentford. Mr. Arthur Ramsden, surveyor to the District Council, Town Hall, Chiswick.

BRENTWOOD.—Nov. 20.—For construction of bacteria beds, tanks, engine-house, &c., at the sewage works, Nag's Head Lane, Brook Street, Brentwood, Essex. Mr. Hall Jones, Parliament Mansions, Victoria Street, Westminster.

BRIGHTON.—Nov. 25.—For supply of electricity meters for one year from January 1. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BURY.—Dec. 17.—For construction of sewage-disposal works, comprising circular precipitation tanks, bacteria beds, channels, sludge tank and roads at Livsey Fields. Mr. John Haslam, town clerk, Corporation Offices, Bury.

BURY.—Nov. 18.—For supply and delivery at Bury, Lancashire, of fourteen 69-passenger electric trams and fourteen 48-passenger electric trams. Messrs. Lacey, Clirehugh & Sillar, engineers, 78 King Street, Manchester.

CAMBERWELL.—Dec. 2.—For providing and fixing steam boilers, economiser, feed-water apparatus, steam and condense mains, cold-water storage tank, mains and branches, hot-water storage heater, mains and branches, waste-pipes and branches to slipper-baths, slipper-bath valves and all connections, laundry apparatus and machinery to public and establishment laundry, and heating apparatus, &c., complete, to the new public baths, laundry and library now being erected in Wells Street. Mr. Maurice B. Adams, architect, Clement's House, Clement's Inn Passage, W.C.

CANTERBURY.—Nov. 20.—For erection of three cottages in the Martyrs' Field Road. Mr. A. H. Steele, architect, 1 Effingham Lawn, Folkestone Road, Dover.

CHESTERFIELD.—Dec. 13.—For construction of a storage reservoir upon the Bar Brook, between Totley and Baslow. Mr. R. F. Hartwright, clerk to Rural District Council, Chesterfield.

CLITHEROE.—Nov. 30.—For excavating and building two new settling tanks, with channels, sluice valves, &c., on the sewage farm at Henthorne, Clitheroe, Lancs. Mr. Arthur R. Bleavard, borough surveyor, Church Street, Clitheroe.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

CORNWALL.—Nov. 18.—For erection of school buildings and alterations to chapel premises, reseating, &c., at the Foundry Wesleyan chapel, Hayle. Mr. Sampson Hill, architect, Green Lane, Redruth.

COVENTRY.—Nov. 27.—For supply and erection of a triple-expansion low-speed vertical marine-type engine and a 400-kw. direct-coupled alternator and exciter in one specification. Mr. J. A. Jeckell, Corporation Electricity Works, Coventry.

CROYDON.—Nov. 18.—For construction of an underground electricity sub-station in Addiscombe Grove. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DARLINGTON.—Nov. 20.—For enlargement of the head post office, Darlington. Particulars and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

DARTFORD.—Dec. 3.—For erection of refuse destructor. Mr. W. Harston, surveyor, High Street, Dartford.

DUNGENESS.—Dec. 2.—For erection of a new lighthouse, fog-signal house, &c., at Dungeness. Mr. E. G. Verity, 7 Great Marlborough Street, W.

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EASINGWOLD.—Nov. 21.—For construction of a covered concrete reservoir, holding 120,000 gallons, at Kilburn, Yorks. Mr. F. J. H. Robinson, clerk to the Rural District Council, Easingwold.

EAST BARNET.—Nov. 28.—For erection of a bridge at Cat Hill, East Barnet. Mr. Henry York, surveyor, Station Road, New Barnet.

EGREMONT.—Nov. 21.—For erection of offices for the tramway department, Egremont, Cheshire. Mr. H. W. Cook, clerk to the Urban District Council, Public Offices, Egremont.

EGREMONT.—Nov. 30.—For erection of schools in Main Street, Egremont, Cumberland. Mr. J. S. Moffatt, architect, 53 Church Street, Whitehaven.

EXETER.—Dec. 2.—For erection of a crane at the Basin. Mr. G. R. Shorto, town clerk, 8 Southernhay.

FLEETWOOD.—Nov. 20.—For erection of a pavilion or public shelter, &c. Mr. E. Frobisher, Surveyor's Office, Town Hall, Fleetwood, Lancs.

GREAT BENTLEY.—Nov. 23.—For alterations, repairs, painting, &c., at the Wesleyan chapel, Great Bentley, Essex. Mr. Charles E. Butcher, architect, 3 Queen Street, Colchester.

GREAT BURSTEAD.—Nov. 18.—For construction of a well near the church, Great Burstead, and for construction of a well and providing and fixing a pump thereto at Guivers Corner, Great Burstead, Essex. Mr. H. G. Clark, Wickford.

HALIFAX.—Nov. 20.—For erection of the Golden Lion hotel, with stabling, at Highroad Well, Halifax. Mr. Lister Coates, architect, Yorkshire Bank Chambers, Waterhouse Street.

HALIFAX.—Nov. 21.—For rebuilding of the Ryburndale Paper Mills, Rishworth, near Halifax. Messrs. Richard Horsfall & Son, architects, Commercial Street, Halifax.

HALIFAX.—Nov. 22.—For alterations and additions to Luddenden and District joint hospital, Warley, Halifax. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HALIFAX.—Nov. 30.—For erection of a Liberal club and hall at Ripponden, near Halifax. Mr. W. Clement Williams, architect, 29 Southgate.

HALIFAX.—Nov. 30.—For erection of an infants' school at Haugh Shaw, Halifax. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

HAYLE.—Nov. 18.—For erection of new school buildings and alterations to chapel premises, reseating, &c., at the

Foundry Wesleyan chapel, Hayle, Cornwall. Mr. Sampson Hill, architect, Green Lane, Redruth.

HEBDEN BRIDGE.—Nov. 18.—For erection of the New Woodman inn, Charlestown, Hebdon Bridge. Mr. W. H. D. Horsfall, architect, Tower Chambers, Halifax.

HORWICH.—Nov. 25.—For erection of an infectious diseases hospital in Fall Birch Lane, Horwich, Lancs. Messrs. Cressey & Keighley, architects, Morecambe.

HOUNSLOW.—Nov. 18.—For erection of twenty-two houses for the working classes. Mr. P. G. Parkman, A.M.I.C.E., surveyor to the Council, Town Hall, Hounslow.

HULL.—Nov. 28.—For supply of six rotary transformers for continuous-current transformation, 2,000 volts to 220 volts, 90 kw. each. Mr. T. G. Milner, city treasurer, Town Hall, Hull.

HULL.—Dec. 6.—For construction of a dock having a water area of about 50 acres, with lock and entrance from the river Humber, river embankments, drains, outfalls, &c. Sir John Wolfe Barry & Partners, 21 Delahay Street, Westminster.

ILLOGAN.—Nov. 30.—For erection of the proposed girls' school at Illogan Churchtown, Cornwall. Mr. Sampson Hill, architect, Green Lane, Redruth.

IRELAND.—Nov. 18.—For erection of monastic dwellings and intermediate and technical schools in the grounds attached to St. Michael's schools, Enniskillen. The Rev. Brother Superior, St. Michael's Schools, Enniskillen.

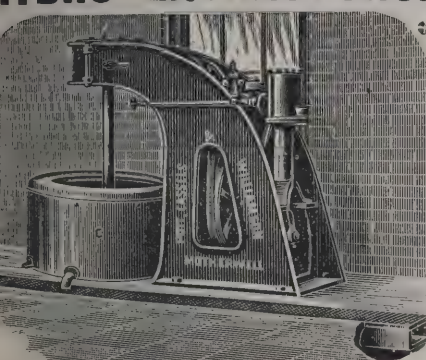
IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

ISLINGTON.—Nov. 26.—For supply of electric-lamp columns, complete with crutches and bases of similar pattern to those now in use in the borough. Mr. W. F. Dewey, town clerk, Town Hall, Upper Street, N.

KETERING.—Nov. 19.—For construction of storage reservoir, excavating about 2,500 yards for water mains, supplying and fixing wind-engine and pumps, and about 2,500 yards of 3-inch cast-iron pipes, with hydrants, valves, surface boxes, &c. Mr. H. Norwood, surveyor, 11 Bowling Green Avenue, Kettering.

KETERING.—Nov. 25.—For extension of the east and west outfall sewers and for alterations to flushing chambers on the town sewers. Mr. T. R. Smith, surveyor, Market Place, Kettering.

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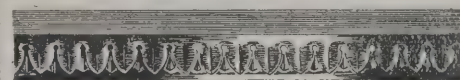
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KEW.—Nov. 20.—For erection of a new wing to the herbarium at Kew Gardens. Drawings, specification, &c., may be seen on application at H.M. Office of Works, &c., Storey's Gate, S.W.

LANCASTER.—Nov. 19.—For erection of a water-tower at the electricity station, Marton Street. Mr. T. Cann Hughes, town clerk, Town Hall, Lancaster.

LANCASTER.—Nov. 21.—For erection of a steel or iron-framed car-shed, 100 feet by 45 feet, covered with corrugated galvanised iron. Mr. T. Cann Hughes, town clerk, Town Hall, Lancaster.

LEEDS.—For rebuilding the Garden Gate inn, Waterloo Road, Hunslet. Mr. W. Mason Coggill, architect, Beech Grove, Stourton.

LEEDS.—Nov. 18.—For erection of an engine-house, stabling and boundary wall at the central fire station, Park Street. Mr. Percy Robinson, architect, 72 Albion Street Leeds.

LEEDS.—Nov. 23.—For erection of the free library at the junction of Nineveh Road and Marshall Street, Holbeck. Mr. William Bakewell, architect, 38 Park Square, Leeds.

LEEDS.—Nov. 18.—For alterations to old hospital at the workhouse, Hill Top, Armley. Messrs. Beckwith & Webster, architects, 2 Basinghall Square, Leeds.

LISCARD.—Nov. 18.—For extension and alterations at the infectious diseases hospital, Mill Lane, Liscard, Cheshire. Mr. W. H. Travers, surveyor, Public Offices, Egremont, Cheshire.

LISCARD.—Nov. 21.—For wiring and fitting for an electrical supply, situate in Seaview Road, Liscard, Cheshire. Mr. J. H. Crowther, electrical engineer, Great Float, near Birkenhead.

LITTLEBOROUGH.—Nov. 18.—For erection of the new Central Board school, Littleborough, Lancs. Messrs. Butterworth & Duncan, architects, South Parade, Rochdale.

LIVERPOOL.—Nov. 25.—For overhead electrical equipment of tramway lines and car depôt. Messrs. Kincaid, Waller & Manville, consulting engineers, 29 Great George Street, Westminster.

MANCHESTER.—Nov. 18.—For erection of engine and boiler-houses of the Stuart Street generating station. Mr.

F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Nov. 18.—For erection of an electricity sub-station at Levenshulme, Manchester. Particulars may be obtained at the office of the City Surveyor, Town Hall.

MANCHESTER.—Nov. 20.—For erection of an electricity sub-station at Hyde Road, Denton. The City Surveyor, Town Hall, Manchester.

MANCHESTER.—Nov. 20.—For erection of an electricity sub-station at Heaton Norris. Particulars can be obtained at the office of the City Surveyor, Town Hall, Manchester.

MIDDLESBROUGH.—Nov. 25.—For erection of a county court at Middlesbrough. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, London, S.W.

MIDDLESBROUGH.—Nov. 18.—For erection of a brick annexe in connection with the iron buildings, together with the hot and cold water supply, at the small-pox hospital, Hemlington. Particulars may be obtained at the Borough Engineer's office.

MIDDLESBROUGH.—Nov. 18.—For erection of a museum building adjoining the main entrance of the Albert Park. Mr. J. Mitchell Bottomley, architect, 28 Albert Road, Middlesbrough.

NATAL.—For construction of Durban Pier, Natal, South Africa. Mr. R. St. George Moore, 17 Victoria Street, S.W.

NELSON.—Nov. 28.—For construction of a storage reservoir to hold 160,000,000 gallons in Ogden Valley, Nelson, Lancs. Messrs. John Newton, Son & Bayley, engineers, 17 Cooper Street, Manchester.

OXFORD.—Nov. 25.—For additions to the Littlemore Asylum, near Oxford. Names to be sent before 25th inst. to the county surveyor, Oxford.

RAMSEY.—Nov. 18.—For alterations and additions to the schools at Forty-Foot, Ramsey, Hunts. Mr. J. G. Stallebrass, architect, North Street, Peterborough.

ROTHERHAM.—Nov. 18.—For repair of the roof of the market hall. Mr. H. Hampton Copnall, town clerk, Town Hall, Rotherham.

ROTHERHAM.—Nov. 19.—For supply and delivery of pumping machinery at Swinton. Mr. R. Fowler, surveyor, Council Offices, Swinton.

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RUGBY.—Nov. 20.—For construction of a culvert on the river Avon at Brownover Mill Road. Mr. D. G. Macdonald, surveyor to the Council, Rugby.

SCOTLAND.—Nov. 16.—For alterations to the farm offices at South Littlehill, Aberdeen. Messrs. Davidson & Garden, 12 Dee Street, Aberdeen.

SCOTLAND.—Nov. 18.—For constructing a storage reservoir, with relative works, on the Pinnacher Burn, and for providing and laying about 1½ mile of cast-iron piping between Glendrishaig and Pinnacher reservoirs, Girvan. Mr. James Smith, town clerk, Girvan.

SCOTLAND.—Nov. 18.—For erection of a children's block at Merryflatts poorhouse, Govan, Glasgow. Mr. Barclay, architect, 245 St Vincent Street, Glasgow.

SCOTLAND.—Nov. 20.—For erection of a school at Crookston, Inveresk. Mr. Constable, architect, 3 Hill Street, Edinburgh.

SCOTLAND.—Nov. 23.—For erection of waiting-room and workman's house at the Lightburn joint hospital, Shettleston. Mr. Alexander Cullen, architect, Brandon Chambers, Hamilton.

SCOTLAND.—Nov. 26.—For supply and erection of overhead linework, the supply and laying of cables and the bonding of rails (bonds supplied by the Corporation) for the equipment of the Union Street and Holburn Street, Glasgow, tramways. Mr. J. Alex. Bell, city electrical engineer, Cotton Street, Aberdeen.

SCOTLAND.—Nov. 26.—For erection of warehouses and other buildings in Nelson Street and Bell Street, Glasgow. Messrs. Thomson & Sandilands, architects, 241 West George Street, Glasgow.

SCOTLAND.—Nov. 28.—For construction of an embankment and relative works for forming a reservoir in Barr Wood in the parish of St. Ninians, Stirlingshire. Messrs. Crouch & Hogg, 53 Bothwell Street, Glasgow.

SHEFFIELD.—Nov. 28.—For erection of stabling, &c., Winter Street hospital, Sheffield. Mr. C. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHOREDITCH.—Dec. 3.—For boring an artesian well at the public baths, Pitfield Street, N., and providing a pump for same. Mr. H. Mansfield Robinson, town clerk, Town Hall, Old Street, E.C.

SPILSBY.—Nov. 18.—For laying-out ground and erection of chapel, fence, walls and iron palisading and gates in the new

cemetery at Friskney, Lincoln. Mr. J. E. Butcher, district surveyor, Spilsby.

STAFFORD.—Nov. 21.—For mechanical engineering work in connection with the pumping machinery at the pumping station at Milford. Mr. W. Blackshaw, borough engineer, Borough Hall, Stafford.

STOCKPORT.—Nov. 18.—For construction of a new bakery at the workhouse, Shaw Heath. Messrs. James Hunt & Son, architects, 4 Warren Street, Stockport.

STOKE NEWINGTON.—Nov. 18.—For supplying and laying a system of electric-lighting cables. Mr. W. F. Loveday, borough surveyor, Council Offices, Milton Road, Stoke Newington.

SWINDON.—Nov. 23.—For construction at the gasworks, Gorse Hill, Swindon, of a brick gasholder tank, 124 feet 6 inches diameter by 30 feet 9 inches deep. Mr. John J. Jarvis, secretary, Gas Offices, Queen Street, Swindon.

WAKEFIELD.—For erection of six dwelling-houses and a shop, Thorpe Lane, Lofthouse, near Wakefield. Mr. W. Wrigley, architect, 6 Westgate, Wakefield.

WAKEFIELD.—Nov. 20.—For erection of a store at Loft-house, near Wakefield. Mr. John W. Fawcett, 10 Albion Street, Leeds.

WALES.—Nov. 18.—For erection of sixty or more houses at Pontllynn. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—Nov. 19.—For erection of new sliding glazed partitions, new desks and sundry other works at the Garn schools, Blaenavon. Messrs. Lansdowne & Giggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Nov. 20.—For erecting two semi-detached houses in Llandrindod Wells. Mr. E. Peters Morris, architect, Llandrindod Wells.

WALES.—Nov. 22.—For erection of new Wern Board schools, Ystalyfera, and new Ynysymedw infants' Board school, Pontardawe. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALES.—Nov. 22.—For erection of house, out-offices and boundary walls, &c., at Newbridge, near Ruabon. Mr. W. H. Johns, Vroncyssyllte, Llangollen.

WALES.—Nov. 26.—For erection of infirmary, &c., at the workhouse, Swansea. Mr. Llewelyn Jenkins, clerk to Guardians, Union Offices, Alexandra Road, Swansea.

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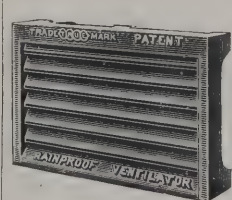
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WALES.—Nov. 26.—For additions and alterations to the Sudbrook Board school, Portskewett. Messrs. Habershon, Fawckner & Groves, architects, Queen's Chambers, High Street, Newport.

WARWICK.—Dec. 5.—For erection of a union infirmary and appurtenant buildings to accommodate 151 inmates and staff at Warwick, and the supply of steam, hot-water, cooking and other apparatus and fittings for the infirmary. Mr. F. P. Trepess, architect, 8 Jury Street, Warwick.

WEST HAM.—Nov. 26.—For erection of thirty-six double-tenement houses for the working classes in Invicta and Rendel Roads, Canning Town, E. Mr. John G. Morley, borough engineer, Town Hall, West Ham, E.

WIMBLEDON.—Nov. 20.—For construction of new concrete sewage precipitation sludge and storm-water tanks, sludge pumps, cast-iron mains, valves, floating arms, penstocks, &c., at the sewage works, Durnsford Road. Plans and specifications can be seen and bill of quantities obtained at the Council Offices, Broadway, Wimbledon.

WINNINGTON.—Nov. 25.—For erection of a caretaker's house at the sewage outfall works at Winnington, Northwich. Messrs. H. Bancroft & Sons, civil engineers, 88 Mosley Street, Manchester.

A SPECIAL meeting of the Blackpool Town Council was held to settle finally the question of widening the Promenade. It was decided a short time ago to widen the Promenade by a hundred feet, and the only other point to be dealt with was that of the style of the hulking. The borough surveyor's report, based on visits he has made to some of the chief seaside resorts of this country and of the Continent, was fully discussed, and, by twenty-nine votes to seven, his recommendation that an upright concave sea-wall be adopted was passed. The contention of the South Shore representatives was that a sloping hulking was the better one for that part of the town. The borough surveyor, however, pointed out that this meant an additional expenditure of 50,000*l.*, besides further encroachment on the sands. The work will be commenced at once. One small section has already been done to the south of the Victoria Pier, with a slight slope. Now the big section between Victoria Pier and Central Pier, over a mile in length, will be put in hand. The chief substance to be used is black basaltic rock from the Rhine valley.

TENDERS.

ABBOTSKERSWELL.

For erection of a house. Mr. S. SEGAR, architect, Union Street, Newton Abbot, Devon. Quantities by architect.

Francis	£525	0	0
F. A. Stacey	479	0	0
Parker Bros.	470	0	0
J. Edwards	455	0	0
F. W. Fey	446	0	0
Burnell & Richards	391	0	0
Albert	375	0	0
YEOMANS BROS., Kingsteignton (accepted)	358	0	0

ANNFIELD PLAIN.

For alteration and extension of the sewage-disposal works at Dipton, Annfield Plain, Durham. Mr. T. J. TROWSDALE, surveyor.

J. Dunn	£267	8	6
S. DART, Percy Terrace (accepted)	232	13	6

For street works at Front Percy and Hawthorn Terraces and Front Meldon and Sycamore Terraces, Annfield Plain, Durham. Mr. T. J. TROWSDALE, surveyor.

S. Dart	£708	19	6
J. DUNN, Langley Terrace (accepted)	717	9	5

ASHTEAD.

For erection of house and entrance lodge and gardener's cottage, Forest Lodge, Ashstead, Surrey. Mr. RICHARD LEE, architect, Great Bookham.

CROPLEY BROS., LTD., Epsom (accepted)	£5,180	0	0
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ASTON MANOR.

For construction of a public urinal to accommodate fourteen persons within the boundary of Aston Park, near Aston Church. Mr. G. H. JACK, surveyor.

Miles & Skinner	£393	0	0
Nicholls & Co.	389	0	0
R. M. Hughes	379	0	0
Curral, Lewis & Martin	377	0	0
T. Johnson	377	0	0
J. E. Williams	375	0	0
W. Lee & Son	370	0	0
Giles & Son	370	0	0
W. Hopkins	365	0	0
G. TRENTAM, Handsworth (accepted)	350	0	0

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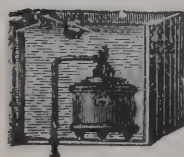
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BARLBY.

For sewerage and sewage-disposal works for the drainage of Barby, Yorks. Mr. E. J. SILCOCK, engineer, 10 Park Row, Leeds.

J. Brunton	£4,760	15	4
Woodall & Woodall	4,187	10	0
Schofield, Sons & Co., Ltd.	3,790	0	0
T. C. Starkey	3,630	3	6
T. Egan & Sons	3,615	4	10
H. ARNOLD & SON, Doncaster (accepted)	3,170	0	0
B. Roberts	2,868	10	11

BEDFORD.

For erection of a washhouse, &c., at the small-pox hospital. Mr. JOHN LUND, borough surveyor.

A. E. Pryer	£242	19	11
T. H. Coleman	232	0	0
B. Litchfield & Son	220	10	0
E. Pacey	213	0	0
S. Freshwater & Son	209	0	0
Jacobs & Burton	208	17	6
J. Corby & Son	205	0	0
Melcombe Bros.	198	0	0
W. LANGTON, Midland Road (accepted)	197	0	0

BISHOP AUCKLAND.

For providing and fixing lamp-stands, with heads and lamps complete, at Valley Terrace, Stable Row, Black Road and John Street, Witton-le-Wear. Mr. O. JOHNSTON, surveyor.

E. Pyle	£37	14	0
H. Foster & Sons	30	0	0
E. Thompson	29	18	0
J. J. SPOOR, South Works, Bishop Auckland (accepted)	29	17	6

For sewerage works at South Church. Mr. C. JOHNSTON, surveyor.

W. Allison	£84	17	0
P. Frater	79	12	6
G. Hetherington	78	14	0
G. H. BELL, Waldron Street, Bishop Auckland (accepted)	67	17	0

BRADFORD.

For erection of a villa residence at Hollingwood Lane, Great Horton, Bradford. Mr. SAM SPENCER, architect, 344 Great Horton Road, Bradford.

Accepted tenders.

O. Booth & Son, mason.
I. Taylor, joiner.
J. Smithies, slater.
J. C. & A. Sunderland, plasterer.
A. & J. Walton, plumber.

BROMLEY.

For drainage works in London Lane, Bromley, Kent.

G. G. Page	£1,734	4	0
Castle & Co.	1,325	15	6
W. H. Wheeler	1,020	9	0
M. Lansbury	995	2	8
H. Woodham & Sons	982	10	4
R. W. Swaker	870	0	0
Lawrence & Thacker, 41 Lavender Gardens, Clapham Common, S.W.*	789	8	7

* Recommended for acceptance

CHELTEMHAM.

For erection of town hall.

King & Sons	£36,489	0	0
Pollard	34,871	0	0
Morris & Son	34,213	0	0
Gibbs	33,200	0	0
W. Jones	33,100	0	0
Patrick, jun.	32,813	0	0
Bloxham	32,800	0	0
Hughes	31,510	0	0
Brood	31,432	0	0
Hodson	31,418	0	0
Parnell & Son	31,220	0	0
Maple & Co.	30,992	0	0
Estcourt	30,905	0	0
Wilcocks & Co.	30,795	0	0
Warburton	29,950	0	0
Bevan	29,820	0	0
Collins & Godfrey	29,310	0	0
Bowers	28,795	0	0
Williamson & Co.	28,379	0	0

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Onslow Gardens.

T. Adams	£3,193	0	0
Practical Landscape Gardening Co.	2,985	0	0
W. H. Wheeler	2,567	0	0
Free & Son	2,510	0	0
W. Langridge	2,488	0	0
C. ILES, Mitcham (accepted)	2,471	0	0
Lawrence & Thacker	2,460	0	0

Springfield Road.

T. Adams	498	0	0
Practical Landscape Gardening Co.	450	0	0
Free & Sons	450	0	0
E. J. Burnand	385	0	0
W. Langridge	371	0	0
W. H. Wheeler	352	0	0
C. ILES (accepted)	318	0	0
Lawrence & Thacker	303	0	0

LELAMERE.

For foundations and basement of main building and nurses' home at the Consumption Sanatorium, Cheshire. Mr. W. CECIL HARDISTY, architect, Manchester. Quantities by Mr. CHARLES JACKSON, Manchester.

Freeman & Co.	£6,145	0	0
Normanton & Son	5,496	0	0
Hamilton & Son	5,247	0	0
W. Healey	5,010	0	0
P. Hodgkinson	4,898	0	0
Parker Bros.	4,853	0	0
Wilson & Toft	4,730	0	0
Neill & Sons	4,660	0	0
J. B. Bury	4,645	0	0
Brown & Son	4,348	0	0
Beckett & Co.	3,862	0	0
Bullivant & Sons	3,791	0	0
GERRARD & SONS (accepted)	3,620	0	0

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United Granite Quarries, Ltd.	£5,219	17	9
W. Carracher	4,161	10	0
J. & J. Neilson	4,147	13	9
J. Leith, jun.	4,009	2	7
J. Swenny	3,993	17	8
J. Martin	3,979	3	8
J. Lester	3,972	6	8
Young & Co.	3,550	10	3
W. R. Gall	3,531	4	3
W. WILSON & Co., 34 West George Street, Glasgow (accepted)	3,434	10	8

Granite.

J. Lester	6,671	5	5
United Granite Quarries, Ltd.	5,856	1	3
J. Martin	5,767	18	9
J. & J. Neilson	5,766	1	6
W. Carracher	5,429	10	0
Young & Co.	5,211	4	10
J. McAdam & Son	5,124	9	6
W. Wilson & Co.	4,918	12	1
J. Leith, jun.	4,897	13	6

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Isler & Co.	£1,400	0	0
Potter & Co.	850	0	0
TILLEY & SONS, Cambridge Road, S.E. (accepted)	785	0	0

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Isler & Co.	740	10	0
Potter & Co.	637	0	0
TILLEY & SONS (accepted)	592	10	0

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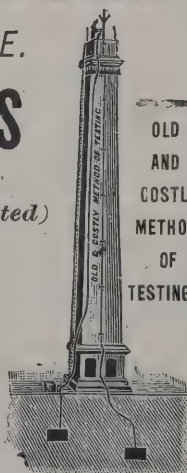
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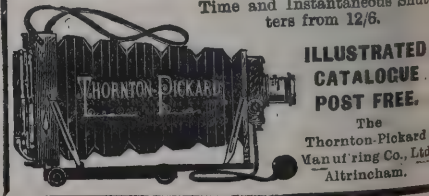
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P. Birch & Sons	£171	0 0
W. Thorley	155	0 0
W. SALT, Ellastone, near Ashbourn (<i>accepted</i>)	150	0 0
FINCHLEY.		
For erection of three shops and premises. Mr. JEN. EVANS, architect, Finchley, N.		
W. TOUT, Hendon (<i>accepted</i>)	£3,543	0 0
GOSPORT		
For constructing the works required in connection with the sewage scheme, for the Urban District Council.		
Hughes & Lancaster	£89,050	0 0
J. & S. Binns	88,212	0 0
John Jackson	87,957	1 5
Underwood Bros.	87,744	0 0
Wilkinson Bros.	86,938	0 0
B. Cooke.	86,750	0 0
Patrick & Co.	85,309	0 0
Grisenthwaite & Newton	83,850	0 0
GEO. OSENTON, Westerham, Kent (<i>accepted</i>)	77,260	0 0
Jones & Sons	69,027	5 6
HOVE.		
For street works in Caburn Road and Rutland Gardens. Mr. H. H. SCOTT, borough surveyor.		
<i>Accepted tenders.</i>		
<i>Rutland Gardens.</i>		
W. A. McKellar, Langdale Road	£1,741	0 0
<i>Caburn Road.</i>		
J. Parsons & Sons, Church Road	293	0 0
ILKLEY.		
For street works in Wilton Road and Princess Road, Ilkley.		
J. MURDOCK, Bridge Lane (<i>accepted</i>)	£749	13 5
IRELAND.		
For alterations and additions to the present fever hospital of the workhouse, Ballymahon.		
T. Duncan	£383	0 0
J. J. Kenny	380	0 0
J. Nugent	338	0 0
M. DALLON, Abbeyshrule (<i>accepted</i>)	275	0 0

IRELAND.—continued.		
For erection of mortuary chapels, caretaker's house, boundary walls, pillars, gates and railings, and for drainage, forming walks and grave spaces, &c., incidental to the laying-out of the new cemetery at Ballycraig, Larne.		
H. Girvan	£3,489	16 0
R. Colwell	3,400	0 0
Higgarty & Gault	3,231	11 0
W. McNEILL, Larne (<i>accepted</i>)	2,414	12 0
For supply of electric plant for the Limerick Corporation electric-lighting scheme.		
Handley & Shanks	£19,265	13 5
Johnson & Phillips	19,153	19 10
W. Coates & Sons, Ltd.	17,597	17 8
Porte, Sykes & Co.	17,590	19 6
British Schuckert Electrical Co., Ltd.	17,203	19 0
Crompton & Co., Ltd.	16,868	10 0
F. Suter & Co.	16,513	6 4
Allgemeine Elektrizitäts-Gesellschaft	16,381	0 0
P. Dillon	16,289	0 0
For supply and delivery of a 10-ton steam road-roller and scarifier attached, for the Limerick Borough Council.		
Marshall & Sons	£571	0 0
C. Burrell & Sons	550	0 0
J. Fowler & Co.	543	0 0
Aveling & Porter	543	0 0
T. Green & Sons, Ltd.	532	10 0
JARROW.		
For supplying twenty-four work-benches for the higher grade manual instruction centre, for the Hedworth, Monkton and Jarrow (U D) School Board.		
Glen & Moffett	£75	0 0
Bennet Furnishing Co.	72	0 0
J. Barrow	67	16 0
NORTH OF ENGLAND SCHOOL FURNISHING CO., 25 Grainger Street West, Newcastle-on-Tyne (<i>accepted</i>)		
Maddison Bros.	63	12 0
	60	0 0
LEWISHAM.		
For painting and repairs to the Forest Hill and Ladywell public baths, for the Lewisham Borough Council.		
J. J. RICHARDS, 9 Shannon Grove, Brixton, S.W. (<i>accepted</i>).		

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LIGHTS MOVED AT WILL
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W. G. Cannon & Sons	£795	0	0
Dargue, Griffiths & Co, Ltd.	765	13	0
Wenham & Waters, Ltd.	708	0	0
J. & F. May	690	0	0
E. Oldroyd & Co. Ltd.	670	0	0
Brightside Foundry and Engineering Co., Ltd.	669	0	0
G & E. Bradley	615	0	0
T. S. Knight & Sons	594	0	0
J. C. Christie	555	0	0
M. Duffield & Sons	500	0	0
J. Defries & Sons, Ltd.*	490	10	0

For improvements, Alexis Street.

McCormick & Sons	£13,786	0	0
F. & H. F. Higgs	13,649	0	0
W. Downs	13,386	0	0
J. Marsland & Sons	13,035	0	0
J. Chessum & Sons	12,999	2	0
Clarke & Bracey	12,583	0	0
Treasure & Son*	12,188	0	0
T. L. Green	11,292	0	0

For providing and fixing fittings in science room, P.T. centre, Sumner Avenue.

H. Bouneau	£190	0	0
E. Spencer & Co.	175	0	0
G. M. Hammer & Co., Ltd.	163	0	0
General Builders, Ltd.	149	0	0
London School Furniture Co.*	120	6	0

For providing a cupboard and converting a single desk into a double desk, I.S. Department, Head Offices.

E. Spencer & Co.	£112	19	4
H. Bouneau	105	0	0
T. Cruwys	94	0	0
G. M. Hammer & Co., Ltd.	92	0	0
London School Furniture Co.	65	9	0
Wake & Dean, Ltd.*	61	10	0

* Recommended for acceptance.

LEEDS.

For extension of the Burmantofts carshed.

All trades except Smith and Ironfounder.

W. H. Denis & Co, Skinner Lane £2,299 5 0

Smith and Ironfounder.

W. Horsfall & Co., Camp Road 280 3 4

LONDON.

For supply of electrical plant in connection with the reconstruction for electrical traction of the tramways between Westminster and Tooting, &c.

A.—Continuous-current plant.

	Highest.	Lowest.
Allgemeine Elektrizitäts-Gesellschaft	£34,655	£26,890
Bergtheil & Young	37,887	30,574
British Schuckert Electric Co.	34,012	26,211
British Thomson-Houston Co.	34,577	29,385
British Westinghouse Co.	39,593	29,335
Brown, Boveri & Co.	—	36,201
Brush Co.	36,310	31,355
S. Buckley & Co.	36,172	29,369
V. Coates & Co.	38,820	37,020
Crompton & Co.	34,726	30,160
DICK, KERR & Co. (accepted)	35,064	25,964
Electric Construction Co.	38,279	29,618
Electric Traction Co.	35,665	31,764
Electrical Co.	34,936	30,266
Fairburn, Lawson, Combe, Barbour	31,612	29,779
Ferranti	30,290	26,673
General Electric Co.	48,257	31,763
Greenwood & Batley	33,705	33,271
Helios Electrical Co.	29,487	27,211
International Electrical Engineering Co.	31,210	24,525
Lahmeyer Electrical Co.	46,269	26,850
Markham & Co.	—	30,686
Mather & Platt	36,195	28,977
C. A. Parsons & Co.	—	29,589
Siemens, Bros. & Co.	50,770	31,385
D. Stewart & Co.	31,667	28,392
Thames Ironworks Co.	34,578	33,638
Wallsend Slipway & Engineering Co.	35,684	31,699
Witting Bros. & Co.	33,598	29,236

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FOUNTAINHALL CHURCH, MAYFIELD, EDINBURGH.

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LONDON—continued.

B.—Three-phase plant.

Allgemeine Elektrizitäts-Gesellschaft	£52,226	£40,916
British Schuckert Co.	46 369	39,423
British Thomson-Houston Co.	55,086	50,931
Ditto (not to specification)	—	46,215
British Westinghouse Co.	58,594	49,555
Ditto (not to specification)	52,971	43,931
Brown, Boveri & Co.	51,278	45,647
Brush Co.	—	63,259
Ditto (not to specification)	—	64,569
S. Buckley & Co.	48,633	42,127
DICK, KERR & CO (accepted)	55,570	46,625
Electric Construction Co.	61,260	58,175
Electrical Co.	48,562	43,956
Ferranti	55,808	51,048
General Electric Co.	60,639	45,425
Helios Electrical Co.	41,774	40,095
International Electrical Engineering Co.	46,160	38,006
Johnson & Phillips	—	53,220
Lahmeyer Electrical Co.	64,363	45,835
C. A. Parsons & Co.	49,901	48,481
Siemens Bros. & Co.	63,455	45,725
D Stewart & Co.	54,041	53,751
Wallsend Slipway & Engineering Co.	63,051	45,206
Witting Bros & Co.	48,660	44,284
Yates & Thom	—	50,635

NORWICH.

For street works in Denbigh, Swansea, and Cardiff roads and
back passage between Stacy Road and Magpie Road.
CUTLER, HAYWOOD & CO., Kessingland, near
Lowestoft (accepted) £1,672 10 4

PECKHAM.

For additions and alterations to laundry premises in rear of
16 and 18 Queen's Road. Mr. A. E. MULLINS, architect,
16 Church Street, Camberwell Green, S.E.

Burman & Sons	£1,205	0	0
Balaam Bros.	1,190	0	0
G. Parker	1,025	0	0

For erection of a receiving-house and cottages for children on
the Newlands, Peckham Rye. Mr. A. E. MULLINS, archi-
tect, 16 Church Street, Camberwell Green, S.E.

Foster Bros.	£14,882	0	0
Holliday & Greenwood	13,735	0	0
G. Parker	13,480	0	0
W. Reason	13,463	0	0
Burman & Sons	13,200	0	0
Parnell & Co.	13,059	0	0
T. J. Sharpington	12,998	0	0
J. R. Tomkins	12,836	11	7
Gibb & Co.	12,709	0	0
Courtenay & Fairbairn	12,599	0	0
C. Ansell	12,500	0	0
H. L. Holloway	12,442	0	0
W. V. Goad	12,385	0	0
Balaam Bros.	12,112	0	0

REIGATE.

For construction of a new road, 40 feet wide and 350 yards in
length, in the Castle Field. Mr. FRED. T. CLAYTON,
borough surveyor.

Streeter Bros.	£3,131	0	0
W. H. Wheeler.	2,844	0	0
W. & O. French	2,764	0	0
Lawrence & Thacker	2,732	5	7
S. Kavanagh	2,662	9	0
D. Pitt	2,453	13	6
W. HICKINBOTTOM, Redhill (accepted)	2,365	5	0

WASHINGTON.

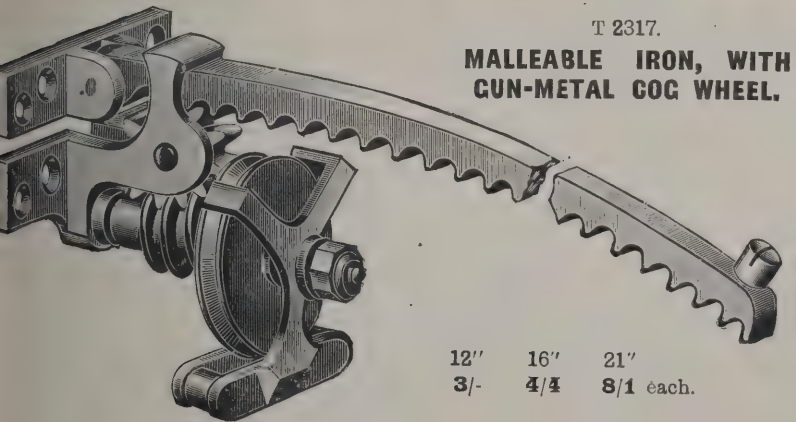
For alterations to the Railway tavern, Washington,
co. Durham.

G. E. Manners	£1,023	0	0
T. Thompson & Son	994	0	0
S. Sheriff	975	0	0
Woodall & Wilson	923	0	0
T & J White	889	0	0
T. ROBINSON, Washington (accepted)	793	0	0

TONKS, Ltd.

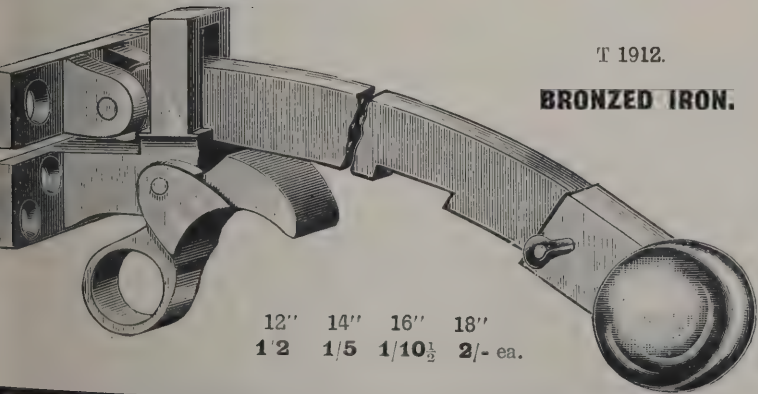


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and Securely Fastening
Fanlights, Hoppers,
&c.

NEW CATALOGUES.

MR. VINCENT ROBERTS, of Cherry Row, Leeds, sends us an excellently turned out illustrated and priced catalogue of the various boilers, radiators and appliances of which he makes a specialty. The book, which is handsomely bound and printed on very high grade paper, contains, in addition to the useful information alluded to, some interesting photographic views of Mr. Roberts's offices and extensive works, and of public and private buildings in which his heating apparatus has been installed.

A HANDSOMELY illustrated catalogue of ornamental glass which we have received from Messrs. O. C. Hawkes, Ltd., contains a large and varied selection of suggestive designs for all classes of Ecclesiastical and Domestic stained-glass work, French and English embossed glass, French embossed and brilliant cut glass, &c. Many of the designs, of which there are some hundreds, are reproduced in chromo-lithography, with highly satisfactory and artistic results. In addition to the Ecclesiastical and Domestic work shown, some excellent specimens of business labels, fascias and letters are given, with their respective prices.

IN a series of four catalogues issued by Messrs. Robert Boyle & Son, Ltd., of 64 Holborn Viaduct, their system of ventilation as applied respectively to hospitals and asylums, churches, schools and domestic purposes, is fully and lucidly described in its latest developments. This system as applied to buildings consists of Boyle's patent self-acting air-pump ventilator, for which it is claimed that it removes the pressure of the external air from the top of the outlet shaft, and creates under every condition of the weather a continuous and powerful exhaust at the higher parts of the building; combined with Boyle's improved air-inlets fixed at the lower levels, admitting the air directly through the walls in an upward direction at a low velocity, purified and warmed or cooled as required, insuring a constant change of air and perfect diffusion of the fresh air supply in strict accordance with the natural laws which govern ventilation.

PRINCESS CHRISTIAN visited Leatherhead on Wednesday for the purpose of laying the foundation-stone of a new School for the Indigent Blind, which is to replace the old institution in Southwark.

TRADE NOTES.

THE new cottage hospital, Cranleigh, is being warmed and ventilated by means of Shorland's patent Manchester stoves and grates, by Messrs. E. H. Shorland & Brother, of Manchester.

MESSRS. COUSLAND & MACKAY, ventilating engineers, 150 Hope Street, Glasgow, are carrying out the ventilation of the combination poorhouse, Hamilton, by means of Mackay's patent direct-acting ventilators, of which they are the sole makers.

THE warming of the new Stratten Hall, Hull, is to be by Spencer's patent "Ventilo" radiators, of which the patentee and sole maker is W. F. Spencer, Cross Bank Works, Oldham, and 145 Queen Victoria Street, E.C., who is installing the apparatus.

ELECTRIC NOTES.

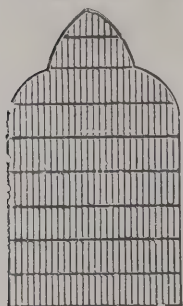
THE Dover municipality has decided to apply for powers to purchase the electric-light works for the borough, the electric trams being already the property of the ratepayers. The price agreed is 129,000/.

THE Rhyl Electric Light and Destructor Works were opened on the 7th inst. They are the largest in North Wales, and cost 30,000/., including provision for electrical traction. Sixteen miles of cable have been laid.

THE contract which the London County Council gave on Tuesday to Messrs. Dick, Kerr & Co. for the generation plant for the first section of the new electric tramways from Kennington to Balham is the largest ever placed in this country, approximating as it does to 20,000 horse-power. Orders for this kind of machinery have always heretofore gone abroad, no English firm being in a position to undertake them. Foreign competition in this particular case was very keen, 372 tenders in all having been sent in, of which about half were from German and American firms. The whole of the work on the present contract will be British.

THE ceremony took place last Saturday evening of switching on the electric light for the illumination of the streets of Cowdenbeath, N.B. Cables extending to 11,000 yards have been laid from an engine and dynamo-house at the Fife Coal Company's No. 7 Cowdenbeath pit, and there are 200 pillar lamps, each carrying two incandescent lights of 16 candle.

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For Low-Lying Basements.

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GEO. COUZENS & CO.,

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Architectural Works.

Art Workers in Wood, Stone, and Marble
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EXTENSIVE BRANCH WORKS : : :

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power in the main thoroughfares, and 8 candle-power in the side streets, brought up from the top of the pillar on the swan neck principle. The cables are laid at a depth of 2 feet from the surface of the roadway. The total cost of the work is about 1,800*l*. Simultaneously with the laying of the electric cables, the Cowdenbeath Gas Company have been erecting mains and laying gas mains for the supply of gas to shops and dwelling-houses.

IN connection with His Majesty's birthday a number of electric illuminating devices were executed on the E.L.B. system, a notable scheme being the decoration of the Grosvenor Mansions, which have some 200 feet frontage in Victoria Street. The whole front was illuminated with festoons and large electric devices. Mottoes were also provided for the Drury Lane Theatre, and at the Royal Opera House, Covent Garden, where the principal lighting effects for the balls were already installed on the E.L.B. system, special illuminations were provided, which were switched on while Friday's ball was in progress, to herald November 9.

AT Rothesay Town Council's meeting on Monday it was reported in connection with the electric-light installation, which has given great dissatisfaction owing to its unsatisfactory working, that a remit had been made to Mr. W. Arnott, electrical engineer, Glasgow, to report on the whole system and to take it over from the contractors. Bailie Fisher moved as an amendment that the electric light be turned off altogether except during the four months that the visitors were at Rothesay, as the community evidently grudged the cost of the amendment met with no support, several members insisting that it was not the electric light but the arrangement of the defective working that the ratepayers objected to.

BUILDING AND BUILDERS.

It was proposed to erect a new Wesleyan church at Longwood, Halifax. A site has been secured and it is hoped that during operations, the cost of which will amount to about 100*l*, will be started at the beginning of the new year.

TENDERS are to be invited by the Vice-chancellor of the University of Cambridge for roofing in the east court of the library, in accordance with the plan prepared by Mr. W. C. Marshall. The amounts are not to exceed 6,500*l*.

AN adjourned meeting of the Cheltenham Town Council was held on Monday, the mayor (Alderman Colonel Rogers) presiding, when the tenders for the erection of the proposed new town hall were considered. Alderman Norman moved that the contract be given to Messrs. Collins & Godfrey, of Cheltenham and Tewkesbury, at 29,310*l*. Mr. Parsonage seconded the motion. Mr. Stroud proposed that no tender be accepted, and wished to reopen the whole question, but was ruled out of order, and his amendment was not accepted by the Mayor. Eventually the committee's recommendation as moved by Alderman Norman was adopted.

IN reference to the proposed new reservoir for Girvan, N.B., twelve contractors, accompanied by Mr. Eaglesham, of Messrs. J. & H. V. Eaglesham, Ayr, the engineers of the works, proceeded on Saturday to Pinmacher Burn, where the new storage reservoir is to be made, to examine the ground with a view of tendering for the construction of the reservoir, which includes the laying of about 1½ mile of cast-iron piping between Pinmacher and the present reservoir at Glendrisaig. The new reservoir is to hold about 13 million gallons from the same spring which supplies the present reservoir, and which is of exceptionally fine quality.

THE building committee of the Bradford Corporation during the twelve months ending August 31 approved 445 plans out of 1,160 deposited. Included in the plans approved were 1,145 dwelling-houses, 21 houses and shops, 12 warehouses, 4 mills, 16 workshops, 2 places of worship, 25 lock-up shops, 54 streets and 92 back roads. Plans were also approved for 5 Board schools, 2 Poor Law relief stations, 2 tall chimney-shafts and the electricity generating station. There was more activity in the building trade than in the previous year, but less than in either 1898 or 1899.

VARIETIES.

A NEW church hall erected at Kilsyth, N.B., at a cost of 800*l*, was opened on Monday last.

A NEW Wesleyan church which, with a school and other buildings, has cost over 9,000*l*, was opened at Middleton on the 11th inst.

THE Trowbridge Urban Sanitary Authority have adopted the much-discussed sewage disposal scheme. The works themselves will cost approximately 17,757*l*; wages and other contin-

ROOF FIRES



This engraving is based on an illustration of the roof of

WELBECK ABBEY

during the recent fire, and shows the application of the

“HATFIELD”

Electric Pressure Augmenter,

not provided in this case, but fitted at Hatfield House, for the Protection of a Roof, the part of a house the most dangerous in assisting the spread of a fire.

MERRYWEATHER'S LIFT SPRINKLERS are being fitted up at Grosvenor Hotel, London, similar to the installation adopted by Whitehall Court.

WRITE FOR PARTICULARS—

Merryweather & Sons,

63 LONG ACRE, W.C.

ESTABLISHED 204 YEARS.

2 GOLD MEDALS PARIS EXHIBITION, 1900.

gent expenses will increase the total to 20,420*l.*; the cost of land 2,907*l.*, which, together with 500*l.* for legal expenses, gives a total cost of 23,827*l.*

A FURTHER section of the work involved in the restoration of the fine old parish church of Kidderminster has been completed, and the new oak roofs in the north and south aisles of the church were dedicated a few days since. The successive restorations of the old church and the additions to it have covered a period of over half a century, and it is probably under the mark to say that the expenditure they have entailed exceeds 40,000*l.* The work now completed has cost about 800*l.*

ST. PAUL'S CHURCH, Balsall Heath, which has undergone considerable renovation, was formally reopened on the 16th ult. by the Bishop of Coventry. The interior has been greatly beautified, and many other improvements effected. The organ, which stood on the right-hand side of the chancel, has been removed, and a private chapel constructed. The instrument, too, has been remodelled, and it will in future find a place in the gallery. Careful attention has also been paid to the lighting and ventilation of the edifice. The old gas standards have been replaced by hanging pendants, and the incandescent light installed, while a huge ventilator has been constructed in the roof. The walls and ceiling, which have been decorated in pale green, bear a number of appropriate symbolical devices, and a neat frieze, a representation of the Vine, adds materially to the artistic effect. The seating accommodation has also been improved. The renovation scheme includes a new altar and reredos, which will be provided within the next month. Messrs. Buckland & Farmer, architects, have superintended the work of Messrs. F. J. Briley and A. Seers, the builders and decorators respectively, the cost of which, it is estimated, will exceed 1,000*l.*

THE formal opening of Wesley Street new Board schools, Farsley, has taken place. Only the mixed school has been built, but the site is large enough for a future infants' school, manual training-room, laundry, &c. The present accommodation is for 486 scholars, which can be increased to 546 (if required) at a very small cost. The estimated cost of the building, including street-construction charges, is 7,208*l.*

A LECTURE-HALL with a seating capacity of 250 seats, and a church parlour in connection therewith, have been added to the Wesleyan chapel and schools, St. George's Street, Cheltenham. The building has been erected by Mr. Amos

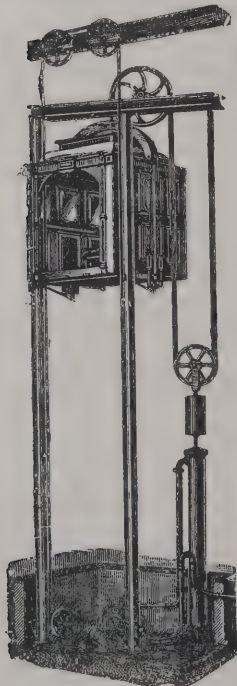
Wilson, of Cheltenham, from the plans of Mr. Arthur Geo. Dalzell, architect, of Halifax, and Mr. Thomas Malvern, surveyor, of Cheltenham, has superintended the work during the course of construction.

AN extensive landslip has taken place in the Scarborough Castle Hill. One crack is 4 feet wide, and from this opening the land has subsided 3 feet. Altogether the subsidence extends over more than one acre of land. Mr. E. T. Beard, the resident engineer for the construction of the new promenade and drive round the Castle Hill, reports that a general movement has been observable during the past fortnight, but that since Saturday the slide has been more rapid.

THE Victoria Home for Nurses, in connection with the infirmary at Salisbury, was opened on the 1st inst. The building, which has been erected from designs by Messrs. J. Harding & Son, is of red brick with tiled roof, without stone dressings, the design being bold and effective. The entrance for the nurses will be from the infirmary, through a covered way erected in memory of Miss Bonham Carter, who served the infirmary with such zeal as night superintendent from 1893 to 1897. On entering the building a cloakroom will be found on the left, 19 feet by 12 feet fitted with lavatories, dressing-tables and lockers. There are also a linen sorting-room and box-room, the latter containing the switches for the electric light, the home being lighted throughout with electricity and heated with hot water. On the right side of the corridor is the furnace-room with heating apparatus and hot-water supply, kitchen and scullery for the use of the staff, the nurses still continuing to take their meals in the infirmary. The corridor leads into a hall opening into which are sitting-rooms for the superintendent, head nurse and probationers. The superintendent's apartment is 18 feet by 11 feet 6 inches, the nurses' 18 feet by 18 feet, and the probationers' 28 feet by 17 feet. On the first and second floors are forty-four bedrooms, varying in size from 18 feet by 9 feet 6 inches to 12 feet by 8 feet 6 inches. The staircases are of stone, and provision is made for escape in case of fire by three iron ladders which are accessible from each floor. The upper floors are of Potter's patent fireproof construction. Telephone and electric bell communication is established with the infirmary.

COLONEL DURNFORD, Local Government Board Inspector, conducted an inquiry at Blackpool on Tuesday into the Corporation's application to amend the Act of Parliament sanctioning the promenade widening so as

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w 100 feet instead of 60, the added cost being 40,000/., mission to borrow which amount was sought. Mr. Fletcher used, not the widening, but the details on behalf of Mr. Eames and other South Shore residents. Mr. T. Os, the town clerk, said that in 1865 the then Local Board did it necessary to promote an Act of Parliament to construct a marine promenade and carriage drive which now existed. Maintenance and regulation of these works were thrown on the Corporation and frontagers, who were rated for the capital expenditure. In 1865 the population was 5,000 and the rateable value about 23,000/.. In 1899 the Corporation saw the absolute necessity for widening the promenade. The population then was 46,000 and the rateable value 68/. The Act obtained in 1899 empowered the Corporation to construct the hulk either sloping or upright. It was owing to strong feeling in the town that the promenade should be widened 100 feet that the work had not been commenced before now. A certain section in South Shore were in favour of a sloping hulk instead of a concave wall as decided by the Corporation, and it was this upright wall that Mr. Os was opposing. The town clerk pointed out that if the hulk was dropped the Corporation could go on under present powers, but they could only widen 60 feet, and the opposition would get nothing they wanted—time would be wasted, the promenade would be too narrow and there would be an upright wall after all. Evidence in favour of the hulk was given by Mr. J. S. Brodie, the borough surveyor, who was subjected to a lengthy cross-examination by Mr. Os, as were also Mr. Sandeman, a Newcastle engineer, and Mr. Alderman J. Ward. These witnesses all maintained that the upright wall was better and cheaper than a sloping hulk. The inquiry, after a four and a half hours' sitting, adjourned until a date to be fixed.

BOARD SCHOOL SITES IN HAMPSTEAD.

Following memorial from owners and occupiers of houses in immediate proximity to the property called The Grove, Hampstead, has been forwarded to the London School Board:—"As owners and occupiers of houses in immediate proximity to the property called The Grove, which, as we understand, you have scheduled as a suitable site for a Board school, we beg to submit to you the following considerations, as it seems to us, render such a proposal on your part desirable:—(1) The close neighbourhood of the site named

to the Heath, and more especially to that charming avenue called The Judges' Walk, at present the resort of so many invalids and others desirous of the quiet enjoyment of the prospect it affords, an enjoyment it would be too much to expect would be longer possible after the establishment of the school within a few yards of the Walk; (2) the considerable distance of the proposed site from the homes of the children on whose behalf the school is needed; (3) the fact that immediately surrounding the proposed school are a number of highly-rented houses, the value and quiet enjoyment of which would be very seriously affected by so near a neighbourhood of the school, and the noise necessarily incidental to the collection of so large a number of children. We would respectfully urge upon you that, in deference alike to public and private interests, as also to what is due to the picturesque beauties and old associations of this district, you will not select a site for your school open to so many objections."

ALL HALLOWS CHURCH, BRISTOL.

THE consecration of the nave and dedication of the chancel of the new church at Easton took place on the 2nd inst. The style of the church is Decorated English Gothic. The exterior will be plain almost to severity, the chief object being to secure an effective interior. From the east end three bays have already been completed. There is an apsidal termination of the sanctuary, with an ambulatory around it. The interior height of the church will at once appeal to those who visit the edifice, the lofty arches between the choir and the transepts adding considerably to this effect. The part of the scheme now carried out embraces the sanctuary, choir, north and south transepts and side chapel, and three bays of the nave. When the scheme is completed two or three bays will be added, together with a western narthex. The walls are faced with red Pennant dressed with Bath stone, and the roofs are open-timbered.

BIRMINGHAM MASTER BUILDERS' ASSOCIATION.

THE annual meeting of the Birmingham Master Builders' Association was held recently at the Grand Hotel, Birmingham, Councillor F. G. Whittall presiding. In the report for the year the committee regretted that the falling off of trade referred to twelve months ago had become more marked, and

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much work that would probably not now be executed had been held back owing to the high prices of material and labour. The committee felt strongly that the present high rate of wages was no longer justified by the state of trade, and they had received from individual members many complaints as to the great inconvenience resulting from the present arrangement of several trades commencing and leaving off work at different hours. Consequently they had served notices on all trades for a general reduction of wages and for uniform hours of work. The committee felt they would be voicing the opinion of every member of the Association by expressing to the Chancellor of the Birmingham University their regret that Birmingham architects had been excluded from a competition for the University buildings. The balance sheet showed that the receipts for the year were 1811, which, with the balance from last year, made a total of 3681. The various disbursements amounted to 1541, leaving a sum of 2141 to the credit of the Association.

In proposing the adoption of the report the Chairman referred to the state of the trade, which, he said, continued to be unsatisfactory. The large number of workmen that called upon them to obtain work showed that trade must be in a very bad state. It was because of the condition of the trade that the committee, after careful and anxious thought, had deemed it advisable to give notice for a reduction of wages. It had not been done to cause differences or disagreements in the trade, but for the purpose of trying, if possible, to stimulate trade, which had suffered through the high price of material and labour. A great deal of work had been put aside until it could be done more cheaply, and they considered the reduction of wages would be in the best interests of the trade and the workmen. He hoped the operatives would accept the reduction. The committee had taken some amount of trouble and effort to assist the funds of the Birmingham University, and therefore they keenly regretted that the architects of the city had no opportunity of competing for the designs of the new building.

Mr. W. Sapcote seconded the resolution, which was carried.

Mr. Albert S. Smith was elected president for the ensuing year, and Mr. John Barnsley vice-president. Mr. G. Twigg was reappointed treasurer, Mr. E. J. Bigwood secretary, and Messrs T. Johnson and J. S. Surnam auditors. The committee were also elected. In order to financially strengthen the position of the Association, it was decided that, from the commencement of next year, the annual subscription should be 15.

for each 1001. of wages paid during the previous year. The retiring president, Councillor F. G. Whittall, was heartily thanked for his services during the year.

In the evening the annual dinner was held at the Grand Hotel. The Lord Mayor (Alderman J. H. Lloyd) presided, and, replying to the toast, "The City and Trade of Birmingham," given by Mr. Barnsley, spoke of the necessity for looking ahead to prepare for the requirements of the city, and said that it was the support of the citizens that helped a city like Birmingham to keep abreast of the time. They were proud of the men on the city council who devoted so much of their leisure time to the welfare of the city. With regard to jerry-building, he said that whatever might have been the case in the past they did not have jerry-building in Birmingham now. Some of the builders might think that the by-laws were hard and strict, but he knew they themselves were anxious that buildings should be put up properly and well. If at any time there was anything that was too stringent, he hoped such cases would be carefully considered and discussed, and as far as possible rectified and set in order. They must all admit that jerry-built houses had been erected in the past, and undoubtedly a great deal of the property, which had existed for a very long time, ought now to be pulled down, and the owners should not endeavour to patch it up. He hoped as time went on some of the slums would be cleared out and the buildings of the town improved. The slum and the housing questions were very important matters which would have to be faced with great care and attention. He hoped something might be done in the future to improve and benefit the mode of life of some of their poorer citizens. There were undoubtedly many ways in which the dwellers themselves largely added to the difficulties. Many of the builders individually were doing good work, apart from their businesses, uplift humanity, and much help was forthcoming from the Sunday schools and the adult schools and various other organisations. Mr. Barnsley had referred to the accumulation of the city's debts, but he reminded them that the builders had had a good "pull" out of the expenditure. On the whole, he thought they had very good assets, they had good business undertakings which were likely to prosper well in the future. While they should exercise due economy they wished on the other hand to keep abreast of the time, and anticipate as far as possible the needs of a few years ahead.

Mr. C. E. Bateman, in proposing "Success to the Birmingham Builders' Association," expressed the hope that soon

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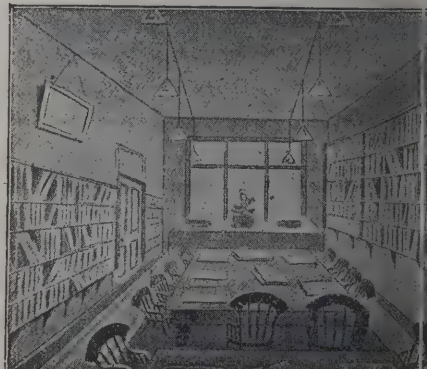
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member of the Association would secure the contract for the new University buildings.

The President replied, and referred to the proposal to reduce the operatives' wages. The Association, he said, was not formed for the purpose of cutting down the men's wages, and they regretted that it was necessary to interfere with them. No one grudged the operative a good wage, but what they did resent very much was that restriction of output, that constant lessening of the amount of work which the unions encouraged. Their notices had been served upon the operatives having reference to certain unreasonable restrictions in trade rules which they were glad to have an opportunity of discussing, and they sincerely hoped all the matters would be amicably settled.

The other toasts were "The Architects and Surveyors," "The National Federation of Building Trade Employers," and "The Visitors."

INSTITUTION OF CIVIL ENGINEERS.

The Institution of Civil Engineers held the first meeting of its eighty-third session on the 5th inst., when Mr. James Mansergh formally surrendered the chair to his successor, Mr. Charles Hawksley.

Mr. Hawksley delivered his presidential address. He referred, in the first place, to the fact that this was the first occasion in the history of the institution in which the presidential chair had been held by the son of a former president, and next expressed his regret that Sir William White, though prior vice-president, had felt himself unable, in consequence of the state of his health, to accept nomination for the presidency. He proceeded to give a rapid retrospect of the advances made during the nineteenth century in the more prominent branches of civil engineering. As regards roads, he pointed out that except for about 200 miles of good roads constructed by the blind road-maker, John Metcalf, in Lancashire and Yorkshire during the latter half of the eighteenth century, the roads in this country were in a deplorable condition at the beginning of last century, so that carriages often stuck fast in ruts, and travelling at a speed over six or seven miles an hour was almost impossible even on the main thoroughfares. In 1811 the mail-coach from London to Holyhead took 41 hours for the journey. In 1837, owing to the improved roads con-

structed by Telford, the time was decreased to 27 hours, the journey being performed at the rate of 9½ miles an hour, including stoppages. At the same date the journey by mail-coach from London to Edinburgh was performed in 42½ hours (9½ miles an hour), and the fare was 11½ guineas inside and 7½ guineas outside, or, with fees to the coachman and guards, about 14½ guineas inside and 10½ outside. The fastest four-horse mail-coaches carried, beside the driver and guard, four inside and three outside passengers, but some of the improved stage-coaches carried as many as twenty-two passengers, and in some cases rivalled the mail-coaches in speed. The day mail-coach from London to Birmingham was timed to do twelve miles an hour. The early first-class carriages on railways resembled the bodies of three stage-coaches placed one behind the other on a frame having four wheels; each compartment held four passengers, and the roof was too low to admit of a person standing upright. Third-class passengers travelled in open carriages, the sides of which were 3 feet or 3½ feet in height. The speed of the original passenger trains was about eight miles an hour, but this was increased in a few years to twenty, and now passengers could travel at an inclusive rate of about fifty miles an hour at a cost of from 1½d. to 2d. a mile first class and 1d a mile third class. After touching on docks, lighthouses, naval architecture, mining, water-power and irrigation, Mr. Hawksley came to the history of water supply. Speaking of the regulation of fittings so as to be suitable for a constant supply, he said that formerly Parliament left the making of such regulations to the company or local authority entrusted with the supply of water, but of late years had unfortunately made them subject to the approval of a Government department, which was possessed of no special knowledge in regard to distribution of water, and which, regardless of the experience of fifty years, persisted in so modifying the regulations submitted for their approval as to render them impracticable for the maintenance of a constant service. In regard to the quantity of water required for domestic purposes with a constant service, he remarked that from statistics he recently collected the quantity of water supplied for domestic and other non-metered purposes was, on the average of six towns supplied by companies and having a total population of 1,850,000 persons, 19 gallons per head per diem, while for ten towns supplied by public authorities, and having a total population of 3,961,000 persons, the average was 18½ gallons. He was unable to agree with those who held that all waterworks undertakings should be in the hands



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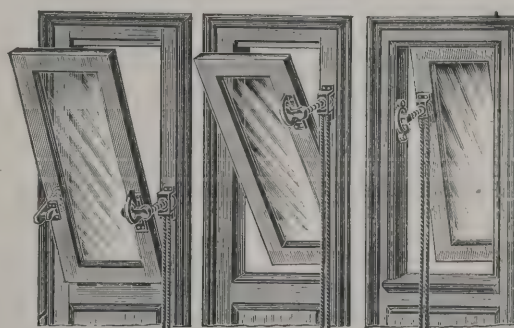


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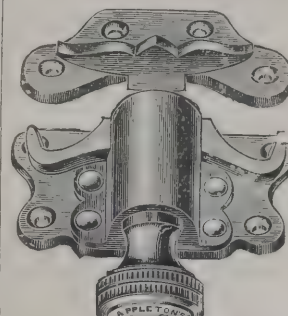
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of public authorities. He had many opportunities of becoming acquainted with the unsoundness of many of the arguments put forward in favour of transfer of water undertakings to local authorities, e.g. control of the breaking open of the streets, economy in collection of the water rates and absence of inducement to make profits. His experience taught him that where the local authority possessed the waterworks the streets committee complained that they had no sooner repaved a street than the water committee broke it open to lay a pipe, the salaries in the finance department were raised because of the additional duties the officials had to perform, the desire to make profits at least equalled that of a company, while the risks that a local authority was prepared to run by unduly postponing needful extensions in order to maintain those profits were such as, in many instances, a company would not dare to incur. Should a company lag behind in its duty there was the local authority at hand to urge it forward, but if the local authority was supine in the exercise of its duties there was no one to bring pressure, for the ratepayer was practically helpless. Mr. Hawksley went on to speak of sewerage and sewage disposal, gasworks and electricity, mentioning in regard to the latter that, although it was the youngest of the sciences, over 130,000,000*l* of capital had already been invested in this country alone in electrical undertakings. Summing up his impressions, Mr. Hawksley said that the more he learnt of those early engineers who practised in the latter half of the eighteenth and the first quarter of the nineteenth centuries, the greater became his astonishment at, and admiration for, the boldness of their designs and the success that attended their execution. Most of them were men of scanty education, as the term was understood now; and had few, if any, precedents to guide them; yet in face of all difficulties, with no trained assistants to aid them, at a time when travelling was arduous, Brindley, Smeaton, Mylne, Rennie, Telford and others carried out works of which we might be proud at the present day, even with all our training and precedents, assistance and mechanical appliances. It might be well to recall that Brindley's early years were spent as an agricultural labourer, Smeaton was a philosophical instrument maker, Mylne an architect, Rennie a millwright, and Telford a stonemason.

In the latter part of his address Mr. Hawksley discussed the question of standardisation. Most British civil engineers, he said, had probably suffered inconvenience and their clients not unlikely loss, owing to the absence in Great Britain of

standard sections of iron and steel. For example, the engineer when designing a roof or bridge, having selected from the book of some well-known firm the sections of angle and tee-iron best suited to his requirements, found the contractor asking to be allowed to substitute some other section, because the one chosen was out of stock or was no longer rolled, or was required in such small quantity that the makers would not put in the rolls to produce it. These difficulties had led to the adoption in Germany and America of standard sections, with great advantage to all concerned. The producer could cheapen the cost of production, being able to roll considerable quantities of any given section at one time and place in stock any surplus. The middleman (if any) could buy in the cheapest market and be certain of finding an outlet for his purchases. The buyer could be sure of obtaining the section he required with the least amount of delay and at the least cost. For some time past the Council of the Institution had realised the disadvantages under which British manufacturers were placed by the lack of some acknowledged standards, and it therefore approached the Institutions of Mechanical Engineers and Civil Engineers, Naval Architects and the Iron and Steel Institute, with the result that the four societies formed a strong and influential committee to take up the subject. This committee sat for three days in June last, hearing evidence from all parts of the country and from those representing our colonies and dependencies, and this evidence was so unanimous as to the desirability of issuing standard sections and specifications, that the Institution of Civil Engineers decided to adopt the committee's recommendation and proceed with the work forthwith. The committee had been divided into four parts to deal with—(1) Bridges and general construction (chairman, Sir Benjamin Baker); (2) railway rolling stock under frames (chairman, Sir Douglas Fox); (3) rails (chairman, Sir J. Wolfe Barry); and (4) ships (chairman, Mr. Archibald Denny). The four committees were now engaged in standardising the various sections used in their particular branches of industry. From the evidence laid before the committee it appeared that in America, where the American Society of Civil Engineers had issued standard sections for rails and standard specifications, the rolling-mill makers would in most cases only roll those sections. From time to time inquiries had been sent from this country to America for tenders for large quantities of rails and other materials, but in nearly every case the reply was that "unless you take our standards, we regret we do not see our way to quote." On the other hand, some instructions

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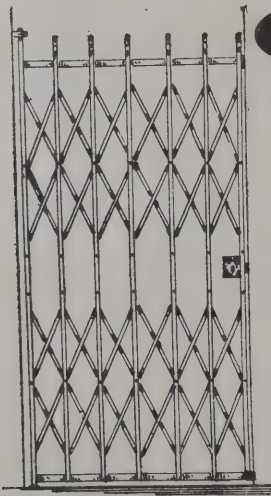
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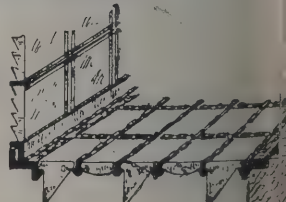
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stances of the waste of time and money in this country for want of standard sections were laid before the committee. One instance must suffice—that of a section incorporated in a bridge at one of our colonies. Here the average cost of the material was 8*l.* 10*s.* per ton, but one of the sections specified was of an odd size, and the quantity of it was so small, that it had to be made by a blacksmith at a cost of from 28*l.* to 30*l.* per ton. A striking case of the money wasted by unnecessary multiplication of the number of sections occurred recently, where the contractor endeavoured to obtain the sections specified for a certain bridge, but found that although they were obtained in the price list issued by the makers, none were in stock, and delivery could not be given. The contractor, therefore, worked out a girder of equivalent strength, incorporating therein sections that could be readily obtained, and the saving on this one item was over 600*l.* Germany had now 67 various standardised sections, and America only 49, while Britain had only one standard section, and used over 170 different ones. In the case of tram-rails the need for standards of rails was being specially felt. It was recently shown that there were no less than seventy-one different sections of tram-rails, many of which were designed by the municipal engineers designing their own sections, which only differed slightly from those of their neighbours—just sufficiently to cause trouble and expense if one system ever became adopted by the next. The American practice was to reduce the number of sections as much as possible, but this, Mr. Hawksley thought, was travelling too far in the opposite direction. Care must be taken to provide a considerable variety of sections in the first instance, and to add to them from time to time as necessary. The chief disadvantage urged against standardisation had been the tendency to cramp originality of design, and that this was a groundless fear was shown by the refusal of American makers to roll anything outside their stock patterns.

THE KEW COWL TESTS.

We have received a communication from Mr. Robert Boyle, of the firm of Robert Boyle & Son, Ltd., respecting the report of the Sanitary Institute on the tests of ventilating exhaust cowlings, and which we have already noticed. In it he writes:—“It will doubtless come as a great surprise to many, this astounding admission of the Sanitary Institute that they themselves are the patentees and proprietors of the cowlings alleged in

the report to be the most efficient, “though Professor Shaw does not endorse this conclusion.” It almost passes credence that the Sanitary Institute do not see the extreme impropriety of their position—no matter what their intentions may have been—which completely discredits any decision emanating from them on this matter, which they have taken upon themselves to judge. The gross injustice of such a proceeding to other ventilator makers who, by their efforts, have created the present public interest in the question of ventilation, need not be here referred to, particularly after Professor Shaw has so emphatically condemned the tests as valueless; but I should have thought that it formed no part of the mission of the Sanitary Institute to discourage such efforts, particularly in an endeavour to add to its own importance, and to be considered as an authority upon a subject in respect to which it has shown that at the most it merely possesses that little knowledge that is “a dangerous thing.”

Surely nothing like this has ever been known before in the annals of scientific research, and the consequences to the Institute may prove incalculable. To prevent any possibility of mistake or misunderstanding, perhaps the Council of the Institute will reply to the following questions, as it is just possible that some too enterprising official of the Institute has allowed his zeal in this matter to outstrip his discretion, and that the Council themselves are not wholly responsible:—

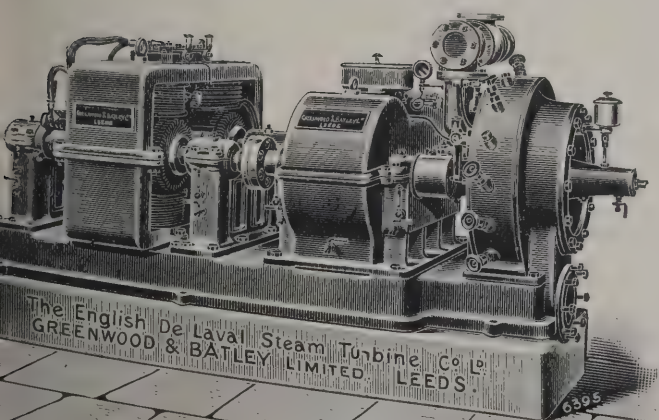
1. Was it with the full knowledge and sanction of the Council that the patents for the cowlings in question were taken out?
2. Why, if no monopolistic rights were intended, and the public were to have the free and unrestricted use of these cowlings, was the useless expense of patenting them incurred?
3. Why is there not the slightest mention of all this in the report?
4. Is it true that an agreement exists, or ever existed, between the Sanitary Institute and the assistant who arranged and carried out the tests with these cowlings, to pay him a royalty on their sale?

It remains to be seen if the Sanitary Institute, after the universal condemnation of these tests, and of the methods by which the results were attained, also the statement of Professor Shaw in the report that the relative values of the cowlings, terminals and tubes had not been proved, and that therefore the tests did not correctly indicate which particular forms were the most efficient, will still persist in representing the cowlings (which appear from the illustrations to be merely old modifica-

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tions of the open pipe with rain caps) as having been proved by these tests to be the most efficient, or will allow its *imprimatur* to be used in connection with them.

May I be allowed to suggest that the Institute should take legal opinion as to whether, indeed, this would not be illegal, as such a proceeding might be looked upon, after Professor Shaw's verdict, as a case of "false representation" and an attempt to mislead.

As the ventilators against which the Institute tested their terminals were what are now obsolete forms—and merely models at that, which prove nothing, as was well known to Mr. Field—it would most undoubtedly be misleading to assert that the Institute's cowls had been proved by these tests to be the best in the market at the present time, seeing that the improved forms of ventilators now in use were not included in the tests at all.

Surely the Sanitary Institute is not in such desperate straits that it requires to resort to such tactics to keep its name before the public, which, as I understand these tests, seems to have been their principal object. At any rate, it would not be conduct such as one expects from a Society occupying the position held by the Sanitary Institute. The Sanitary Institute should have been satisfied with the verdict of the *Times* on the first instalment of the report, when it said:—

"The method of testing was incorrect and therefore the tests are valueless. Neither in the case of either of the cowls or the tubes was their true value as extractors ascertained."

The Sanitary Institute has certainly no right to complain of the outburst of indignant protest which the publication of the report has called forth. They have deliberately brought it upon themselves, though I cannot bring myself to believe that the Council of the Institute have been wholly to blame in this matter, and judgment, so far as they at least are concerned, ought to be suspended until they have replied to the questions which have been put.

Judging from the names and reputations of the gentlemen forming the Council, I should say that they were the very last in the world to knowingly countenance anything having the slightest suggestion of "shadiness."

I have just seen in a publication an enlarged drawing of the Sanitary Institute's "Champion Cowl," and find that it is nothing more nor less than a replica of an old chimney-cowl that was first made by me over thirty years ago. That being so, I am afraid the Institute's patent is not worth the value of the paper the specification is printed on. As it is now "many

years ago" since I made a "gift to the nation" of this cowl, it would appear that the Sanitary Institute has been somewhat forestalled in its proposed "benefaction." I have notified the Sanitary Institute of this discovery, and intimated that if they care to send a responsible person who knows something about cowls to 64 Holborn Viaduct, I would show him drawings and models of this cowl, and also the cowl itself, besides several other modifications of cowls on the same lines. In large sizes, for several reasons arrived at from actual practical experience (which reasons the Institute appear to have either ignored, or to be ignorant of in their application to their cowl, I never considered it good enough to make a ventilator of, and I think that the Institute would have arrived at the same conclusion if they had made the tests with full-sized specimens instead of models, as was done.

REFUSE DESTRUCTION AND ELECTRICITY AT BIRMINGHAM.

MR. H. PERCY BOULNOIS, Local Government Board inspector, held an inquiry at the Council House on the 6th inst. into the City Council's application to borrow 31,600*l.* for purposes of a refuse destructor, stabling, &c., at Rotton Park Street wharf. The town clerk (Mr. E. O. Smith) informed the inspector that the health committee had for some time had under consideration the necessity for erecting additional furnaces for destroying refuse at the wharf in question. The two furnaces at present there were altogether inadequate to the work to be done, being capable of burning only about 50 tons per week of unscreened refuse. There was also a great need for stabling at the wharf. The horses at present drawing refuse there were stabled on the public works committee's premises at Sheepcote Street, and a payment of 500*l.* per annum had to be made in respect of the occupation of those premises. This sum would more than defray the interest and sinking fund on the cost of the new stabling. During recent years there had been a considerable increase in the amount of dry refuse collected in the district, and such of it as could not be burnt or disposed of as manure was sent away at considerable expense to tips. A piece of land, 5,912 square yards in extent, adjoining the present wharf, was secured in 1897 at a rental of 9*d.* per square yard, and the total area now available for wharf purposes was 8,810 square yards. The heat from the

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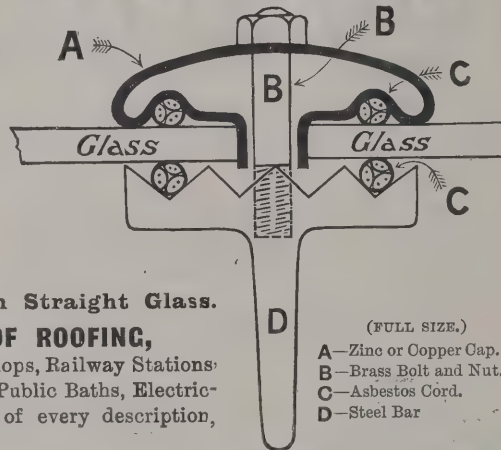
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...ing would be utilised for the various purposes for which steam
as required, as well as for lighting the wharf with electricity.
he stables would have accommodation for fifty-four horses.
'The city treasurer (Mr. T. H. Clare) stated that the
population of Birmingham, according to the last census, was
2,182, and the assessable value 2,735,426*l.* The existing
bts under the Sanitary and Public Health Acts amounted to
330,832 6*s.* 6*d.*, and provision for repayment had been made
the extent of 672,504*l.* 1*s.* 9*d.* The assessable value for two
ars was 5,470,852*l.*, leaving a balance of unexhausted borrow-
g powers amounting to 4,312,523*l.* 15*s.* 3*d.*
The Town Clerk stated that the stabling and usual
cessories were estimated to cost 7,845*l.*, and the buildings in
nection with the destructor 11,000*l.* A canal wall would
ve to be built costing 300*l.*, and 1,000*l.* would have to be
ended on underbuilding the walls of adjoining premises.
ving the stable-yard would cost 463*l.*, and the remainder of
e site 1,000*l.* It was estimated that the destructor itself
uld cost 7,850*l.*, whilst 1,500*l.* would be taken up in clerk of
e works' salary and architect's commission.
Alderman Cook (chairman of the health committee) and
derman Martineau were present at the inquiry. The former,
lying to the Local Government Board inspector said that he
d not seen the Liverpool destructor, but a similar one was in
at Montgomery Street. The type of boiler favoured by the
alth committee for the Rotton Park Street wharf was
ended primarily for the destruction of refuse, and secondarily
provide electric light for the committee's own purposes.
Mr. Boulnois afterwards inspected the site of the proposed
ldings.

WOOD-PAVING IN AMERICA.*

EATED wooden-block paving has been used in London for
r thirty years on both her finest and most heavily-travelled
dways. Paris has nearly four times as many square yards
it in use as of asphalt. There had been laid in 1891
000 square metres and in 1898 1,165,000 square metres of
den blocks, there being at that time 382,600 square metres
spalte and 1,348,000 square metres of macadam.

From a paper presented to the American Society of Municipal
vements, by Mr. B. T. Wheeler, Superintendent of Streets,
on, Mass.

Foreign growths of wood are, however, practically pro-
hibited for use in America by reason of their large cost. To
produce a pavement at moderate and justifiable expense a
native wood must be used, so treated, if possible, as to harden
its fibre, make it practically impervious to moisture, and not
readily susceptible to the varying conditions of heat and cold.
There is no gauge of durability by which the attempts to
produce such results can now be judged. Practice has not yet
demonstrated in this country what our natural products can
create in the way of a permanent pavement of this character.
There were laid last year in Boston for experimental
purposes, in the midst of the otherwise asphalted surface of a
busy but lightly trafficked thoroughfare, two small areas of
wooden blocks, 1,360 yards in all, treated by the so-called creo-
resinate process. These areas were laid in the steepest grades
thereof, and in one case for only half the width of the street,
the other half being of asphalt, that the relative merits of the
two might be compared.

This pavement was prepared and laid in the following
manner:—

The blocks were uniformly 4 inches wide, 4 inches deep and
8 inches long, of long-leaf Georgia yellow pine, free from sap,
loose or rotten knots, and with no second-growth timber
allowed. These blocks were placed in an air-tight cylinder,
and the dry heat was raised to 215 degrees Fahr., with-
out pressure, for one hour, for the purpose of expelling
the moisture. The heat was then increased, pressure was
applied, and the degree of both was raised gradually, in order
to avoid injury to the fibre, during a period of two hours, until the
heat had reached 285 deg., and the pressure about 90 lbs., and
both were then held at that point for one hour. The heat was
then shut off, and the tanks allowed to cool gradually for one
hour. At the end of this time the heat had been reduced to
250 degs., and the pressure to about 40 lbs. The pressure was
then blown off and the heat still further reduced. Vacuum was
then applied until about 26 inches was reached; and while
under vacuum the creo-resinate mixture was run into the
cylinders at a temperature of from 175 to 200 degs., and
hydraulic pressure was then applied, reaching 200 lbs. per
square inch, and kept at this point until from 21 to 22 lbs. of
the mixture per cubic foot had been absorbed. The liquid
was then run off, and the wood placed in another cylinder, and
milk of lime, at a temperature of 150 degs., was run in, and
hydraulic pressure of about 200 lbs. was applied for one hour.
The blocks were laid, with the grain vertical, upon a

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foundation consisting of American cement concrete 6 inches in depth, with a 1-inch cushion of clean, screened sand, and were driven tightly together at every sixth row. The joints were then filled with dry, screened sand, and the pavement rolled with a 5-ton steam roller until the blocks presented a firm, uniform and unyielding surface. The joints were then filled with a creo-resinate mixture of road pitch, heated to 300 degrees Fahrenheit, and the whole covered temporarily with $\frac{1}{4}$ -inch dressing of clean, screened, sharp sand.

It is apparent, after a year's experience with this pavement, that it is satisfactory as so laid in every respect except with regard to slipperiness, and that, as so laid, an almost absolutely noiseless pavement was obtained, the surface of which, under use, became so unified that the joints were indistinguishable, and the pavement consequently slippery. No wear has yet been apparent. The surface remains perfect, and, in comparison with the asphalt adjoining it is preferable in all respects, except that of slipperiness, in which, practically, it does not differ; and, upon the grade of 4 per cent at which it was laid, it has nothing to recommend it in this respect.

I have this year laid an area of 7,940 square yards upon a level street, in the same manner as above described, which I believe will be eminently satisfactory in every respect, and am about to lay, this fall, another area of 6,640 square yards upon a nearly level street, where I expect the same results; but the problem of a noiseless, non-slippery and permanent pavement, which can be laid upon grades exceeding 2 per cent., has not yet been satisfactorily solved. With the hope of more satisfactory results in this respect, however, I have laid upon a 3 per cent. grade an area of 2,000 square yards of wooden blocks, so recently put down as not to permit me to make any statement of the results obtained. This was laid from blocks prepared as above mentioned, differing only in shape and in the character of the joint. From each block, 4 by 4 by 8 inches, there was removed from one side, at the top, a section $\frac{1}{4}$ inch in thickness for the length of the block, and $1\frac{1}{2}$ inches in depth. When these blocks were laid as above described, and driven closely, there was a $\frac{1}{4}$ -inch opening, or joint, remaining, extending clear across the street with each width of block. These joints were filled with Portland cement grout. It is my expectation that this material upon the surface of the street every 4 inches will remove the slippery conditions which would otherwise exist, and furnish better foothold for horses.

There is in my charge, as commissioner having the care, with a representative of the adjoining city of Cambridge, of

those bridges crossing the Charles River and connecting the two municipalities, a bridge, called Harvard Bridge, having roadway area of 11,425 square yards. This bridge was built in 1891, within an insufficient appropriation, and in a manner which has proved to be a falsely economical one. In order to diminish the cost, the structure was lightened, and designed only to carry a wooden floor of 4-inch deck and 2-inch sheathing. Traffic upon this bridge has rapidly increased, and it has been necessary for some years to resheath it annually; and has now become apparent that two resheathings each year will only suffice. As the deck of the structure now shows signs of decay, it has been decided to redeck this entire structure with hard-pine deck, treated by the same creo-resinate process as the blocks, and directly upon this the wooden-block pavement will be laid, closely driven, and without joints, and a contract for this work is now being executed by the United States Wood Preserving Company, of New York, which controls the creo-resinate process. What has for years had many of the characteristics of an uneven corduroy roadway, caused by the rapid wearing of the sheathing plank, will soon present an even, noiseless, smoothly-riding surface, which will not subject the two cities to the cost of annual repairs. Wooden blocks have therefore filled a unique place in furnishing a permanent and satisfactory pavement, placed upon a structure which was not designed to carry the load of any other form of permanent pavement known.

I was brought to the execution of this work by the experience of the city of Chicago in laying a wooden pavement treated, however, by another process—upon the Rush Street Bridge, which carried a large part of the freight traffic of an important railroad terminal, and which had required therefore many renewals annually of the wooden wearing surface plank. This pavement had been laid over two years and half, I think, when I last saw it, and was still apparently first-class condition. Wooden pavement has, therefore, seems to me, a field peculiarly its own in replacing the plank surface of bridges in an economical and satisfactory manner.

The only question, aside from the desirability of laying such pavement upon steep grades, which I have already referred to and which has not yet been satisfactorily demonstrated, is the one of durability which time alone can determine; but a company which has laid this pavement has, for the protection of the city which I represent, given a good and sufficient guarantee to keep the same in condition satisfactory to the superintendent of streets for a period of ten years.



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The Architect.

THE WEEK.

A GLIMPSE of the manner in which one class of illustrated catalogues can be got up was afforded by the proceedings in the case OETZMANN v. LEFEVER and others which was heard in the Chancery Division before Mr. Justice SWINFEN EADY. The plaintiffs sought for an injunction to restrain the publication of an illustrated catalogue in parts resembling their own, and the surrender of all copies which had been printed, with the blocks and other materials. The trial lasted three days. Messrs. OETZMANN found that illustrations in their catalogues had been copied, although in some cases the representations were reversed in order to give an appearance of originality. The printers at the outset agreed to be liable for any costs incurred down to the trial, and therefore were dismissed from the action. The draughtsman had stated before two of the plaintiffs' representatives that he had copied their designs; he afterwards attempted to qualify his statement by saying that he restricted his copying to the catalogues of wholesale makers, but his Lordship declined to accept the second version, and an injunction was granted against him. With regard to the defendant, who had issued the catalogues, his Lordship said that several of the illustrations had been copied from Messrs. OETZMANN'S catalogue, and as piracy had been committed the injunction was granted and an order given for the destruction of blocks and stock. A case of the kind is, however, hardly to be covered by the law of copyright. The copying of designs without authority or without acknowledgment is an unquestionable wrong, but a still greater one arises when by the appearance of a second or a third illustration doubts are thrown on the originality of the design which first appeared. Such cases are distinguished from ordinary offences against the Copyright Acts. When well-known paintings are imitated the claim of the artist or inventor is admitted, and he only suffers in a limited degree, but when designs are reproduced the character of the firm that originally paid for them runs the risk of being lowered. The issuing of an injunction and the destruction of copies afford an inadequate penalty for the wrong that has been done.

As Kensington is a royal borough, it is satisfactory to learn, on the authority of the medical officer of health, Dr. DUDFIELD, that its sanitary condition, particularly in the northern part, is not affected by the character of the houses. We are told that the streets are of statutory width, the houses of moderate height. Very generally they have a fair-sized open space at the rear. Courts and alleys there are none, nor back-to-back houses. With here and there an exception, the houses have through ventilation, restricted in many instances by "slip" rooms, which also interfere with the lighting of the passages and the lower flights of stairs. Basement rooms are general, but the use for habitation of such as come within the definition of "underground rooms" is prevented. Of "cellar dwellings," in the ancient sense of the expression, there are none. In a recent investigation but few cases of overcrowding were discovered, if judged by the standard of the by-laws. It was ascertained that in a part described as a "special area" there was a remarkable profit in letting furnished rooms; that is, with furniture for the most part "meagre in quantity, wretched in quality, and hardly deserving the name." Houses worth from 12s. to 15s. a week by that means yield from 30s. to 50s. a week. Even with unfurnished rooms a middleman is able to realise double the weekly rent paid to the landlord. According to Dr. DUDFIELD, considerable benefit would accrue to many of the labouring classes were the sanitary authorities of the Metropolis generally to adopt and fully exercise the powers conferred by Part III. of the Housing of the Working Classes Act, 1890; they would be enabled, as landlords, to provide these classes, without any material charge upon the rates, with more and better accommodation than they can ever hope, unaided, to obtain for the money they now pay in rents to the existing landlords, who naturally study little beyond their own interests.

THERE is less objection than formerly to the apprenticeship of well-educated youths in builders' or engineers' workshops. But in England the desire for acquaintance with practical business has not yet attained the force it has in America. The American Bridge Company, for example, have a fixed programme on the subject which is worth attention. Those who wish to become apprentices have to submit to a three months' trial, and if the candidate is approved, the quarter of a year is counted as part of the four years required for apprenticeship. If a candidate has received a superior education the four years' term may be shortened, and a similar reward is conferred on those who distinguish themselves. The rate of normal wages is as follows:—First year, 3.50 dols. per week; second, 4.50 dols.; third, 5.50 dols.; fourth, 6.50 dols. At the expiration of the apprenticeship a bonus of 50 cents per week is granted. There are classes in which drawing, mathematics and mechanics are taught, and an examination is held at the close of the term. Generally the apprentice begins in the designing department, where he acquires some knowledge of the stresses which have to be dealt with. After six months he is transferred to the drawing-office. Acquaintance with other departments follows. The Bridge Company endeavour to co-operate with the engineering colleges, from which they receive graduates for six months, and pay each of them 12 dols. a week for the services he renders. The student has the best of the arrangement, for although he may assist in preparing drawings and working out calculations, he is given the opportunity of becoming familiar with all the operations of bridge construction. The company are showing public spirit, and from their experience it leads to profit.

THERE is a French saying about nothing being sacred to a sapper, but if compared with a Paris billsticker, especially when elections are in progress, the sapper is a most reverential individual. The municipal regulations are severe against ordinary advertisements, unless they are in positions where they can be taxed and in other ways come under the influence of authority. But political announcements enjoy the utmost license. No matter how venerable a public building may be, or how modern, it can be covered with as many coloured posters as the contractor cares to paste upon them. One of the latest sculptural works in Paris is the group by M. DALOU which symbolises the *Triumph of the Republic*. The beautiful bas-reliefs which form part of the work have sustained serious damage owing to the number of posters which were made to adhere to them. It was proposed that at least some monuments and buildings should be considered as privileged, and a decree to that effect issued by the Prefect of the Seine, but omnipotent as that high and mighty official is assumed to be, he was compelled to confess that under the law of 1881, which relates to posters, he was powerless. While the Republic endures it must therefore be expected that buildings and statues will be desecrated by the billsticker's vandalism.

THE Abbey of Clairvaux, which St. BERNARD founded, holds an important place in the history of monasticism. It was demolished in the beginning of the nineteenth century in order to provide space for a prison. An ancient grille belonging to the church was purchased for the cathedral of Troyes, and was set up at the entrance to the choir. In 1850 it was removed, and was placed in an obscure corner of the building. Money is required to defray the expenses of Troyes Cathedral, for the State grudgingly contributes only insufficient sums. It was accordingly proposed that the grille should be sold. A few weeks ago it was put up to public auction, and was knocked down to an American for 14,200 francs. The work could not be sold without a Presidential decree, and apparently one was obtained without any difficulty. The people of Troyes were desirous to possess the relic of antiquity, but they were unable to raise more than 14,000 francs for its acquisition. It seems incredible that the State was indifferent to the efforts of the inhabitants and would not help them to save a work of art which was of peculiar interest.

WAGES IN THE BUILDING TRADE.

ARCHITECTS and builders who read the *Times* must have been gratified to observe that the first of the articles which are to deal with "The Crisis in British Industry" relates to the building trade. There is no doubt that of late years, and especially at the present time, there is general dissatisfaction about the cost of building. As the public do not make their arrangements with workmen, they too readily assume that the increased price is mainly owing to the eagerness for obtaining a larger percentage by the architects and a larger profit by the builders. It is not sufficiently recognised that the advance of prices has been mainly caused by an advance in wages to workmen and, what is no less costly in the end, a diminution in the quantity of work which is produced, instead of being proportioned to the larger sums which are paid by the building owner.

The correspondent of the *Times*, whose communication we hope will be generally read, endeavours to explain how it happens that in spite of the increased cost of production the work that is executed is diminished. It is unnecessary to say that our readers will not be able to find any novelty in the particulars which are given in order to demonstrate the peculiarities of the system which is now followed by the workmen, for they are too familiar with the freaks in the labour market; but the statements will probably be revelations to the public in general, who have been amazed at the advance in the prices demanded for building and repairing houses. Indeed, the humblest leaseholder who is obliged to have repairs executed can judge from his own limited experience the state of affairs in the building trade almost as well as the wealthy men who have works erected on the largest scale.

One trade which is adapted to serve as a basis for calculations is that of the bricklayer, for in most cases the quantity of work executed can be ascertained by counting. The *Times* correspondent says that thirty years ago 1,200 bricks per day could be laid by a man in railway tunnels; twenty years ago 1,000 bricks could be laid in ordinary building work. At the present time 400 bricks is the accepted limit for dwelling-houses, shops and business premises. In public buildings, and especially those belonging to the London County Council and the London School Board, the number is less. A limitation to 330 bricks a day is approved by the London County Council, and in Board schools it has been found by observation that the average is only 200 per day, and in one instance the number fell to 70. As a consequence of the slow laying, the walling which now costs from 20*l.* to 22*l.* per rod could have been constructed twenty years ago at from 12*l.* to 14*l.* a rod. A case is referred to as occurring in the East End in the middle of last month on which twenty-four bricklayers and twenty-four labourers were employed. The wages paid to them amounted to 98*l.* 4*s.* 2*d.*, and the quantity of work executed for that money was 43 cubic yards, or about 20*l.* per rod for bricklaying alone. If to the cost of wages other expenses are added, it will be manifest that if only 22*l.* per rod were paid, a serious loss to the builder would follow. —That a much larger number of bricks could be laid without imposing any dangerous physical strain the workmen would not deny. Mention is made of a new hand who lately laid 724 bricks in a day without much exertion, but he was not permitted to exhibit such Herculean force for more than two days. His fellows compelled him to withdraw, and his fate will remain as a warning to ambitious bricklayers who may be anxious to demonstrate their possession of ordinary strength of arm.

What is true of bricklaying is no less true of the other trades. The *Times* correspondent acknowledges that an effective remedy is not easy to find. He believes, however, that if builders "formed a solid and compact body through which individual losses sustained in the interests of the whole trade would be met out of a common fund, there would be a better chance of overcoming trade-union tactics, and the arbitrary powers of the unions would, as one man has put it, 'tumble to pieces like a house of cards.'" On the other hand, he affirms it will be practically impossible to place the trade on a satisfactory footing so long as municipal bodies like the London County Council fix a standard which is determined by an exceedingly moderate

output, and which seems adapted for women rather than for men.

The position of architects in relation to the subject is unenviable. They can have no influence over the men, for it is their business to look after the quality rather than the quantity of the work which is produced. They have to insist on stringent clauses in contracts, and, while they are compelled to have them realised to the letter, they must sympathise with the builder when they discover that to faithfully carry out a contract is to bring a loss upon himself. If it could be said that the new system of slow production is a guarantee of superior workmanship, then the architect would be disposed to side with the men; but experience shows that such a result is not to be reckoned on, for the character of present-day work is not higher on the average than what was carried out ten or twenty years ago.

In investigating the causes of the present condition of labour in the building trades, it seems to us that too much is made of the trades unions and similar organisations. The correspondent of the *Times* has to admit that there are disputes and rivalries among different unions, and after the manner of monopolising capitalists powerful unions do their best to force those which are weaker out of existence. Whilst unionism helps to marshal workmen and to prepare them for contingencies, there are other forces which, we believe, are more effective, and which are too generally ignored. One is the tradition of former injustice.

All who study old records must be aware that there was a time in this country when building workmen, although among the most intelligent of all operatives, were subjected to regulations which now appear as almost tyrannical. If a great building was to be erected, and workmen in the immediate neighbourhood were not sufficiently numerous, those from other districts were forced to migrate there regardless of inconvenience to themselves. The conditions of labour were also severe. We lately referred to the position of building workmen in Beverley. From Easter to the Assumption they were compelled to begin work at four in the morning, and to continue, with intervals for meals, until seven in the evening. At other times the hours were from daybreak to nightfall. If they were tardy, which is now unfortunately the prevailing weakness, or absent, they were fined 12*d.*, which was a large sum in the fifteenth century, and as the money went to the borough funds excuses were not likely to be heeded. As several building workmen were necessarily obliged to keep together, they had not the liberty of independent action which was known in many trades, and in consequence they were more oppressed. Judging by the experience obtained since the passing of the Workmen's Compensation Act, the building trades are the most liable to accidents. But there were no arrangements for any relief resembling modern compensation, and in consequence many families were obliged to suffer. Much has been said about the glories of Mediæval buildings, but the men who erected so many beautiful structures must have had a very hard life.

If he will restrict himself to the circumstances of our time, the building workman can make out a reasonable case to support his claim to be paid high wages. He is expected to possess a knowledge which, however humble, is in its way scientific. The aim is now to induce him to attend technical classes in order that he may gain a knowledge of the theory of his operations, and be able to avoid errors which are dangerous to the community. It is not to be assumed that men who know so much should be paid at a starvation rate. Architects and engineers are always endeavouring to obtain work of an improved quality, and they are not satisfied to see men employed who are unintelligent. Although we may deplore the limitation which the workmen impose on their power of production, it cannot always be said to arise from a love of idleness. People who grumble about building expenses do not realise that the trades have peculiar drawbacks. It should never be forgotten that there are no foreign markets for English builders. The houses or factories which are erected by English workmen in another country or colony are so few, they may be neglected. It is only on edifices in this little island that the workmen can rely for means of subsistence. In many places employment is precarious; the weather prevents continuous work, and through financial obstacles

schemes of building have often to be neglected during lengthened periods. Philosophers who take broad views may say that in periods of ten years or twenty years the usual quantity of work will be found to be despatched, and that the outlay on building will continue to bear its relation exactly to different kinds of expenses. We cannot, however, expect workmen who have to insure the feeding, lodging and clothing of themselves and their families to take philosophic views. Their horizon is limited, and they are to be excused if they endeavour to think of the present moment rather than of a future period.

Nor is it to be supposed that the building workman should be an exception and remain uninfluenced by the desire to lead a more costly existence than his forefathers. Since the time of ADAM SMITH and the rise of political economy the ancient doctrines about self-denial and simplicity of life have been superseded. Those who first sought to raise the status of labourers announced to them that they could not have too many wants, for by seeking for better food, clothing, housing and education for themselves and their families the standard of life would be elevated and the price of labour would be increased. Those who profess to be enlightened have acted on the suggestion, and, as many censors believe, we are fast becoming too luxurious in our habits. It would be absurd to imagine that shrewd bricklayers, carpenters and plasterers should be indifferent to the influences around them and meekly accept wages of the same amount as were given to their grandfathers.

While we readily admit the workmen's claims, and, unless in some moments when there is apprehension that his buildings will not be carried out, there is not an architect who is not disposed to see workmen paid at a fair rate, we must insist that the workmen's own law of production should be modified. If an ordinary bricklayer can set 1,000 bricks in a day without being fatigued it seems absurd that he should spend the whole time in laying one-third the number. If in the intervals he could pursue scientific studies there might be some allowance for his wasted hours, but as it is man must deteriorate under such a system. Workmen who should rejoice in an exhibition of their force and manual dexterity are fast degenerating, and unless there is a change will reach the level of clerks in Government offices. If a compromise could be arranged, and if the price of building in consequence were reduced, it would be better not only for the public, but for the workmen. They should remember, although the fact is not recognised in the unions, that new buildings are not always imperatively demanded, nor must be erected regardless of cost. Examples of that class are rare. Much of the construction which is now carried out is no more than speculative. If the anticipated returns are likely to be diminished by an increased outlay, then capitalists will seek out other modes of investment. There is undoubtedly a limit to what will be paid in most cases, and if a few representatives of the building trades were allowed opportunities to judge of the number of plans and specifications which remain unexecuted at the present time in architects' offices owing to the excessive amount of tenders, they could hardly fail to announce that the men should now abate their demands, or, rather, perform more work than is approved by municipal wirepullers and union organisers.

The argument of the *Times* correspondent is that all trades are alike under the influence of the command that "men are not to put forth their best powers." That, of course, will be explained in the articles which relate to the various industries; but there is no doubt that the completest example of the new system is, unfortunately, to be found in connection with building, and consequently an industry which has claims to take precedence of all others is becoming a menace to honest labour, and an example which cannot be imitated without danger to society.

The Sanitary Committee of the Brighton Town Council recommend that application be made for sanction to borrow, for forty years, a sum of 26,000*l.* for the erection of two new permanent pavilions at the Borough sanatorium, to take the place of the corrugated iron pavilion which the Council were under an agreement with the Local Government Board to remove in May of this year.

NEW BOOKS.—II.

AS evidence of progress there is more assured satisfaction in seeing new editions of technical books than was aroused on their first appearance. A treatise may possess excellent qualities and yet may become a failure, but every new edition is a sign that the book has made its way and that the number of students of the subject which is considered is increasing. Some of the season's examples merit consideration. Thirteen years have elapsed since "A Practical Treatise on Bridge Construction," by Mr. T. CLAXTON FIDDLER, C.E., was brought out by CHARLES GRIFFIN & Co, LTD. The author has since accepted the Professorship of Engineering at University College, Dundee. Several works on the same subject existed, but this treatise has deservedly reached a third edition. One of the characteristics of the book is the extent to which the graphic system is employed in attaining results, and in that way the volume is adapted for the use of those who have not mastered advanced mathematics. The treatise also merits attention on account of the investigations of several of the latest American bridges. It is not to be expected that new discoveries in connection with bridge construction will be forthcoming at regular intervals. Professor FIDDLER has to acknowledge that the important question of working strength remains where it was as described in the first edition. He adds:—"It has not yet been found possible to frame any rules that would meet with general acceptance, nor to define exactly the connection between 'fatigue' and the effect of long-continued vibrations. If we proceed upon the hypothesis that there is no connection, we are logically driven to rules that would condemn as utterly unsafe a large number of existing bridges, and as the bridges remain safe and sound they bear a standing witness against the adoption of any such rules." The subject is one which could easily be made to excite alarm, especially in buildings of one class in which the margin allowed for safety is greatly diminished in order to save expense. The London Building Act, although it defines the thickness of walls, does not insist on any definite ratio between the strain on beams and columns under anticipated loads and the breaking weights. But as the Government, or rather the Board of Trade, are not entirely indifferent to the question, we may conclude that fatigue or dynamic vibrations cannot be assumed as dangerous unless after an indefinite period of time. Professor FIDDLER's treatise embodies the latest knowledge on bridge construction, and as such becomes an efficient guide to practice.

It would be an advantage for a reader if all new editions of books resembled the fourth edition of "A History of Architecture on the Comparative Method," by the late Professor BANISTER FLETCHER and Mr. B. F. FLETCHER, published by Mr. B. T. BATSFORD. To have four editions called for since 1896 can be claimed as a phenomenal success, which sufficiently indicates the merits of the work as well as the augmented interest which is being taken in architecture. Originally the history related to the architecture of Europe, or rather the principal countries in it. In the enlarged edition Indian, Chinese, Japanese, ancient American and Saracenic architecture are also treated. The plates have been increased in number to show examples which will correspond with the additions. It must not be supposed that the old plates reappear in a defective condition, which is the usual state when many impressions are taken. The photographs have been reproduced anew. The geometrical drawings are not reduced and illegible copies of old engravings, but have been especially prepared for this edition. Text and illustrations alike testify to the honest toil of Mr. B. F. FLETCHER, and it is evident that so satisfactory a work could not be produced under other conditions. It may be said that the history has only now assumed its developed form, and later students have been more favoured than their predecessors. The work has been prepared on lines that were laid out with precision, and on that account the book will serve as a companion to volumes on human development, as well as for imparting indispensable knowledge to novices in architecture.

In "Progressive Design for Students" (CHAPMAN & HALL, LTD.), Mr. JAMES WARD, who has already written

some books on ornament, gives such practical lessons as might be expected to be heard from a master in an art school. The ornament described is mainly derived from plant forms, although geometrical and other varieties are introduced. Managers of schools might with advantage pay attention to his suggestion about substituting exercises in design for the usual freehand drawing; for, as he says, Roman and Italian acanthus foliage has had a long innings, and a different class of subject would now be advantageous, as "too much copying of the acanthus foliage in art is dry food for the young student, and is apt to create in him a distaste for his work and to dull his imaginative powers." The dullest student is quickened by any method which evokes his incipient creative power. Mr. WARD begins with border designs which are applications of leaves and flowers. He then explains the adaptation of similar subjects to fill definite spaces. A large number of examples of foliage, flowers, fruit, insects, birds, fish and animals are introduced as suggestive subjects. There is a chapter on brush-drawing, and another on stencilling. In the latter the methods of the Japanese are described, but it has to be admitted that "the sharp, clean cut is such as only the deft fingers of a Japanese can accomplish, and this work is so perfect of its kind that no European can rival or hope to compete with it successfully." Japanese artists are likely to be more amused with English stencilling than with any other class of our art productions, for we seem to be incapable of any finesse when cutting patterns. Interlacing and strapwork ornament is also dealt with, and we are informed that "more than three parts of the ornament and decoration of the savage tribes, and Saracenic or Arabian, Byzantine and Celtic ornament are composed of interlacing lines and strapwork." The perfection of the style is, however, to be found in Arabic work, and for cartouche work no better example could be given than the beautiful cup by WECHTER, which dates from 1620. It is evident that Mr. WARD has had experience as a teacher of ornament, and young students will find his last book a stimulating introduction to ornamental design.

Another volume issued by Messrs. CHAPMAN & HALL is "Perspective for Art Students, Artists and Draughtsmen," by Mr. R. G. HATTON. The author some time ago wrote a book entitled "Figure Drawing and Composition," which gained approval through its original way of presenting the subject. In his "Perspective" he has also departed from the well-worn tracks. He knows that many for whom the science is necessary have not the courage to face geometrical problems, and he therefore endeavours as far as possible to make his diagrams suggestive of something solid which has to be treated perspectively. He recognises that architects' drawings have peculiarities of their own, but, as he says, "A very great deal, nay, possibly as much and more, can be done by the ordinary method which forms the chief part of this book." Mr. HATTON admits that the architects are the only people who can make perspective drawings, for what are accepted as such by students and teachers are impossible geometrical figures drawn by a roundabout process. The Board of Education now expect students to be more familiar than formerly with a perspective that can be turned to account, and nearly a hundred pages of Mr. HATTON's book are devoted to the questions proposed at this year's examinations, and of which he gives solutions and explanations.

A third edition has had to be prepared of Mr. G. H. HURST's "Manual of Painters' Colours, Oil and Varnishes" (CHARLES GRIFFIN & Co., LTD.). The author is a practical chemist and was lecturer on the subject at the Municipal Technical School, Manchester. The pages treat mainly of the manufacture of colours, but also afford information which will be found profitable by those who apply it. Mr. HURST tries to express numerically the covering power, durability and mixability of various paints, but all that can be done in so complicated an inquiry is only an approximation. He recommends the use of Mr. LOVIBOND's "Tintometre" for such investigations. He advises that all who employ coal-tar colours should be careful to make experiments about their durability, and it is explained how simple experiments can be made which will produce trustworthy results. Many will agree with Mr. HURST when he complains that some patent dryers "appear to be made

without the slightest regard to the purpose for which they are used, and some of them undoubtedly have the opposite effect to that desired." Among the patent paints recommended is ORR's white enamel or Charlton white. Mr. HURST says:—"Charlton white is an excellent substitute for white lead; its colour is good, its body is superior to that of white lead; in well-made samples it has about twice the colouring power, and while it possesses the advantages of not being discoloured by sulphuretted hydrogen, by sulphur gases, or pigments, and of being non-poisonous, it mixes well with all vehicles, so that it may be used for all kinds of painting with good results. It mixes with all pigments except those having lead or copper as their base." The words express the opinion of those who have employed Charlton white on a large scale, and the paint has also the quality of being economical. Mr. HURST's book can be recommended as serviceable to house-painters and decorators who are desirous to avoid adulterated compositions and to produce satisfactory work.

A series of photographs with the title "Famous Buildings of London" has been brought out by MARION & Co., LTD. The plates are of large size and have far more softness than the majority of similar views. The buildings selected are the Tower, the Guildhall, the Royal Exchange, the Bank of England, the Mansion House, St. Paul's Cathedral (two views), the Law Courts, Somerset House, the British Museum, the National Gallery, the Horse Guards, the Foreign Office, the Palace of Westminster, Westminster Abbey, St. James's Palace, Buckingham Palace, and the Imperial Institute. The series will form an acceptable and seasonable present to be sent to friends in the country or the colonies by people in London.

The "Practical Engineer's Pocket Book" and "Electrical Pocket Book," issued by the Technical Publishing Company, Limited, at Manchester, are published at a much smaller price than similar compilations. The pages are packed with the facts and formulæ required in everyday business, and each pocket book is an epitome of several larger volumes.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute was held on Monday evening last, Mr. William Emerson, president, in the chair.

The Hon. Secretary announced the decease of the late Mr. F. W. Porter, one of the oldest members of the Institute, an Associate in 1850 and elected Fellow in 1855. Mr. Porter worked mostly in London, and was well known to those who practised in the City. He was district surveyor for Holborn and the East Strand.

The meeting resolved that a letter of condolence should be sent to the family of their deceased colleague.

Mr. R. ANNING BELL read a paper entitled

Notes on Pictorial Mosaic from the Practical Side.

Mosaic, the author said, was a method of artistic expression which had many advantages peculiar to itself, and which also had very definite limitations. It was obvious to anyone who had studied the work of the past that the realistic representation of natural effects, although it had been sometimes remarkably near success, was not the way to get the greatest beauty possible out of the material. The material proclaimed itself at the outset as being unsuitable for realistic effects for two reasons. The first and strongest was the uniformity of its surface, which rendered it impossible to get that variety in the texture of the material which was the special reason why oil paint was so triumphantly superior to any other material in the rendering of the look of nature; the second, the fact that it had to be applied in separate pieces with an interval, however small, between them. The tints could shade off into each other with quite the subtlety of paint, and the interstices formed a lacework of ground colour and shadow which was the same all over the surface, and added to the monotony of the texture. The material, therefore, commanded a certain flatness as the effect to be aimed at, and, as a corollary to this, a certain archaism or stiffness in the design. This very flatness of effect imposed some restraint on the style of the design. It was not truly archaic, but was the fullest expression which the limits of the material permitted, and gave an artist plenty of elbow room for his invention if he had any feeling for the method. For pictorial mosaic the subjects chosen must be such as are suitable to austere treatment. The play of facial expression or momentary gesture was out of court. The characters introduced could be likenesses, or the occasion of their introduction a mere incident; the characters should be types, the incidents symbolic.

Discussing the practical questions of working and placing the mosaic, the author said that it should be some way from the eye and a good deal higher up. Like many other good things, when you want it you want a lot of it; it is best of all when entirely covering a large space and unbroken by architectural mouldings. This applies more particularly to gold mosaic, which, when covering walls and domes, running round the arches, flashing into a glistening flake of light as it turns the corner, and covering every inch of space above the capitals of the columns, is much more satisfactory in effect than when used in juxtaposition with stout arch mouldings and pilasters. Small panels of mosaic, the author said, he did not like at all, even where they are merely filled with conventional foliage, though that is better than the clumsy look of small figures close beside the smooth and exact forms of the mouldings which frame them.

In interior work gold mosaic—a treatment, that is, in which gold is largely employed—seems to be infinitely superior in effect to a treatment in colours only. For external work the use of gold was considered a mistake. First, from the practical side, owing to the construction of the tesserae, it was likely to be damaged by frost, as the film of glass which covered the gold leaf was very easily flaked off should any water get into the interstices; and secondly, from the æsthetic side, there was no mystery of shadow to bring out its peculiar beauties; it glittered so strongly in sunshine as to destroy the effect of the design of which it formed part, and it was inclined to look rather garish even in ordinary daylight.

Treating of colour, a light scheme was advised as preferable to a deep one. The cooler colours are pleasanter than the warm ones when used in any quantity. Much orange is peculiarly unpleasant, and even reds should be sparingly employed, and rather as accents to strengthen other colours than in masses for their own sakes. Blues and greens tell well at a distance; they have a charming quality, will keep their colour very fairly, though one needs to use a much stronger blue than might be expected if it is to be at all rich in effect. It may be taken as a general rule that differences of any light tints carry much further and tell much more strongly at a distance than similar differences in a lower key. In whites a very slight variety will have a very marked effect, and it will tell less close to than some way off, whereas quite the opposite is true of strong colours, particularly of red. Difference of quality in the glass has also a marked effect on its carrying power.

As regards tesserae, very great differences of size are inadvisable in figurework. A few large pieces among a large number of small pieces is unsatisfactory. If, however, large pieces are mainly used, a few small pieces here and there will rather enhance the effect. As an interesting example of this, Mr. Beresford Pite's mosaic outside Pergami's Restaurant was cited. The effect is quite unlike what we are used to in mosaic, but the author would like to see more work done in this method. It has many advantages in a place like London. Dirt cannot easily settle on it, and when it does it is easily washed off. It is permanent, and as the pieces are so large, less labour is required than with ordinary mosaic. For outside work the author found that a scale larger than was generally seen in old work might be used with good effect. Should varying sizes of tesserae be used generally over the work, any place where they are kept of uniform size will infallibly attract the attention by its regularity; this would be seen in a pilaster forming part of the background of the panel at Horniman's Museum.

Careful study should be given to the size of the interstices. In background work they can be quite large if the colour is not wanted to be very pure, the dull tint of the putty toning down or saddening brighter colouring. In such parts as faces, hands, or other details to which particular attention should be attracted, they may be quite close together, so making a comparatively solid mass of colour, and giving emphasis to the part. In fact, it would be difficult to work a face without keeping the tesserae close, as the tone of the interspaces would destroy the quiet modelling, which is all that is necessary or advisable.

Remembering the limitations of the material, anything like truth of relative values or strength in the general effect of light and shade should not be attempted. Simplicity in modelling is desired. Variety of tone as much as is necessary is obtainable by the relative strength of the colours used in different parts of the design. Realism of texture in draperies or other accessories should be avoided; trees, buildings, clouds, textiles, &c., should be felt to be rather symbols of those things than actual representations of them.

The author then treated of various matters and difficulties connected with the actual work of putting the mosaic upon the wall. His preference was for the method of doing the work *in situ*; a good result cannot possibly be obtained by other means. The modern Italian way is open to the obvious objection that you cannot see the progress of the work, and it is impossible to make alterations as you go on.

In translating the water-colour or pastel tints of the cartoons into coloured glass, a good deal of variety is possible, so that it is necessary to be always in touch with the workers to discuss with them which tint and quality of glass shall be used, and sometimes to vary from the cartoon when the work already finished may suggest it. There is great variation in the work as done by different workers. The setting of the mosaic is an essentially artistic craft; it is absurd of the designer-in-chief to say simply, "Here is my cartoon, take it and copy it exactly." It is impossible to copy it anything like exactly, and consequently complete co-operation between designer and craftsman or craftswoman—for it is one of the things that women do admirably—is absolutely necessary.

Though the most splendid, as it is the most permanent form of wall or ceiling adornment, mosaic is extremely arbitrary, and any attempt to stretch its limits is terribly punished. It will not easily put up with rivalry, and will not endure other methods of decoration in immediate juxtaposition. In interior work it quarrels with stained glass, and it destroys gilding, as may be seen in many a Roman church, and nearer home than that, where the choir-arch and columns are gilt around an apse of mosaic. Outside, the mosaic must be made the dominant feature in the scheme of which it forms part. No colour can stand near it but in humble subordination, and its surface texture requires considerable art and discretion in the choice of neighbouring materials. Nobly used it nobly repays; ignobly used it does nothing but disgust.

Mr. G. FRAMPTON, A.R.A., in proposing a vote of thanks for the paper, said he felt that Mr. Bell, with others who worked in mosaics, were really doing a great service in the art and architecture of this country. Compared with modern work on the Continent in the material, he believed that we had in our half-dozen men in England the finest workers in mosaic in the world. In the past Titian and other men had made mosaics, but they failed because they lacked the knowledge of architecture, and it seemed impossible for an artist to be a decorator unless he had been through an architectural training or possessed a deep love and feeling for the art. In Paris one could see good examples of outside decoration in mosaic, but all French work was not pleasing. The Panthéon in many places failed in its decorative treatment. Realism did not go with architecture. The speaker disliked strong black shadows in design.

Mr. WALTER CRANE seconded the vote, and said he agreed with the principles expressed in Mr. Bell's paper. The work of mosaics was of the nature of a built wall, and few things were more satisfactory than the good joints in brickwork. The extended use of the joints, which were the essential parts of the work, helped the design as a half-tone ground served a painting. Gold used externally was perhaps garish, but such an effect might disappear if it was not applied to a flat surface. It was possible to reproduce a cartoon, and he had found all the variations very faithfully copied when the tesserae were laid over the design. The work by this method was uninteresting to the workmen, but the fidelity of the reproduction was astonishing.

Mr. C. H. TOWNSEND said a certain form and finality given to the figure in mosaicwork were unhappily apt to be classed by those who did not understand the art as an attempt, and a slavish attempt, to imitate the method of work of those who had practised in earlier times. The artist showed his power in the influence the material had over his design, and a recognition of the limitations of that material. There could be no facial expression in mosaic. The face and all representations of nature could only be symbolical and emblematical. The price for such sacrifices was repaid, however, to the artist in the durability of his work. Mosaic was an imperishable material, and could stand all the vicissitudes of climate, handing down to men 500 years after the artist had perished his colour scheme as he had left it. The decadence of mosaicwork curiously coincided with the attainment of a perfect cement. Up to the year 1500 men had been working with lime cements, but in 1528 oil was used in the cement, and this enabled artists to obtain other effects in their work. The setting of the oil cement was slower and allowed of deliberation and alteration. Men were tempted to draw more ambitiously than they had done, and the art lost its purpose.

Mr. G. BRIDGE, speaking of the making of putty or cement, said the boiled oil should be mixed with lime two or more years old.

The PRESIDENT at the close of the meeting announced that Mr. Lacy W. Ridge had given notice that at the meeting on December 2 he would move the following resolution:—"That the Royal Institute of British Architects desires to thank the Local Government Board for the issue of 'Model By-laws IV. (Rural Districts).' While doing so, the Royal Institute would urge on the Board the desirability of preparing a model to enable rural district councils to regulate party walls as distinct from external walls, a matter for which the urban model by-laws, to which the Board refer them, are not available. The Institute grounds this on the belief that the existence of

properly constructed party walls has proved an efficient barrier to the spread of fire, and that it is undesirable that such protection should be withdrawn in places where it has already existed."

Mr. HERBERT W. WILLS also gave notice that he would move the following resolution:—"That in the interests of the profession it would be advisable to have a list of Institute assessors drawn up from whom the President would nominate, and that this list be from year to year revised."

CHRIST'S HOSPITAL SCHOOLS.

THE autumnal tints in the thickly-wooded surroundings of Christ's Hospital, near Horsham, are in their full richness. Charming as the neighbourhood is in springtime and summer, autumn possesses an attractiveness peculiarly its own. In whatever quarter one looks, the landscape is resplendent with the golden and crimson coloured leaves, which in the midday sun lend additional attraction to the view. Looking across West Horsham from Tower Hill the scene is very picturesque. Above the trees the magnificent range of buildings known as the Christ's Hospital schools, with their stately and dignified turrets, can be seen. The ground upon which these schools now stand was but a few years since a centre of activity in dairy farming; within less than a year it will be the home of one of the largest historical educational institutions of the world. With perhaps the exception of the chapel, which is now being erected, all the other buildings, says the *Sussex Daily News*, are finished. Interior work is rapidly progressing; statues are being put in their specified positions, the electric-light installation is being pushed forward, the ornamental grounds are being laid out with graceful and picturesque effect. These and many others are indications of the progress being made.

Perhaps the most interesting portion of the work at the present time is the fixing of the various statues in their defined positions. This is not by any means an easy task considering the fact that some weigh nearly a ton, and it speaks highly for the skill and care shown when it is stated that statues have been removed from the ancient building in Newgate, transferred to the new school, and raised and fixed on alcoves at a great height without being in the least damaged. In order that the school should retain some of its ancient associations the whole of the brickwork around the alcoves was transferred from the old school to the new. Another important work is the cleaning and restoration of the famous school picture. This work is of considerable importance and requires a great amount of delicate treatment, and it is gratifying to know that it has been admirably carried out by Mr. C. W. Carey, curator of the picture gallery at the Royal Holloway College, Egham. This picture, which next spring will be hung in the dining-hall, is 90 feet in length and 15 feet high, and for the purpose of removing, it was found necessary to cut the canvas in three pieces. The tablet to be affixed to this picture states:—

"This monumental picture, the work of Antonio Verrio, was designed and painted in 1684-90 to commemorate the foundation and endowment of this hospital and the Royal Mathematical School by His Majesty King Charles II. by letters patent in 1673 and 1675."

In an interview with the representative of the *Sussex Daily News* Mr. Carey alluded to the controversy which had arisen respecting the centre figure, as to whether it was Charles II. or James II. Mr. Carey was of opinion that it represented James II. He said Verrio having been engaged some years upon the picture, he probably completed the middle part of it during the first two or three years of the dates given on the tablet. Samuel Pepys, at whose instigation the picture was painted, had some difficulty in getting Verrio to finish it, and said the sides of the huge painting were probably hurried off at a later date by him and his assistants. This accounted for some of the work at the sides being inferior to the centre piece. The notorious Justice Jefferies and Samuel Pepys are portrayed, and also the founder, Edward VI, while the Lord Mayor, in a red robe, is drawing the king's attention to the work of the scholars, the head-master being in a kneeling position before a globe representing the world. On the right of the picture behind the head-master are depicted the boys, and on the left of the canvas are the girls, while the masters and professors are also represented, together with Verrio, whose back, however, is only shown, as he has turned and is presumably speaking to the attendants. The picture when hung will have a new frame of Oregon pine, the ceiling of the huge dining-room being of similar wood. The famous picture has now been thoroughly cleaned and restored, and has undergone quite a transformation.

Another ancient picture of the school, representing King Edward VI. presenting the Charter to the Lord Mayor of London, is extremely interesting. The Lord Mayor and the aldermen of the City are depicted, as well as the governors and masters of the school. Bishop Ridley in his robes also occu-

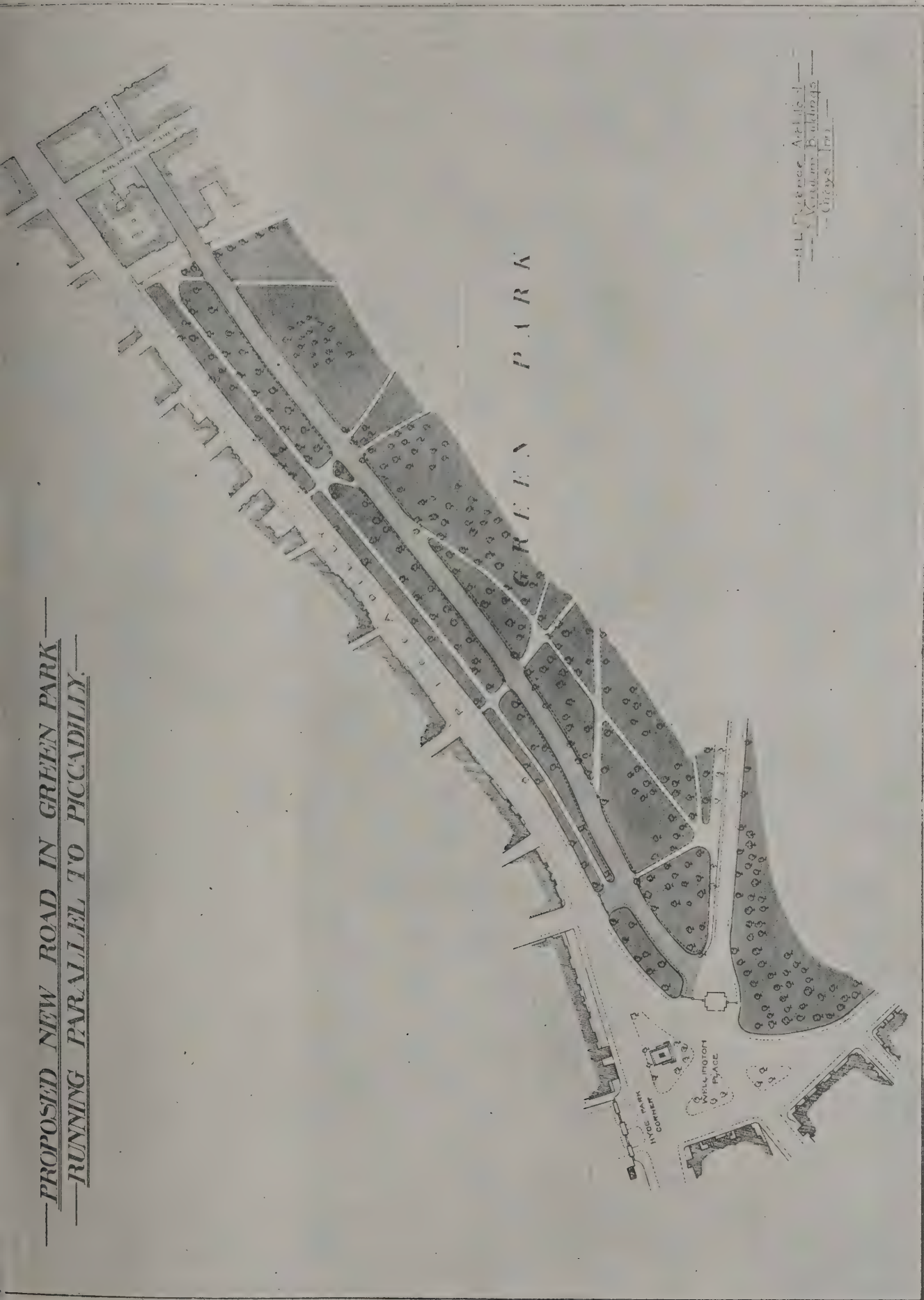
pies a prominent position, and the boys on one side and girls on the other are admirably portrayed. The tablet states:—"This great picture, attributed to Hans Holbein, commemorates the incorporation by the future King Edward VI., of pious memory, of the three royal hospitals of Christ, Bridewell and St. Thomas the Apostle by a common Charter dated June 26, 1553." This picture, reputed to be by Holbein, was considered by Mr. Carey to be the work of Sir Antonio More, Holbein having died before the incident depicted in the painting took place. More was a Dutchman, educated by a Dutch painter, and this was practically equal to being a Flemish painter. He then went to Italy and studied for a few years. Afterwards he proceeded to Spain, where he became eminent. He was then sent over to England by Charles V. to paint the portrait of Queen Mary for her future husband Philip. More was so successful in England that Queen Mary appointed him Court painter. He came to England about the year that the incident in the painting happened. The picture is placed temporarily in the library. The picture, when in the old schools, was indistinguishable owing to dirt and dust. Having had the varnish carefully removed, the picture underwent a thorough process of restoration, and the original colours are now showing with considerable richness. It is hardly probable that anyone living has seen the figures so clearly and vividly. In his delicate and difficult work of restoration Mr. Carey has been most ably assisted by Mr. Ralph Warner. Those who have been fortunate enough to visit the schools have been received with the utmost courtesy by Mr. Harry W. Tingley, manager of the works, and Mr. James Proudfoot, clerk of the works.

THE MANCHESTER SOCIETY OF ARCHITECTS.

A MEETING of this Society was held in the rooms of the Chamber of Commerce on the evening of the 14th inst., presided over by Mr. Darbishire, to hear a paper by Mr. Paul Waterhouse on "Architecture." Mr. Waterhouse said he took it to be an axiom that the greatest periods of historic art had been those in which there was no consciousness of art; that in fact consciousness in art was a danger to its existence. He would during his paper inquire whether we were to look upon the modern practice of analysing the very nature of art as a necessary menace to our powers of art production. Our age was above all, he said, an age of expression, and in architecture especially the powers which made the critic were, he thought, allied to those which made the producer. In fact, the very mental exercises that enabled us in these days to define and detect that essence of art which was unnameable to our forefathers were not necessarily destructive of creative skill, but might be turned, at least so far as architecture was concerned, into the instrument of a riper, fuller and more intellectual creation. After speaking of the simplicity which underlay Greek art, the beauty of some of the best specimens of Roman architecture, and the buildings of the Italian Renaissance, which last, he said, breathed the very essence of art, the speaker emphasised the fact that art, as we understood the word, was never talked about by their builders. In the great Gothic days the mason was a skilled craftsman who was imbued with a simple pride in his work, which was to him an expression of pious faith and Christian belief; but the mason would have been quite unable to talk about his work. Until the present age art was cherished and beloved, but never talked of. We had, however, to-day the wish, and sometimes the ability to express things which a former age would never have attempted to handle. Each preceding age had a style of architecture of its own. To-day an unconscious selection was exercised, but all noble work had its traditions in recognised styles, and was more or less the result of an academic choice. No architect to-day could consider himself equipped for his work without a sound knowledge of the elements in which he worked. So far from being choked, as some argued, by deeper insight, the architect must necessarily be a student. He attained the highest possible to him only when he could criticise his own work in the light of knowledge. Architecture was, so to speak, the application of taste to construction, therefore only the man of wide knowledge could be trusted to vary or modify the old rules, since his power to judge depended upon his knowledge of the work of his predecessors. Architecture was creative and arose from the divine in a man. As its name implied, it was the queen of crafts; the architect was not an imitator, but a creator.

At the monthly sessional papers meeting there was an exhibition of students' drawings, and the following prize-winners were announced:—

Design for a small plunge bath, Mr. Gerald Salomons. For the sketches in connection with the summer visits:—1st prize, Mr. Frank Osler; 2nd prize, Mr. Gerald Salomons. For measured drawings:—1st prize, Mr. Claude Paterson; 2nd prize, Mr. Gerald Salomons.



NOTES AND COMMENTS.

ON the preceding page we give a plan which Mr. HENRY L. FLORENCE has sent us. It shows a new road which he proposes should be formed across the Green Park, continuing the line of Jermyn Street and Bennett Street to the arch in Constitution Hill. This scheme, says Mr. FLORENCE, "would be inexpensive to carry out compared with any other I have yet seen, as by it only one house in Arlington Street has to be acquired, the new road through the park parallel with Piccadilly would be made at small cost, the underground lavatories and conveniences recently formed next Walsingham House would be undisturbed and the amenities of the Green Park would not be injuriously affected, as only a few trees would have to be removed."

It is to be hoped that the London County Council will not act precipitately in adopting the proposals of the syndicate that has offered to purchase, or to take on a long lease, the site which will be available on the north side of the Strand between the two arms of the new thoroughfare to Holborn. Public bodies are not indifferent to their own ease, and it is a temptation to get rid by one stroke of all the difficulties which are connected with the laying out of the site. The expenditure of about two millions sterling on the building has also an attraction for those who profess anxiety about finding employment for the working classes of London. But the innovation of a colossal building which may have all the plainness of the American "skyscraper" is not entirely without drawbacks. For the Anglo-American syndicate it might be an advantage to have a building of marked peculiarity, but metropolitan interests would not be served if all the buildings in the neighbourhood suffered in consequence. We do not anticipate that the new office block will excell all the other buildings of the Strand in beauty. In spite of the novelty we expect, unless it differs greatly from its American prototypes, it will be considered as inferior to them in appearance. The experiments in lofty buildings which we have already in London are not encouraging. Nor is there at present any marked necessity for the new enterprise. Offices are now easily obtained in the Strand, and they will abound in the new thoroughfare. There is also no one class of business which is dominant and likely to increase. Lawyers have not hitherto shown much eagerness to possess offices in the Strand. All these matters should be carefully investigated before a decision is arrived at. Although for the moment it may be believed desirable that we should Americanise our ways, it does not follow that one of the principal streets of the Metropolis should in any sense be sacrificed for that purpose.

THE Workmen's Compensation Act declares that "where total or partial incapacity for work results from the injury, a weekly payment during the incapacity after the second week not exceeding 50 per cent. of his average weekly earnings during the previous twelve months, if he has been so long employed, is to be the extent of the compensation." Can a firm of builders who have respected the conditions just mentioned to the letter be made defendants in an action under the Act? From most lawyers the answer would be in the negative; but the Workmen's Compensation Act is *sui generis*, and Messrs. LONGDEN & SONS have found themselves in the position of litigants because they faithfully observed the law. A bricklayer's labourer in their employment, whose wages were 30s. a week, met with an accident in October 1900. A fortnight afterwards the payment of 15s. a week began, and was continued until April 1901. Then they received a letter from the man's solicitor making a claim for compensation. The employers replied they were paying the full allowance, and were willing to continue it during the man's incapacity. Afterwards a sum of money was mentioned by the labourer. At Messrs. LONGDEN'S instance there was a medical examination, and they offered the sum which they regarded as sufficient. Then the case was brought into the Sheffield County Court, the labourer saying that, although Messrs. LONGDEN never disputed their liability and made him an allowance,

they never admitted it. Messrs. LONGDEN contended there was no question to arbitrate upon, but the judge made an order for a weekly payment of 15s. during incapacity. Messrs. LONGDEN appealed, and all the members of the Court delivered judgment in their favour. The Master of the Rolls held there was no question in dispute, and on that ground allowed the appeal. It would be strange if any other decision were arrived at. We are all supposed to obey the law, and it would be absurd if every person with whom we come in contact, and who may be injured if we act illegally, should insist on our entering into an agreement that we are willing to obey the law on some particular point. If something wrong is done, then there is occasion to be bound over to keep the peace, but to be bound over to all conditions of men would not be more ridiculous than the obtaining of a decree compelling an employer to pay the compensation which he had been paying willingly for several months.

ACCORDING to the rules of the Salon, a painter can only send two oil-paintings each year to the exhibition. In a case where one of the works should assume the form of a diptych or a triptych it will be left for the jury to decide whether it is acceptable as a single work. Some members of the Society of French Artists think that the English system, by which a Royal Academician is allowed to contribute several works to an exhibition, is preferable. Accordingly it has been proposed that forty of the French artists should have the privilege of exhibiting from five to eight works every year. The principle was adopted; but some of the best known members of the Society are of opinion that the innovation may become another cause of disunion by means of which French artists will be still more divided than they are at the present time. The subject was afterwards brought before the committee of ninety members, but their decision was in favour of the continuance of the existing arrangements.

ALTHOUGH the ancient Priory of the Knights of St. John of Jerusalem was suppressed in 1540, and the building which was erected to take the place of one destroyed by WAT TYLER was overthrown, Clerkenwell still retains by means of names some associations with the great order. We still have St. John's Gate, St. John's Street and St. John's Church. It was in the vault of the latter that Dr. SAMUEL JOHNSON and other philosophers attended to hear the revelations of the "Cock Lane Ghost," and were disappointed as they might have anticipated. The vault or crypt has now a chance of becoming better known. The London County Council have arranged to widen St. John Street, and for that purpose will take a portion of the churchyard. The rector regarded the proposal in a manner that is worthy of an archæologist. He suggested that as the Council would have some vacant ground contiguous to the church, they should give a piece of it for the purpose of affording additional light to the old crypt in exchange for the portion of the churchyard which they proposed to take. The County Council agreed to the rector's suggestion, and, in addition to giving the piece of land for the lighting of the crypt, they propose to lay out another piece of ground as an open space for the benefit of the neighbourhood. Care is also being taken to preserve the remains of the ancient Priory, and any further relics of it which are found in carrying out the widening of the street are to be preserved in the same way and not removed to a museum. Any ancient monuments which will be found are to be placed in the crypt. An application for a faculty which was made by the London County Council was at once agreed to by the Chancellor of the diocese of London.

ILLUSTRATIONS.

THE GREAT CENTRAL HOTEL: THE HALL.

CATHEDRAL SERIES.—CHICHESTER: TRIFORIUM, &c., FROM WEST WINDOW. WEST END OF SOUTH AISLE.

COBURG HOTEL, GROSVENOR SQUARE.

THE ARCHITECTURAL ASSOCIATION.

MEETING of the Association was held on Friday evening last, Mr. G. B. Carvill, vice president, in the chair. The following were elected members:—Messrs. E. S. Carr, J. C. Bucknill, F. Bisset, W. J. Delbridge, J. H. Goodfield, C. L. Hampton, G. O. Howship, A. S. Jones, E. J. Allenborn, E. G. Millar, D. W. Pollock, E. Pitt, H. Sandford, J. M. Thomasson, A. H. Whyte and E. H. Walker.

The Vice-President read the following list of donations ready given or promised to the New Premises Fund:—Mr. Macvicar Anderson, 250*l.*; the late Arthur Cates, 250*l.*; Mr. Henry L. Florence, 250*l.*; Mr. Arnold Mitchell, 200*l.*; Mr. John Webb, A.R.A., 200*l.*; Mr. E. A. Gruning, 100*l.*; Mr. Alfred Waterhouse, R.A., and Mr. Paul Waterhouse, 100*l.*; Mr. A. Brumwell Thomas, 52*l.* 10*s.*; Mr. William Emerson, 50*l.*; Mr. T. M. Rickman, 50*l.*; Mr. W. H. Seth-Smith, 50*l.*; the late Mr. William Young, 50*l.*; Mr. J. A. Gotch, 31*l.* 10*s.*; Mr. Reginald T. Blomfield, 25*l.*; Mr. G. A. Fellowes-Prynn, 25*l.*; Mr. A. E. Street, 21*l.*; Mr. A. T. Bolton, 10*l.*; Mr. R. P. Jones, 10*l.*; Mr. Walter Emden, 5*l.* 5*s.*; Mr. W. L. Trant Brown, 5*s.*; Mr. C. J. Blomfield and Mr. A. C. Blomfield, 5*l.* 5*s.*

The announcement was received with loud applause.

Mr. MAX CLARKE read a paper entitled

The Sanitation of a Country House.

I have been wondering since the committee of the Architectural Association asked me to read a paper on this subject whether they paid as great a compliment to the members as they did to me. That, I suppose, must be settled by each member for himself. As a rule, "sanitation" is looked upon as a matter to be got over with the least amount of trouble possible. When I say this you must bear in mind that I do not see as a sanitarian; I simply look at this branch of the duties of an architect in the same light as I do any of the multifarious matters he is called upon to deal with for the usual 5 per cent. Let me tell you how it came about that I was led to think seriously of the particular matter under consideration this evening. Many years ago I was walking through the streets of a provincial city with a friend; he had with him a clerk of works, who was engaged upon some of the buildings in course of erection, and had been upon others. Pointing to a pipe against a wall, this gentleman said, as well as I recollect, "The authorities are under the impression that is a ventilation pipe, but I just stuck the end of it into the ground, and it looks right and does no harm." This remark made a great impression upon me, as I could not help turning over in my mind, Were the authorities at fault in asking for a ventilating pipe or was the man at fault in so deceiving them? I always suppose the architect knew nothing of the transaction, but he could have done so if he did his duty.

Now, gentlemen, let me for a moment substitute the word "hygiene" for "sanitation." The explanation in a dictionary of the word "sanitary" is "pertaining to, or designed to secure health," and of the word "hygiene" "the science which treats the preservation of health." There does not seem such a difference between the two definitions that I might not substitute the latter for the former word. Now I must ask you to join with me to the introduction to Parkes's "Hygiene." The first paragraph is as follows:—"Hygiene is the art of preserving health—that is, of obtaining the most perfect action of body and mind during as long a period as is consistent with the laws of life. In other words, it aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote." This paragraph I consider the most admirable definition of "Hygiene." I should like to read to you the whole of the introduction, but time will not permit, and I can only suggest that each member, at least each junior member present, and also those who may look over this paper in print, should carefully read over and consider the whole of this introduction to Parkes's "Hygiene."

Just fancy for the architect what the above paragraph means; that each one has it in his power to assist in such an endeavour, which, if carried out, would alter in a great measure the whole state of mankind, because that is what it really means, "the most perfect action of the body and mind." Is it not what we are all aiming at in various ways, or should we? Now, let me ask, How many of the architects in the United Kingdom have a copy of this particular work in their library? How many have given it the consideration it deserves, or deem it one of the main objects of their lives to further the objects it treats of? If I can only bring some of them, and particularly some of the rising generation, to realise that "The Art of Architecture" embraces such a duty to the whole of mankind, I shall have accomplished something. There are many different views as to what the duties of an architect are. They seem to me largely to turn on how much an architect should do or can do for 5 per cent. Lengthy articles have been written on his duties as an arbitrator and such like, but where does one read of his duties in rendering growth more perfect, decay less rapid, life more vigorous and death more remote?

The other day the address of our President contained a paragraph to the following effect:—

"It is a fault in our training that our pupils are not on the works enough, and that we do not specialise enough. Highly trained men, with a diploma from a guild or an institute or what not, ought really, if our building is to be of our best, to confine themselves to design and the supervision of building construction, and not to meddle with surveying, valuations and dilapidations, bills, &c, work which certainly does not savour of art."

Might he not have added to the list "sanitary engineering?" It really is a most difficult matter, at least to my mind, to decide what we should do ourselves and what leave to others; for my own part I see nothing wrong in employing another man to do that for me which I know he can do better than I could myself; the only difficulty to me is, who is to pay him? Personally I feel I should if I undertook to do work for such and such a percentage, and if I were quite sure that my client got the advantage of the best information on the subject.

Now you may say, What has all this to do with the "Sanitation of a Country House?" and my reply is this, that I look upon the title of the paper from the very broadest point of view; it not only concerns the drains and pipes, but it deals with almost the whole structure from foundations to roof-tree, and it is only by an architect having in view the benefit of the whole community at large, that he will have fulfilled his duty to mankind in general and his client in particular, not to speak of himself, because no matter what the matter in hand may be, he is morally, if not legally, responsible for the result of his work, whether, in fact, it is a benefit to posterity or the reverse. I do not think this view of the case is brought home often enough to architects, and I take this opportunity of pressing it upon the younger members of the Association, for it is to those I am here to speak; the older ones, I hope, know as much about sanitation and hygiene as I do myself. Whether these two items always get the consideration they deserve from men in practice is a question.

My friends say that I am very prone to deal in facts when generalities would, in their opinion, answer, and my reply is that I think the more one gets to what some call "rock bottom" the better will our work be, whether it be as an art or profession, so I am going to give you a few instances of cases which have come before me. Some few years ago I had something to do with a building where the architect had, I presume, great confidence in his clerk of works and foreman; at any rate, they were given a plan of the drains; it was neither very good nor very bad, and the work was done. A short time afterwards, from various causes, the drains were overhauled, and it was found that there was one length of 9-inch pipe into which several 6-inch pipes were branched, and on the 9-inch pipe, between each of the 6-inch branches, a 9-inch syphon trap was discovered, each trap being quite blocked up with soil; so far as I recollect there were five traps in a length of about 60 feet.

I heard of a case the other day, equally interesting, but from another point of view. A house in the country—fortunately I do not know either the neighbourhood or the architect—built not long ago, lately from some cause the drainage had to be examined and was found to be defective. An architect was of course employed to put matters right, and his way of doing it was to write a letter to a builder instructing him to test the drains and put in new where he considered necessary, no supervision beyond a casual inspection being exercised over the country builder or what he "considered necessary."

I need hardly tell you my point is, that papers might be read here and elsewhere till doomsday without any practical result, unless men take a different view of their responsibilities from those I have just quoted.

Having pointed out to you what I consider the responsibilities of an architect are in connection with sanitation, it now remains to get an idea what are the sanitary requirements of any house, as I do not believe we should build any worse for the poor than we should for the rich, so far as sanitation goes.

We need not consider site, aspect or prospect, as it seldom falls to the lot of an architect to decide on the first, and any man worthy of the name of architect would deal to the best of his ability with the two latter items, on which there is plenty of information to be had, and they are not matters which require supervision.

Subsoil Drainage.

The lie of the ground requires most careful consideration, and the drainage of the subsoil, if such is required, always bearing in mind that it is better to lay land drains so that they will convey water away from the house than towards it. I mention this, as I saw a scheme a little time ago arranged to convey all the surface water in a pipe under the centre of a house when it would have been quite possible to take it away at the sides of the house. Land drains or agricultural pipes are liable to get blocked up at times, which should be borne in mind when laying them. The general drainage I shall speak of later.

Foundations and Concrete.

The foundations should receive careful consideration even in the country, taking care in a clay district to carry them well down beyond the level which may be affected by droughts; if this were done we should not hear of so many cracked buildings and underpinning jobs, which, though money-making for the architect, are not pleasant for the client.

In connection with the foundations, let me remind you that Portland cement requires more examination and attention than it usually receives from architects. I find it very difficult to get it sufficiently air-slaked—or, in other words, it is, as a rule, used when it is too fresh; it sets so rapidly that it is partly set before it is used in brickwork, drainwork or concrete, and if knocked up again of course it is not the least use; it is also more likely to blow or expand when used fresh, accounting for the number of stoneware pipe-collars fractured which are to be met with.

Damp Courses Over Area of Buildings.

Covering the area of buildings with Portland cement concrete, as required by many authorities, is for the purpose of keeping down ground damp, which, where there is no concrete or other damp-proof course, is liable to be drawn up in the building when the latter is heated, the damp or noxious gas sometimes coming from great distances where the earth is light or porous. In this way sewer gas may be brought into a building from defective sewers existing at a considerable distance. In order to prevent this, care should be taken that the cement is sound and slow-setting, and that the concrete is not porous; the aggregate not being too large, such for instance as brick-bats which one often sees in concrete. The surface should be well beaten down and smoothed over with a shovel so as to form an impervious face, even if the concrete is only to act as a damp-proof course, and not as a floor.

Damp Courses.

Damp courses in walls should receive great attention. The very old-fashioned clause to be found in specifications, "two courses of stout old slates bedded in cement" should, I suggest, be abolished, as it is most difficult to get stout slates, either old or new, the usual type being so very thin that they break easily and are often damaged before the wall is built upon them. Asphalte often suffers from being laid upon the walls and then used as a gangway by the men on the works, or is otherwise damaged by moving materials upon the walls before the brickwork is continued up over the damp course. Whatever the material may be, it should be carefully protected until the superincumbent walls are built, then we may assume that we have done all that can be done to insure a perfect layer of material to prevent damp rising. I do not give an opinion as to the best material to use, only care should be taken in its use. In connection with damp courses and floors, I doubt if sufficient attention is paid to cases where there are wood floors with a space under, one side of a wall and tiles or mosaic with concrete under at the other side. Then some precaution is required to prevent the damp getting from the earth and concrete on the side of the wall to the flooring and timbers on the other side.

Numerous methods can be adopted, but they are usually conspicuous by their absence.

Vertical Damp Courses.

Vertical damp courses or dry areas are most important to rooms underground. I do not think there can be any doubt that, where a wide area cannot be obtained, covering the external face of the walls with a double thickness of asphalte is the very best means of keeping out damp, the asphalte forming a horizontal damp course at the bottom and extending vertically above the level of the surrounding earth. My experience of hot compositions poured into a cavity in the wall is, that such care is necessary to prevent mortar droppings getting down, and to insure the hot material getting down and adhering to that already in, I shall not risk it. The external application I can see and examine, the internal I have no means of knowing whether it is in as it should be or not.

Ventilation under floors should be attended to, sleeper walls being built open to allow of currents of air through the open spaces. One forgets at times that putting in an air brick to the space under one room and carrying up the brickwork close under the floor all round without any openings other than the one is not "ventilation," it is only leaving a hole. All holes made in walls should have a fall outwards to prevent wet being driven in.

Bedding wall or pole-plates in main walls at the ground level is a mistake; they should always be carried on corbels, piers or independent walls. In connection with this, I think hoop-iron, well tarred and sanded, is to be preferred to wood wall-plates.

Walls.

With regard to walls, what shall I say? That you should avoid, if possible, using 9-inch walls. It is not sanitary work,

in my opinion, to build a house costing, say, 2,000*l.*, all the outer walls being 9-inch brick; and particularly when the bricks are porous, as so many are nowadays, put together with poor mortar and not even damped before laying. Of all the simple requirements in building I do not think there is any single one I have so much difficulty in getting carried out as wetting the bricks well before they are laid; if this is not done the dry brick absorbs all the moisture out of the mortar so rapidly that the material is little better than dust or dry mud. Hollow walls require attention to see that the cavity extends below the level of the internal damp course; also that mortar is not allowed to drop down the cavity and rest on the wall, thus forming a means for the damp to pass from the exterior to the interior lining of the wall. The lead covering of lintels or arches over openings in hollow walls requires attention to insure the ends of the lead being welted and turned so as to direct the moisture to the outer wall.

I have had some experience in building with granite, and I find it is a mistake to allow through or bond stones to extend to the inside face of the wall, as damp patches are usually found where the ends of these stones come. This is, of course, where neither brick lining nor "strapping" (the Scotch term for battening and plaster) are used.

Roofs.

Some points in roofs require attention; one of the most important, to my mind, being in cases where eaves gutters rest on the tops of walls or on oversailing courses. It is a practical impossibility to make a cast-iron eaves gutter perfectly watertight, therefore short lengths of lead should be fixed on the top of the walls at each joint in the gutter to take the water which escapes from the joint away beyond the face of the wall, not allowing it to percolate into the brick and stone, and so form a very unsanitary spot, as well as an eyesore on the inside. These pieces of lead should be welted at two edges, and of the other two edges the back should be turned up and the front edge turned slightly down where beyond the outer face of the wall.

Down pipes are, as a rule, too large and too numerous in most buildings, where gulleys have to be fixed at the bottom of each stack, involving unnecessary drains and extra work clearing out, &c. The pipes should always be fixed so that they are clear of the walls in case of leakage.

I would suggest that "soakers," which are more usual in the north than in the south, are better in every way than either secret gutters or flashing, the cover flashing being less liable to damage than flashing laid on roof slates. Soakers also make a good finish to hips where the taste of the architect does not permit of hip tiles, slate or lead coverings; the slates can be cut to a close joint down the angle. Slates of a greater width than the ordinary size should be used in these positions, so that no very narrow strips or small angle pieces are used, as these usually have only one nail or peg, and are very liable to get broken and fall off.

I think two courses of slating battens, the lower one vertical and the upper horizontal, is a good method of obtaining an air space in roof construction, and so rendering the interior less liable to be affected by changes of temperature. Felt should be clearly specified and examined as to quality, the cheapest, which is often seen on work, is not a desirable article.

Silicate cotton or slag-wool is a most admirable non-conductor, as well as being a sanitary material, to be used in almost all cases where hair felt is so often used, the latter being a happy hunting-ground for all sorts of vermin, whereas the slag wool is, to them, most objectionable; this applies to roof coverings, pugging in floors, "lagging" or covering pipes of all sorts, and all the other purposes a good non-conducting material is used for.

I need hardly refer to the fact that the common floor with wood joists, floor boards and ceiling plastered is not a "sanitary" floor, but it will be some time yet before we can get a solid floor of any sort used in country houses even of the better class, so I need not go into the difficulties of any of the varieties, either as to cost or execution, but I may say with regard to partitions that I think the stud partition of "quartering" plastered both sides should be consigned to the past, porous and pumice bricks, breeze concrete, perforated and solid plaster slabs, and solid plaster on expanded metal are all so much superior that their use should be universal even in country houses. Building the tops of chimneys in cement and the insertion of proper damp courses in them should be a matter of common practice, but I fancy more attention is often paid to the problem how to get a chimney to draw, or not to smoke, without recourse to a chimney-pot, than to whether the damp course has been properly put in.

The architect who has been called in once to try and cure a bad case of "dry-rot" in a house will, I imagine, need no reminder as to the necessity of making provision against such a misfortune arising in one of his own buildings; or one who has lived during a cold winter in a country house with no

means of heating the hall or passages, he, I fancy, will bear in mind the necessity of heating arrangements the nature of which need not discuss. I would only say avoid any system which combines heating and a supply of hot water for domestic purposes, unless the former be of the most limited description.

Windows.

The height of rooms, the lighting of them by suitable windows, and, if no fireplaces are provided, some means for the air to escape—I shall not venture to use the word ventilate in connection with this, even the cistern-rooms should be well lighted, although the water is not the better of any light. The height of the windows with relation to the floor and ceiling requires attention, many of the building regulations having aims on the subject, and it is not a pleasant experience, when a picturesque window or, mayhap, several of them have been ranged in the roof, to receive a polite request from the authorities to alter, so as to conform to by-law so-and-so.

High bottom beads or rails to double-hung sashes as a simple inlet for air are not made use of as often as they could; they also form a very excellent stop to prevent wetting in at these points when heavy gales blow directly on windows, as is so often the case in exposed situations in the country.

A played notch on the outside of the bottom bead is an additional safeguard against water, but do not cut the notch side down, as illustrated in a well-known work on specifications—evidently a slip, but still liable to be copied by the beginner.

I think we may now turn to the matters which are more generally known as sanitary. It is really to impress upon you many sanitary items there are which require your personal attention, and which you cannot hand over as a C. amount to your pet sanitary engineer. He, poor man, if he is a little above the average, may tear his hair when he reads water-closets, baths, lavatories and sinks dotted about over the plan, causing him the greatest difficulty in dealing with the arrangements, if (and bear in mind I say "if") you have not given the matter the consideration it requires from the first.

We shall presume all things are in order and the water-closets are grouped fairly well in one part of the building, as in outlying ones as possible, baths not over rooms where the flow of water from a quick waste will disturb the occupants of the rooms below, also where, if leakages occur, as little damage as possible will be done.

All these things are in order, and we shall now consider the fittings and drains.

First of all, let me assure you that the more simple the fittings are the less future trouble your client will have, and that it is a matter of some importance in outlying country districts. I spend a short time every year at a house where, if a plumber is required, he has to be brought a distance of some miles—about 7 by rail and 10 by coach. This is enough to make one careful that the taps do not require washers or the water-closets new seatings more often than is absolutely necessary.

Taking the important item of water-closets, I should advise in all cases a wash-down or pedestal basin, and in saying this I now lay myself open to criticism, but I have been through the points of noise and flush and non-cleaning and comfort and habit and all the rest of it, and am still of the same opinion. As to the particular type I shall not say much. I think it should not be what is called "large area" water surer; I do not think the clearing of these is at all satisfactory, even with flushing cisterns of larger capacity than we are allowed to use in London as a rule.

I also think the basin you select should have the most simple joint to the soil-pipe that can be obtained, consistent with perfect water seal or air tightness, depending upon the position of the joint; in fact, I desire a perfect joint which any handy man can make, as the basin may be broken any day by careless use or accident. The back of course should be straight, and the flushing rim, if it is of that variety, should show a good body of water falling all round. Seats should be of hardwood in two thicknesses, preventing the warping and cracking which seats made of one thickness are liable to. The water-closet should be fixed so that the flushing cistern can be placed immediately over the inlet arm; in old-fashioned position, back to a window, is the worst for a water-closet worked with a W.W.P. or flushing cistern. The seat should either have rubber bosses fixed on the underside or iron runners projecting from the wall, leaving the floor clear for sweeping; the hinges should be brass pivots, and plates fixed to the edges of the seats at the side—not butt hinges, which are very usual. Every water-closet basin should be white; painted basins hide dirt.

One point in connection with the W.W.P., which does not deserve the attention it deserves, is the rate at which it fills. In specifications that it is to fill in a minute and a half, which means that with a low head of water a $\frac{3}{4}$ -inch ball valve

must be used, and as this costs a little more than a $\frac{3}{4}$ -inch ball valve, it is not always used when it should be. As far as my experience goes, a perfect flushing cistern has yet to be invented, so I shall not offer you any advice upon the sort to use, except the fewer the working parts the better. The shell, if of cast-iron, should always be galvanised; wood lined with lead are best in some situations, both on account of quality in the water, and not so liable to damage from freezing. I think a chain or, for the better qualities, a brass rod, not in a slide, the best form of pull; a stop cock on the water supply to each flushing cistern is an advantage when repairs are needed; the position of the arm for connecting the antisiphon pipe is of some importance, and the method of connecting the pipe to the arm when the latter is of any stoneware type is a difficulty sometimes not satisfactorily dealt with; therefore I am inclined towards a lead trap to which the antisiphon pipe can be wiped as the best way out of the difficulty. If a valve closet must be fixed, use a good one; cheap valve closets with flimsy parts and badly finished brasswork require repairs frequently, and seldom repay for the small saving in the first outlay. A lead tray should always be fixed under these water-closets in case of leakage from the valve, with a weeping-pipe to the outer air having a copper flap at the end to prevent wind blowing up the pipe, and the same applies to the overflows from all cisterns and flushing-tanks. Care should be taken to make the wood fittings in connection with these water-closets easily movable and clear of plasterwork and the like.

Baths.

I do not think I have any particular remarks to make as to baths. Whether porcelain, cast-iron or copper be used must always be a matter of individual taste; the first-named is always difficult to heat if a hot bath is required. Copper is the best in this respect, but a good one is always expensive and requires stout cradling to prevent it being put out of shape.

The bath fittings should, in my opinion, be of ample size, so that the bath can be filled rapidly, and I lean towards valves or taps which are quite distinct, the hot supply from the cold, and the nose projecting well over the edge of the bath if not actually inside (which is a modern improvement), very useful in case the valve leaks at the stuffing box or union. Lead safes are useful where the baths are enclosed, but the best type of baths do not require enclosures, and with these lead safes are unsightly, a tile or mosaic floor being preferable, or perhaps a sunk marble slab if funds will permit.

The wastes from baths, sinks and lavatories should be ample in size to permit of quick discharge, and the outlets should be of sufficient area to properly fill the waste-pipe. The latter should, in my opinion, discharge into an open head outside, so that the traps may not be syphoned out. I think this a better method than having long continuous wastes fitted with antisiphon pipes.

Lavatories and Sinks.

The number of lavatories and sinks from which we can select is so large that all tastes are catered for. Those having complicated fittings should always have lead safes under in case of leakage. Enclosures are to be avoided, as they become receptacles for dirt and objectionable things in general. Every fitting of this nature should have a proper overflow. I have had considerable trouble with sinks for hot water washing-up in cases where glazed ware was unsuitable, and have tried wood lined with lead, zinc and tinned copper, but they all proved practically useless in a very short time in cases where there was much washing-up to be done with hot water; 2-in. teak put together with red lead, galvanised bolts and brass screws being the only form of sink suitable for this class of work; in this case I have had the waste plugs made hollow and of sufficient height to form an overflow. Care should be taken to have a proper grating in the waste washer, which can be removed but not too easily taken out, otherwise it is never in its place and pipes get blocked up. Angle strainers in sinks are a useful addition in this respect, if the domestics can only be induced to make use of them.

The vexed question of housemaid's sinks should be considered; what its use should be and to what extent they should be provided. Except in large houses I consider that a water-closet should be used for emptying the slop-pails into, but when a slop sink is required it should resemble a water-closet, not have a grating or anything of that nature to the outlet; the latter are only suitable for fixing under hot or cold draw-off taps, which should be provided in the housemaid's closet; the latter should be light and airy, not, as so many are, in some corner, deficient in everything except dirt and smell. If a real slop-sink is provided it must be fitted with a ventilated soil-pipe and antisiphon-pipe, exactly as a water-closet would.

All sinks should have high backs or some other means of preventing the wall or enclosure from getting wet; slabs of

marble, tiles, rendering with Portland cement, all answer the same purpose. No space for water to trickle down should be left behind sinks of any description.

Traps.

Usually of drawn lead, should be fixed under all fittings, with brass cleaning screw, the latter having a square or oblong projection for unscrewing, not a couple of small holes or an indentation requiring a special tool to unscrew it. A little time ago I spent an hour with a plumber getting out a screw tap to a sink waste; if it had had a projection to fit a spanner it could have been removed in one minute.

With regard to fittings generally, there seems to be a great laxity amongst men who do this class of work—both those who specify and those who execute—as to connections between fittings and lead pipes; these should always be made with “unions and flynuts;” as a rule the “union” portion is omitted, say, for instance, connecting a stop-cock; more often than not both ends are simply “tinned” and the joints wiped, so that to get the cock off for repairs the pipe must be cut in two places and two new joints made when it is refixed. If proper unions were fitted in the first instance they could be unscrewed, screwed up again without damage to pipes or fittings or a useless expenditure of time. I shall only direct your attention to one other point in connection with fittings, the word “self-cleansing” now in such common use. It would be well if all architects and, indeed, their clients also, would understand that this term does not mean that the particular fitting will keep itself clean, but that there are no corners or angles or the like where dirt can accumulate. Baths, lavatories, sinks and water-closets particularly require “elbow-grease.” The daily application of a closet-brush to water-closets would prevent such filthy traps as are on exhibition in too many houses of even the better class.

The supply of water to any house, country or otherwise, is a matter which should receive careful attention, but more particularly in the country. Very often the difficulties are increased by the supply being limited from various causes, such, for instance, as want of power to pump the water up to the required level. This is too large a matter to deal with to-night, beyond saying that the Canadian type of windmill, hot air and petroleum engines all serve the purpose when natural gravitation is not available.

Pipes for water service should be considered with regard to the nature of the water, particularly in some localities where both the water and the earth may cause deterioration of lead, the water thereby being contaminated occasionally. I show you a piece of lead pipe taken from a house near Bedford some time ago, the exterior eaten away by some action of the earth in which it was laid; some hundreds of yards had to be renewed in this case. I laid some lead pipes in the neighbourhood in trenches which were filled with sand and gravel, with which the pipes were surrounded to prevent damage from the above cause. Lead lined with tin, or iron lined with glass are very good, but are expensive, and the former require special joints. The storage of water is, of course, a debated point. Personally I am for storage, as I consider it can be carried out with very little fear of contamination, and it saves many a trouble when there is a hitch in the supply. In a country house a supply of water for drinking and cooking purposes can be stored in a glazed stoneware tank (if a slate or galvanised iron one is not considered good enough), either white or buff, which, with occasional cleaning, is about the most sanitary article which can be obtained. The general supply can be stored in a galvanised wrought-iron cistern, or cast-iron or steel plate. If the size is large the wrought-iron should never be less than one-eighth inch in thickness; many are so thin as to be useless in a very short time. I have found it an advantage when a galvanised cistern is used to have it thoroughly cleaned out when all the connections are made, and then to paint the inside twice with Portland cement, mixed with water to about the consistency of paint; this preserves the galvanising, and covers many of the little projections left in the process.

I need hardly remind you that close-fitting covers to the cisterns are essential; that the cisterns should, if possible, not be placed where the water is liable to freeze in cold weather. Near a chimney is a good position, other matters being equal. Ease of access should be considered for cleaning out, and safes under are always advisable in case of accidental overflow. The position of outlets deserves attention. They should always be in the side of the cisterns, so that dirt cannot get down the pipes, and if a supply is taken off for hot water it should always be taken out of the cistern below the general cold-water supply, otherwise there is a danger of leaving the hot-water system without water in times of scarcity. Stop-cocks, with unions and large wheel-heads, so as to be easily turned, are necessary. Wrapping the pipe with slag wool made upon canvas is desirable, and where casings are fixed they should be easily removable, not nominally so, as is so frequent. One further point with regard to cisterns. There are some on the market which are intended for use as a reserve

only, the supply under ordinary circumstances coming direct from the service-pipe and not passing through the cistern. I am not in favour of this arrangement, as the water might be in the reserve for so long a period that its use might be undesirable. I think we may now turn to the soil pipes and drains, dealing with the former first. Naturally lead is the most suitable material, except in cases where large quantities of hot water alternating with cold have to be dealt with; under these circumstances cast-iron is more desirable, as the lead is buckle and at times cracked by the alternate heating and cooling. The connection of the foot of the soil pipe to the drain is often not carried out as it should be; if the soil pipe be $3\frac{1}{2}$ inches in diameter and there is no necessity for it being larger, the brass tail-pieces usually sold have such a narrow flange that it will not bear on the collar of the pipe, but slips right down; a wide flange bearing all round on the stoneware socket should be specified and insisted upon. The tailpiece should be lined with the lead pipe the whole length, the latter dressed over the flange all round and the joint wiped round the top edge; the whole length of the tailpiece should show above the ground-level and the joint to the drain be made with cement well flounced and trowelled hard.

A sufficient number of tacks should be put to lead soil-pipes not less than every 5 feet, in pairs on both sides; bends should, of course, be avoided where possible; the soil-pipes should be carried up to a sufficient height to insure the gases coming from them being taken away clear of windows and ventilators, but not up the side of chimneys finishing close to the chimney-pots, in which case there is a great probability that as the air from the drain comes up the ventilating-pipe it will go down the smoke-flue, in many of which there is a down-draught except during the time there is a fire actually in the stove. Guards of some sort should be fixed on the tops of soil-pipes to prevent birds building, leaves, &c., getting in. Branches into soil-pipes should be arranged so as to avoid joints being in the thickness of walls, and the connections of water-closets to the branch pieces should be carefully attended to. So much has been written about drains and drain-pipes that I fear you will be weary of the subject. As a rule the drains are a simple matter if one only could get perfect joints, and it is to improve these that so much attention is directed at the present time. Certain points should always have careful attention; for instance, where there are separate soil and rain-water drains the former should always be laid below the latter. If the rain water be stored for use, the joints of the pipes conveying it should be most carefully made, as it is possible for water to get into the pipes from the surrounding earth as well as to get out, and the quality of that getting in may be very objectionable. One of the chief difficulties in laying drain-pipes is to get a true alignment at the joints, so that each pipe may be quite concentric with those adjoining. With the ordinary joint this is a matter entirely depending on the skill of the individual who lays and joins the pipes. The cement exuding when the pipes are pushed up together is another difficulty, careful wiping out of the pipes at each joint being the only remedy for this most frequent defect. To obviate these difficulties some use gaske or hemp bound round the end of the spigot, to make the end of the pipe fit close and concentric; but I think the pipes with a ring of composition on the spigots and sockets, and a cement joint outside is the best method for avoiding difficulties of this nature and taking a great responsibility off the man who actually lays the pipes. The concrete on which the drains are laid is a matter on which much difference of opinion exists. One of the latest text-books advises a bed of concrete about 6 inches thick, laid to a regular fall, on which the pipes are to be laid, the space under the body of the pipe then being packed up with concrete. I do not consider this a good plan. I suggest that a bed of concrete 6 inches or 8 inches thick be laid with indentations at regular intervals for the collars of the pipes, allowing room enough to make the joint. The whole length of the pipe bearing on the concrete renders the length much less easily knocked out of position by accident. When each length is completed a benching at the side, up to about the middle of the pipe, is sufficient. Except to resist external damage, there is no object to be gained in surrounding pipe entirely with the ordinary concrete, which is of too porous nature to keep in any sewer-gas or air which may escape from defective pipes or joints. Of course if a pipe surrounded with concrete, say 18 inches or 20 inches square, is to be looked upon as a beam, then it is superior to a pipe with benching up to its middle only, but I think we should always try and get a sufficiently good foundation for the drains to enable us to abandon the beam theory. It is, of course, necessary to protect pipes from shocks of heavy vehicles passing over them in such like. The concrete should be properly made with clean material, and where the earth falls in upon it when the pipes are being laid, it, viz. the earth, should be carefully cleaned off the surface before the additional layer of concrete is put down, otherwise there will be two distinct layers, one not connected with the other.

I need not trouble you with any remarks as to the size

ins, their inclination, whether they should be stoneware or iron; these are more matters of office routine, which can be decided to suit the circumstances of each particular case. We turn to the construction of manholes or inspection chambers, a few remarks are necessary. If built of bricks, renderings are not necessary to the walls; in ordinary earth a concrete extending to the external face of the wall is sufficient. I prefer rendering the interior with Portland cement to the white glazed brick; the joints in the latter away any benefit gained by the glazed surface of the brick. Some say that hot water damages the rendering, but as water does not often rise above the benching, I have not noticed the damage occur. The benching should be steeper than is usual and of a convex section, so that the solids washed down the inclined surface may slide into the central channel. No objection as to this form being convenient to stand upon, so long as it need not be considered. Manhole covers should always be galvanised; it is quite worth the extra cost. In the country, where every manhole would be out of doors and close to the house, the airtight quality of a cover is not of much importance as it is in towns. Turning to what is usually called the "air inlet," I think that, unless it is placed in an unfrequented position, it should always be carried at least 8 feet high, without any mica flap or valve of any sort; these are a delusion, they get out of order so easily, and their use as at present in towns will not continue very long. It is an accepted fact that there is an up current in most ventilated soil-pipes under ordinary circumstances, where a water-closet on the soil-pipe is used, it reverses the current for the time and drives the air out at the first available outlet, which is usually the so-called "inlet." For this reason, particularly in towns, the inlet should be carried above all windows and the like, but in the country a pipe the same diameter as the drain taken up say 8 feet with a bend and wire guard at the top to prevent leaves and so on getting in is quite sufficient, perhaps more than sufficient some will say and advocate a grating, say 18 inches square, close to the ground level. I need hardly remind you that overflows from water tanks should not, under any circumstances, be connected to soil drains, nor do I think surface water drains should, even with traps fixed on the outlet, unless some length of open channel intervene between the trap on the surface water drain and the connection to the soil drain.

Sewage Disposal.

In many districts the disposal of the sewage of a country is a great difficulty where there are no sewers in the neighbourhood and the pollution of streams is very properly objected to. In such cases it is perhaps desirable to consider the advisability of having a separate system of drains to take away wastes from baths, lavatories and fittings which do not contain solid filth with a tank, the contents of which can be used for watering gardens and the like; this would greatly reduce the amount of liquid to be dealt with. The sewage, or excremental filth portion, can then be dealt with by some of the methods of bacterial treatment, known by the various names of septic filters, septic tanks and such like. From what I have read on the subject, it seems to me that the treatment should be a form in which the sewage is passed first through a settling tank, and then through filters exposed to the light. It will not permit me to go into the various methods advocated. I would remark that I heard of the arrangement known as the bacterial tank from a member of the Architectural Association a good many years ago as Moura's Automatic Scavenger, a description of which can be seen in the Proceedings Institute of Civil Engineers, Vol. 68, page 359, 1881-82; vol. 72, page 359, 1882-83; vol. 73, page 502, 1884. From these notes I had a scavenger constructed in the latter part of 1893 at a private house I was then building, in the hope that it would render the sewage less offensive. This it has done most effectually, and though I cannot claim for it that the effluent is by any means perfect, it is not offensive. The tank has never been touched since the last eight years, and the last time I examined the contents they were quite clear and no solid matter had passed out of the chamber, showing that the solids had been broken down as anticipated. Since then I have advocated its use at lectures on sanitation, and I know other tanks have been built from the advice I gave, so that no patent rights can be claimed for this portion of the arrangements which are now before the public. It has always seemed that some precautions should be taken against freezing in an installation of this kind. I have heard of one "Automatic Scavenger" (Moura's) for the liquefying tank) being frozen up; it would be inconvenient indeed if such should be the fate of some of the tanks by our members; this is one of the points to be kept in mind.

I do not suppose any paper on the sanitation of a country would be complete without some remarks on the dry earth-closet. A properly situated and arranged earth-closet is a sanitary adjunct to a country house, no matter what class

it may be intended for. Everything good in this world requires attention, and because the earth-closet requires, perhaps, a little more attention than people care to bestow upon it, it has got into bad repute. I speak now of outdoor—and shall we say isolated?—earth-closets. If each country house was provided with an earth-closet constructed on the lines advocated by Dr. Poore in his books "Rural Hygiene" and "The Dwelling House," I imagine some of the difficulties of sanitation would be got over, and some of the dangers from the want of it would never arise. I refer, of course, to the "dry catch" system, the principle of which is that the floor on which the excreta falls slopes towards the outside, allowing the urine to run into a receptacle filled with mould and so the excreta is left dry, in which state objectionable gases are not generated. The usefulness of this arrangement depends, of course, upon regular attention—I do not say daily attention, as I intended to do at first, but regular. The difficulty is in getting people who will go just a little out of their usual course to obtain what will, no doubt, have beneficial results, the latter being to the people concerned not quite apparent. I can only commend to your attention the books of Dr. Poore, as you ought to know something of this method even if your clients cannot be brought to adopt the system advocated. I also suggest for your perusal an article in *Country Life* in the number July 6, 1901, called "An Experiment in Sanitation," written by Dr. Poore, which deals in a most admirable manner with the storage of rain-water and the disposal of slop-water and excreta, suitable for cottages.

Now, gentlemen, I have concluded, not because I have exhausted the subject, but because I was particularly asked not to make the paper too long, and also for the very good reason that I wish to leave time for a discussion, during which I hope that I amongst others may obtain some valuable information. I have tried to bring before you some points which are usually admitted as essential to the sanitation of a country, or, indeed, any house, but which I find require a great amount of supervision to insure their being done properly, and as the very essence of sanitation is thoroughness in every small detail, I commend it to your most careful consideration, with the final remark that one of our objects should be to try and obtain "the most perfect action of body and mind during as long a period as is consistent with the laws of life; in other words, to render growth more perfect, decay less rapid, life more vigorous, death more remote."

Mr. T. BLASHILL, in proposing a vote of thanks for the paper, said the subject had been so fully treated that it would remain a useful guide for those connected with building. The putting in of drains had not always in the past received the attention and care that was necessary for health. Workmen, however, were getting better because architects and builders began to realise the importance of skill and supervision in the work; the sanitary authorities tested the drains and thus prevented scamping. In the treatment of basement or lower floors there were certain difficulties stated in the paper. It was a mistake to put wood down where there was space below the floor; dry rot usually occurred, to prevent which it was necessary that the boards should be treated with three or four solutions. If dry rot was noticed in time the wood might be saved by scraping the fungus off and then painting the boards with the solution.

Mr. P. GORDON SMITH seconded the vote. He said they all knew the intricacies of Portland cement, and for this reason it seemed unwise to rely upon stoneware drain pipes. Heavy cast-iron pipes were a good substitute because they had so many advantages, more particularly in the length, which meant a lesser number of joints. The speaker said that a system of drainage by cesspools was wrong and should never be allowed.

Messrs. E. O. SACHS, W. E. HEWITT, F. HOOPER and E. GREENOP supported the vote.

The Vice-President, in putting the vote, said the whole paper and the discussion showed them that the architect in the matter of drainage should not be at all dependent on others. One error in the system of drainage for a house might spoil the purpose of the whole structure and make it unfit for use.

AN AMERICAN OFFICE BUILDING IN LONDON.

AN influential English-American syndicate has been formed, says the *Times*, for the purpose of erecting in the heart of London an office building on American lines, which it is asserted will cost 2,000,000*l.*, and will be the largest and handsomest structure of the kind in the world. The syndicate submitted this week to the London County Council a written application for a 999 years lease of the site, which, it is understood, is on the north side of the Strand between the two points at which the new street from Holborn will debouch on the Strand. The application is signed by the following gentlemen:—Sir Richard Farrant, Earl Grey, Sir C. Rivers Wilson, the Earl of Kintore, Messrs. Frederic B. Esler, New York;

George Cornwallis West, Charles S. Drummond, J. Oakley Maund and G. Sheriff Hilton. Mr. Esler is understood to represent large American interests.

The site of the proposed building has a frontage to the Strand of 750 feet, with even longer frontages to the adjoining new streets which are being opened. It has an area of 125,000 square feet. The architect's drawings, which accompany the application, show that the entire building will be seven storeys in height, but a portion will have three more storeys, the whole of steel construction with sandstone exterior. It will be equipped with every modern convenience. One of its special features will be a spacious rotunda under a lofty dome in the centre of the building, intended to form a general rendezvous. The basement will consist of extensive safety deposit vaults, a large restaurant, engines, boilers and machinery for furnishing heat and electric light, and the power necessary for running thirty lifts. The ground-floor will contain special accommodation for banks and insurance companies requiring large rooms and for shops. The upper floors will be given up to offices. It is estimated that the actual floor space available for letting purposes will amount to 900,000 square feet, and that there will be more than 6,000 rooms in the building. The rents payable by the tenants will include charges for heating and electric-lighting, cleaning and telephone service. Every office, or suite of offices, will contain a telephone, and the landlords will contract with the telephone company for a sufficient number of trunk lines to meet all requirements. The lift service will be in operation all night, and the building will be accessible day and night throughout the year. It is estimated that the annual maintenance charges will be upwards of 35,000*l.*, and that the construction will probably take two and a half years. The syndicate was anxious to obtain the freehold of the site, but was informed that the County Council would only grant a lease for 999 years.

THE CAVE PAINTINGS OF COMBARELLES.

IN the caves that honeycomb the limestone walls of the gorges through which flow the tributaries of the Dordogne there dwell, says the *Manchester Guardian*, no one knows how many æons back, the fellow-tribesmen of Rudyard Kipling's Palæolithic artist Ung. The glacial ice-cap that had once overspread the country was shrinking, and the deep snows had melted, but the climate was still semi-arctic, and even the hardy hunters of that day felt the need of shelter. They drove out the cave-bear and the hyæna and took their dens for homes; there they chipped their axe-like weapons of flint, and sharpened for themselves daggers from the bones of their prey. And sometimes in an idle hour they carved the handle of a dagger into the likeness of a deer, or scratched upon a blade-bone the outlines of an aurochs or a horse. French anthropologists have long been busy digging into the floors of these cave-dwellings, turning up the cold cinders of prehistoric hearths, and sorting out the piercers and bone needles with which Palæolithic woman sewed the fur garments of her lord; but quite recently MM. Capitan and Breuil have made a discovery which proves that some of these rude primitive hunters could not only etch and carve, but had made considerable advance as painters also. About two miles from the well-known station of Les Eyzies, in the valley of the Beune, at a place called Combarelles, these energetic members of the Paris School of Anthropology found and explored a cave which runs back into the hard limestone cliff for more than a furlong. In places the cave is only 18 inches high, and the explorers had to crawl in flat on their faces, but further in it rises to a height of 10 feet, with a width of 4 to 6; and here, at a distance of 130 yards from the entrance, they were rewarded by entering a veritable picture gallery; in fact, as Rudyard Kipling might put it, they chanced on the workshop of Ung. The primitive artist had covered either wall of the cavern for a length of over 100 yards with a highly spirited series of drawings of the wild beasts upon whose flesh he and his fellows lived.

Glory and honour to Ung!

Later he pictured an aurochs; later he pictured a bear;
Pictured the sabre-tooth tiger dragging a man to his lair;
Pictured the mountainous mammoth, hairy, abhorrent, alone.

Here in the cave of Combarelles are not one but several pictures of the mammoth, obviously drawn from the life; we see him there with his high, upright forehead, curiously hollowed out in the centre, with his strongly curved tusks, his shaggy coat, his elephantine feet, and his long trunk, sometimes hanging peacefully down, sometimes curled back in anger above his head as he charges headlong on his enemy. Then there are horses, numbers of them; all, however, of the hammer-headed type known to us already from the etchings on bone; but one of Ung's horses has on his back what looks like a housing, with a triangle pattern on it. We knew before

that Palæolithic man hunted the wild horse for food; but can it be that he had also tamed him and taught him to bear a burden? It would almost seem so.

Quite distinct from the horse, Ung has drawn for us a second animal which clearly belongs to the genus *equus*. It has a mule-like head and a stiff, upright mane; the upper part of the neck is very high and the tail is set on very low down. No such animal exists now in Europe, though the fossil Helladotherium of Greece may have resembled it, and within this last year nothing like it was known elsewhere; recently Sir Harry Johnston has discovered in the Semli forest of Central Africa a strange new mammal forming a link between the giraffe and the horse, to which he has given its native name of the Okapi. Possibly Ung has preserved for us the likeness of a European cousin of the Okapis. He has sketched other beasts, too, that few of us are likely to see anywhere except in the Zoo: His skilful hand traced the uniquely palmate antlers of the reindeer, the huge shaggy head of the aurochs, the curled frontlet of the wild bull, the beautiful head of the Saiga antelope, and the graceful backward sweep of the horns of the ibex. Many of these animals are done as separate figures, while others are so thickly crowded together that it is impossible to disentangle one from another, especially as most of them are covered with a quarter or half an inch of semi-opaque stalagmite. The outlines have been cut into the limestone rock with a sharp tool, probably a flint, and in some cases a black pigment has been neatly laid in the groove, so as to make the definition perfect. One thing alone is lacking. Ung declined to be a portrait painter, and with only a single exception, and that of doubtful attribution, the human form is absent from the walls.

But either Ung had a rival who was determined to excel him or else he himself was ambitious and, when he had finished his work at Combarelles, resolved to become a colourist. A Font de Gaume, a mile from Combarelles, a steep cliff rises from the floor of the valley of the Beune, and in the face of it 70 feet from the ground, MM. Capitan and Breuil found the entrance of a second cave. They crawled and squeezed through some very narrow passages, but after they had worked their way in for about 70 yards the sides suddenly opened out and they found stretches where the cave was 10 feet wide and 20 high, and here the walls were literally covered with pictures. Ung (if it was he) must have felt that here he had free scope, and he worked with a larger brush. Some of the animals are almost life-size. There is an aurochs 8 feet long and 4 feet high, and a reindeer above 5 feet. And the artist used colour here with great effect. The outline is done with a mere scratch, but it is emphasised by a line of black paint a quarter of an inch wide, while the big reindeer is painted black all over, giving an effect like that of a figure in monochrome on a Greek vase. Other animals are outlined in black and then a broad tint of red ochre is laid over the whole figure. Others, again, were done with an underlayer of black and then red ochre laid on over it, giving a warm brown tint. This is the tint used for the head of the big aurochs and for other aurochs' heads, some of which are shown in profile and some full face. Other animals, again, have the head painted black and the body brown. In fact the artist may be said to have worked in fresco. Sometimes he scratched his lines on the rock and laid the paint over them; sometimes he laid on the paint first and then cut in lines where he wanted. Nay, he even utilised the natural bosses and hollows of the rock to accentuate certain desired features, and there are cases where after completing his subject he scraped away the rock all around it, leaving the figure of the animal in bold relief. The artist of Font de Gaume was a man of resource. But here, as at Combarelles, he drew no human forms. Did some scruple of a primitive religion forbid it? These wall-paintings of the Dordogne caverns arouse more curiosity than they satisfy. Why did the creator of these works set them in the recesses of a dark cave where no ray of daylight could show their beauty? Was he content that they should only be seen by the smoky glare of torches? Or was this too due to religious scruple, and were these caves the mysterious Halls of Holies of some primæval cult? We shall never know.

THE LIVERPOOL CATHEDRAL.

AT a meeting of the Childwall Rural Deanery, held in the Church House, Liverpool, Mr. Robert Gladstone explained the movement for the erection of a cathedral in Liverpool, a scheme which was now within measurable distance of realisation. When the subject was before the public in 1884 the late Bishop Ryle had told him that he would rather see twenty new churches in the diocese than a cathedral. The circumstances had changed; there was a new bishop, and a proposal for a cathedral had again come to the front, and it had been received with quite as much favour as could be expected. The total amount of money available for the work at present

s 150,000/, and he thought that with that they could be able to make a very fair commencement. When the former scheme was being discussed the site was upon was St. John's Churchyard, but it did not commend itself to the people of the town or to the architects. As the plans made in 1884 were drawn with the view of harmonising the building to the Classical style of George's Hall, they could not be used now, as a different site had been selected. The cost of the Monument Place site would be a quarter of a million of money, and to spend so much on the site alone was out of the question, even if it had the disadvantages of being surrounded by mean, poor property, among which were a number of public-houses. The committee having given to the matter the best consideration they were capable of, decided to fix upon St. James's Mount. Some people had found fault with that site on the ground that it was not central enough; but he thought if the wide and populous area between Garston and Bootle were taken into account, it would be found to be not far from the centre. Some other faults were put forward which, in his opinion, were so trivial that he had tried to find "a causa causans" underneath those trivial objections, and he thought he found in the question of orientation. A north and south position was what was contemplated for the cathedral, and he admitted that there was no ecclesiastical or religious reason for any other reason but a sentimental one why that should not be done. Those who had been in Rome could have seen Christian churches built in all positions. Therefore the question of orientation should not be allowed to stand in the way of the site at St. James's Mount. With regard to the utility of the site and its suitability for a magnificent edifice, he said without fear of contradiction that it would be difficult to find its superior in the whole of this country. Then there was another disputed point—the style of architecture to be adopted. The committee came to the unanimous opinion that it ought to be Gothic. Well, they had since then contented to allow the question of style to remain an open one, but if the architects of England could create a new style and show some beautiful plans, the committee would be very pleased. He had studied architecture for forty years, and he believed it would be impossible to find anywhere within the area such beautiful ecclesiastical buildings as those which were to be found in England. There were a great number of fine models in this country, and he hoped the architects would be busy in submitting to the committee a design that would be worthy of the great diocese of Liverpool. He was sorry to hear that the committee had been charged with being narrow-minded and shortsighted in this matter, and that they were going to produce a mean and shabby building. What they contemplated was a building 400 feet in length by 200 feet across the transepts, and 100 feet from the floor to the roof, which, when finished, would cost half a million of money. If it was a mean and shabby building, he did not know what meaning of language was. There was another objection, which he called a trivial objection. They were told that they were going to interfere with the public garden by one set of people, and by another they were told that they were going to interfere with the graves in the cemetery. At the present moment the committee did not contemplate using a single foot of public garden or interfering with a single grave. What was done by-and-by he did not know. These were the facts, and he hoped the Childwall Rural Deanery and other bodies in the diocese would do their best to help on the work. Mr. Hampson said that in order to get on with so great a task as that of the cathedral people should sink their own views in deference to those of skilled and experienced people. They were promoting a Bill in Parliament to obtain powers to purchase the site, and also to purchase the advowson of Liverpool, in respect of which latter negotiations were going on between the committee and the trustees. The Rural Dean said the object of the meeting was to devise a system of raising funds in every parish for the cathedral scheme. A committee and organising secretary were appointed.

STONEHENGE.

THE following communication has been addressed by some archaeologists and societies to the Wiltshire County Council on the subject of the recent erection of a barbed wire fence around Stonehenge, and the resulting interference with the ways which have hitherto given the public free access to the monument:—
We think it our duty to call your attention to what has recently been effected in the case of Stonehenge. As the Council is doubtless aware, the owner of the site, acting, it is alleged, with the advice of certain learned societies and the object of raising funds to provide for the cost of preserving the monument and of maintaining a caretaker in the place, has erected a substantial barbed wire fence round

Stonehenge and a considerable extent of the open down to the south of the monument, and levies a charge of 1s. a head for permission to enter the enclosure thus formed to view the monument.

While admitting the necessity of safeguarding the monument in the future, and while appreciating the motives which have actuated Sir Edmund Antrobus, we desire to point out the grave legal and other objections to the course which has been adopted to provide funds for the purpose.

Stonehenge has been freely open to the public from time immemorial. It was doubtless originally a public place either of worship or of sepulture, and it must be purely accidental that it has come into private hands. However this may be, the fact that the outer earthwork of the monument has been cut through to a depth of two or three feet in more than one place by carriage-ways, proves the great length of time during which the public have openly and largely resorted to Stonehenge.

The recently-erected fence runs across the carriage-ways to which we have alluded and obstructs all passage by them. It appears to us that this obstruction is illegal. We are advised that the ways in question are public ways, and if so, it is beyond doubt that they cannot be stopped except by an order of quarter sessions.

There can be no doubt that the law fully recognises that a right of way can be acquired by the public to a monument or place of interest and beauty irrespective of the ownership of such monument or place, or of whether the way is a continuous one or stops at the point of interest. This was lately recognised by the Court of Appeal in the case of the Giant's Causeway in Ireland. The Lord Chancellor of Ireland, in that case, specially referred to Stonehenge by way of illustration:—

"Could anything," he said, "be more absurd than to suggest that an owner could not dedicate a public way to allow the public to see some points of view of world-wide fame on his property which could be readily seen from or at the end of the road? Would it not be strange if the owner of Snowdon could not dedicate a way to the summit, or if the owner of Stonehenge could not do the same to that great national monument; or if the owner of our neighbouring Sugar Loaf or Dargle were precluded by some vagary of the law from dedicating a road to permit their countrymen for all time to view these lovely spots in our island? I am thankful to say I do not believe it to be the law."

There seems to be no doubt whatever that there are two ways at least leading up to the very edge of the circle of stones of Stonehenge to which the right of the public is clear, and which must be deemed to have been dedicated to their use in very early times by the owner of the land and stones, and which have been obstructed by the fence as now erected.

The assertion of the public right to these footways would incidentally restore access by the public to the monument, and render impracticable the charge of 1s. per head to visitors, a charge which, in our opinion, ought not to be tolerated in respect of a monument which has from time immemorial been open to the public. Apart from the question of the public right of way, we see no reason why access to the monument should be restricted to those who can afford to pay 1s., and refused to the far greater number who cannot afford to pay this sum.

We think, therefore, we are justified in appealing to the District Council and the County Council to vindicate the rights of the public in respect of these footways and the access which they give to a monument of such unique interest.

We earnestly deprecate the enclosure both as illegal in respect of the obstruction of public ways, and as detrimental to the interests of the public.

It has been said that the enclosure is necessary for the protection of Stonehenge, and further that works of restoration are urgently needed, and that the payment for admission will supply the funds required for these works. We believe that for the purpose of protection caretaking is all that is desirable; indeed, some caretaking is admitted to be necessary in any case; while the expenses of maintenance and such restoration as is desirable, we are certain, would readily be supplied out of public funds as contemplated by the Ancient Monuments Acts, if the public were assured that they were undertaken in the public interest.

Stonehenge is a national monument of rare, and, in a sense, of unique interest. It is, we believe, the grandest and best preserved specimen, not only in the British Isles but in Western Europe, of those stone circles which seem to have played an important part in the life of a widely spread branch of the human race in remote ages. In its day it must have been a public place of great importance. Nothing should be done which interferes with the national interest in such a monument. We need not point out that the erection of a fence round it and a charge for admission seriously and prejudicially affect such interest. The Ancient Monuments Acts have indicated ways in which Stonehenge may be placed in public guardianship. If the national interests in Stonehenge were permanently assured the question of its physical protection would assume

a different aspect. We understand that the County Council was willing to undertake the protection of the monument under the recent Act.

We also desire to point out that the fence as erected is not in accord with the scheme contemplated by the representatives of the learned societies at a meeting on the spot. It was then proposed, we are informed, that the fence should be at a much greater distance from the circle of stones than is now the case. This would have necessitated the diversion of a public highway, and the meeting appears to have separated under the belief that nothing would be done until the necessary public consents had been obtained for the diversion of the highway. The application for the diversion of the roadway would have called public attention to the whole subject, and have given opportunities for objection. It would then have been pointed out that the other ways referred to in this letter would also be obstructed.

It is a mistake, therefore, to suppose that the fence, as now erected, has been agreed to by the representatives of these learned societies. It will, we think, be universally admitted that the fence is much too close to the stones, and is painfully prominent in any view of the circle. It is, in fact, an eyesore, and the character of the monument in relation to the surrounding country is completely altered.

Under all the circumstances of this case we trust that the local authorities of the district will take action to assert the public rights over the ways to the monument across which the enclosing fence has been erected, and will further take whatever steps may be necessary for the protection of this unique monument.

It is signed by representatives of the Commons and Footpaths Preservation Society, the National Trust for Places of Historic Interest or Natural Beauty, the Kyrle Society, Professors Flinders Petrie, Sir W. Martin Conway, Percy Gardner and Ernest Arthur Gardner.

GENERAL.

The Winter Exhibition of the Royal Academy, which will open on the first Monday in January, will consist of works of the old masters of various foreign schools, principally Italian and Dutch.

The Princess of Wales, accompanied by Prince Francis of Teck, visited the exhibition of portrait painters at the New Gallery last Friday.

An Exhibition of Scottish art, past and present, is now being arranged at the Whitechapel Art Gallery, and will be opened on December 12. Six or seven fine portraits by Raeburn have been already promised. Pictures by Sir George Harvey, Sir David Wilkie, Phillip, Dyce and Pettie, and many other works by Scottish Royal Academicians, as well as by Royal Scottish Academicians, will be included in the collection. Further loans, however, and contributions towards the necessarily heavy expenses will be welcomed by the director and committee.

The Right Hon. Sir Richard Henn Collins, Master of the Rolls, has been appointed by the King to be Chairman of the Historical Manuscripts Commission, in the room of the Right Hon. Sir Archibald Levin Smith, deceased.

The Pitt Rivers Museum has lately received an interesting and important addition, the gift of Professor Tylor, consisting of a totem post, brought from Masset, a village in the north of Queen Charlotte's Island. These totems are becoming extremely rare, for the Indians are discouraged by the missionaries from their production. Professor Tylor's totem was obtained with some difficulty through the obliging agency of the Hudson's Bay Company. It consists of a cedar wood trunk, some 40 feet in height, boldly sculptured in several groups of figures one above the other. These represent the bear and raven totems, which are said to belong to the same group. The totem post is flanked by two house posts from the same village, one of which is a representation of the "killer-whale," a head at either extremity, the centre filled by a figure of the demon-tenant of the whale.

Sir John Aird, M.P., has left London for Egypt, where he has to meet the Khedive and inspect the works in progress at Assuan and Assiut.

An Exhibition of portraits of kings and queens of Great Britain and Ireland will shortly be opened at the New Gallery. It is hoped that portraits from the time of Henry VII. will be lent. Mr. Leonard C. Lindsey, F.S.A., is acting as secretary to the exhibition, which will have for title the Monarchs of England.

The Woodbridge Urban District Council (Suffolk), with a view to prevent street accidents at dangerous corners, have, on the recommendation of the surveyor, erected mirrors which enable drivers approaching a corner to see vehicles approaching from other directions.

The Chinese Government, it is said, has paid 500,000 roubles for the restoration of the Russian Legation church at Peking which was destroyed during the disturbances of last year, and also agreed to permit a large orthodox monastery to be built in Peking.

Mr. Arthur John Evans, keeper of the Ashmolean Museum at Oxford, has been elected corresponding member of the Munich Academy of Sciences.

A Fund is being organised to collect a sum of 1,600*l.* to erect a spire, in accordance with the original design, on the church of SS. Philip and James, Cheltenham, in memory of the late Canon Hutchinson.

The City Corporation intend to apply to Parliament for further powers which would give them greater control over the public thoroughfares of London, especially in the matter of the tearing up of the streets.

An Underground Railway is authorised to be constructed in Paris from the Palais Royal Square to the Place du Danube, at the north-eastern extremity of Paris. It will pass under the Avenue de l'Opéra, the Rue Lafayette and the Buttes Chaumont. The line will be four miles in length, and is estimated to cost 18,500,000 francs.

Belfast Merchants and others interested are giving subscriptions to defray the expenses which will be incurred in promoting a Bill under the Scotch private bill procedure in connection with the project of Mr. James Barton, C.E., for a tunnel between the coast of Galloway and Islandmagee, county Antrim.

The Collection of pictures by Mr. E. A. Abbey, R.A., representing "The Quest of the Holy Grail," which have been on exhibition at the Guildhall Art Gallery, was closed last Tuesday. The pictures will be removed to America, where they are to adorn the walls of the new public library at Boston.

The Tender of Messrs. Collings & Godfrey, of Tewkesbury and Cheltenham, has been accepted for the erection of a town hall at Cheltenham. The contract is for 29,310*l.*, and will be completed within twenty months.

A Meeting of the Royal Society of Antiquaries of Ireland will be held in Dublin on Tuesday next, when the following papers, "Slane in Bregia, co. Meath; a Study of its Franciscan Convent and Hermitage," by Thomas J. Westropp, M.A., and "The Cross of Blackrock, co. Dublin," by Patrick J. O'Reilly will be read.

The British Association of Waterworks Engineers will hold its winter meeting at the Geological Society's rooms, Burlington House, W. (by kind permission of the President and Council of that body), on Saturday, December 7, when the chair will be taken at 10.30 A.M.

Acetylene Gas is now adopted for the illumination of the smaller French towns. Among the latest instances are Senonches, Cloyes and Voves.

Mr. E. T. Batsford is preparing for publication a work on "Formal Gardens in England and Scotland," by Mr. H. Inigo Triggs. It will be completed in three parts at 21*s.* each, of which the first will appear on December 13. The specimen plates suggest the beauty and professional interest of the work.

Mr. T. Worthington, the assessor, has awarded the three premiums for the best designs in the recent competition for a new fire station and police station in Manchester as follows: namely, first premium, 300*l.*, to design No. 23, Messrs. Woodhouse & Willoughby, 100 King Street, Manchester; Mr. John Langham, 9 Albert Square, Manchester, joint architects; second premium, 200*l.*, to design No. 25, Mr. George Watson, architect, 50 Queen Street, Edinburgh; third premium, 100*l.*, to design No. 19, Messrs. Mangnall & Little woods, architects, 42 Spring Gardens, Manchester.

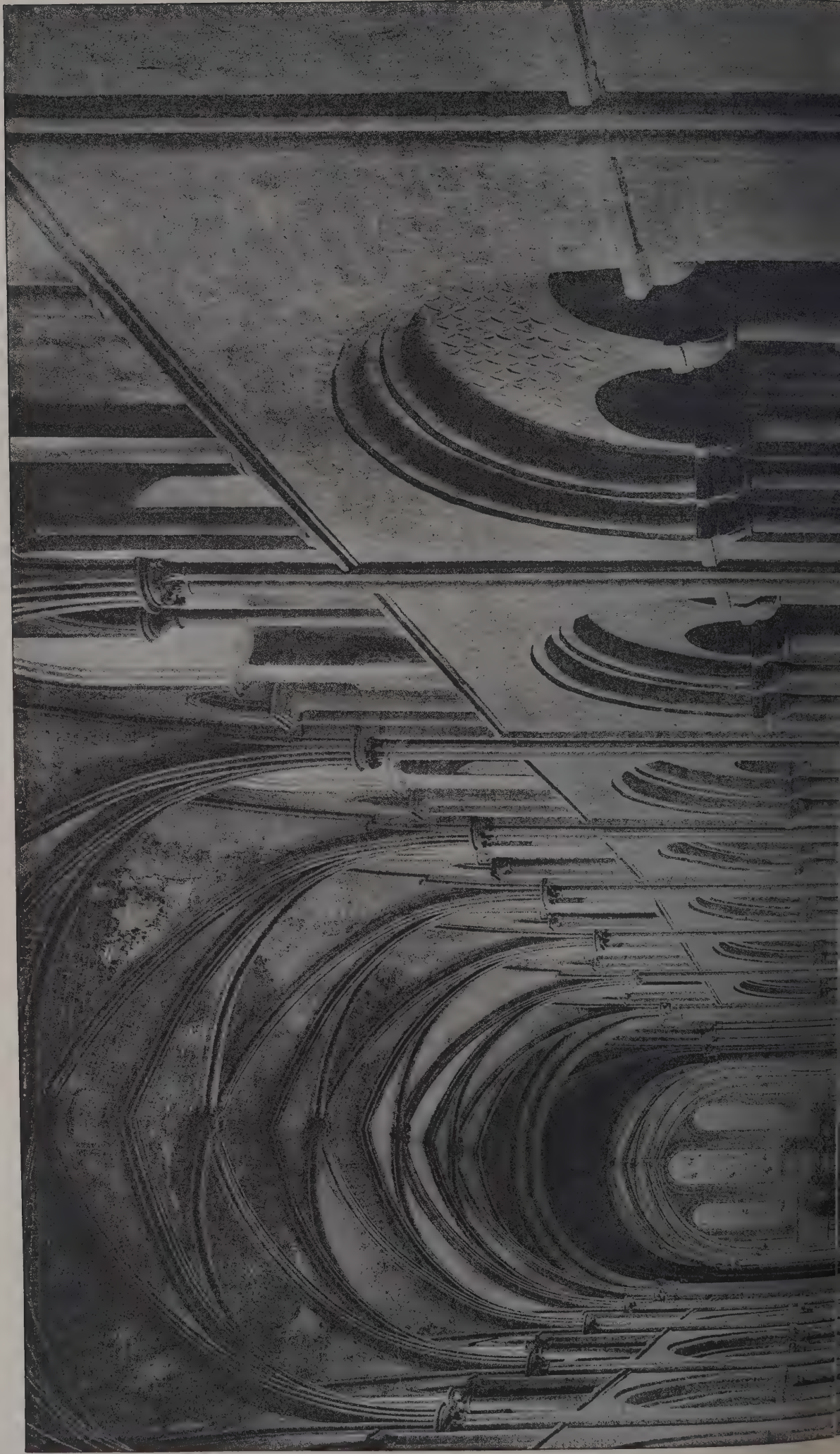
It has been Decided to change the existing south window in Bagshot parish church for one filled with stained glass in memory of the late Queen Victoria. Her Majesty always took a keen interest in this congregation, and one of her last public visits towards the end of her reign was paid to a bazaar held in aid of the church funds in Bagshot Park, by the Duke and Duchess of Connaught, whose estate adjoins the edifice. Their Royal Highnesses are taking a personal interest in the memorial window.

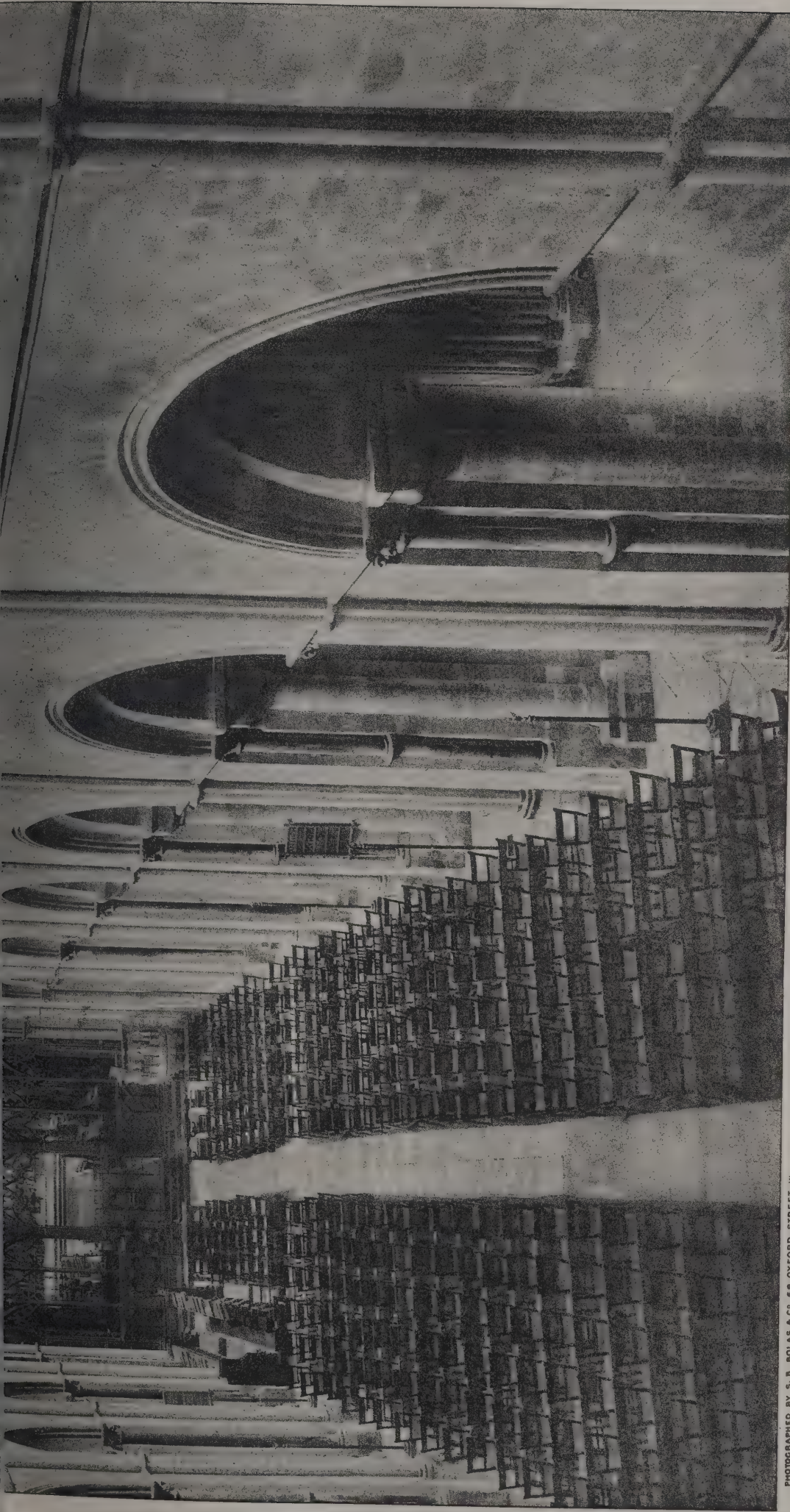
A Supplement to the *Berliner Architekturwelt*, entitled *Berliner Kunst*, has been published by Herr Ernst Wasmuth of Berlin. It is to treat of subsidiary arts, and the first part relates to the furniture, stained glass, wall-papers, &c., designed by Herr Otto Eckmann, which are all examples of the latest popular style of the Continent.

Mr. Henry F. Kerr, president, will read a paper on "Melrose Abbey" at the meeting of the Edinburgh Architectural Association on Wednesday next.

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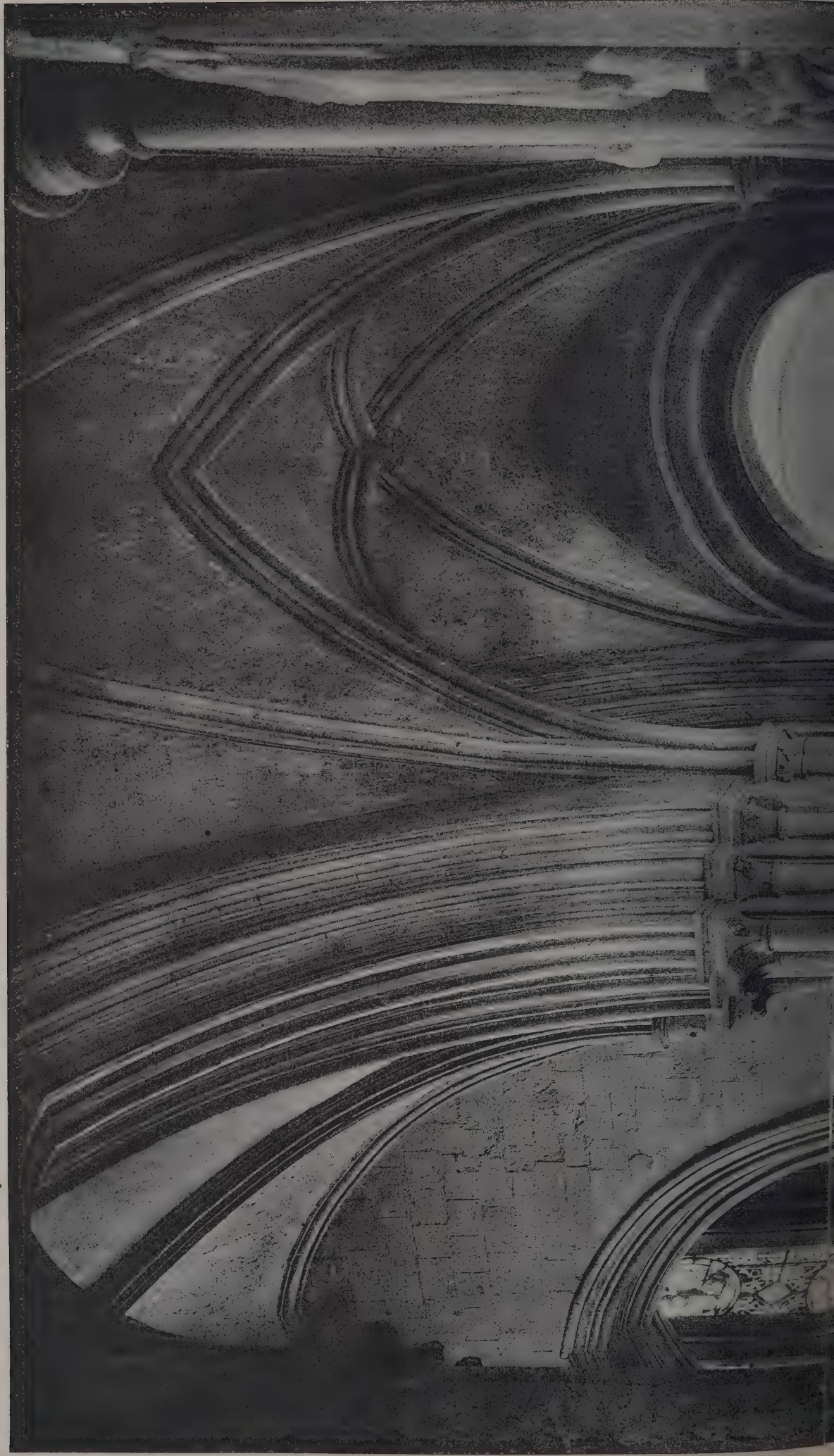


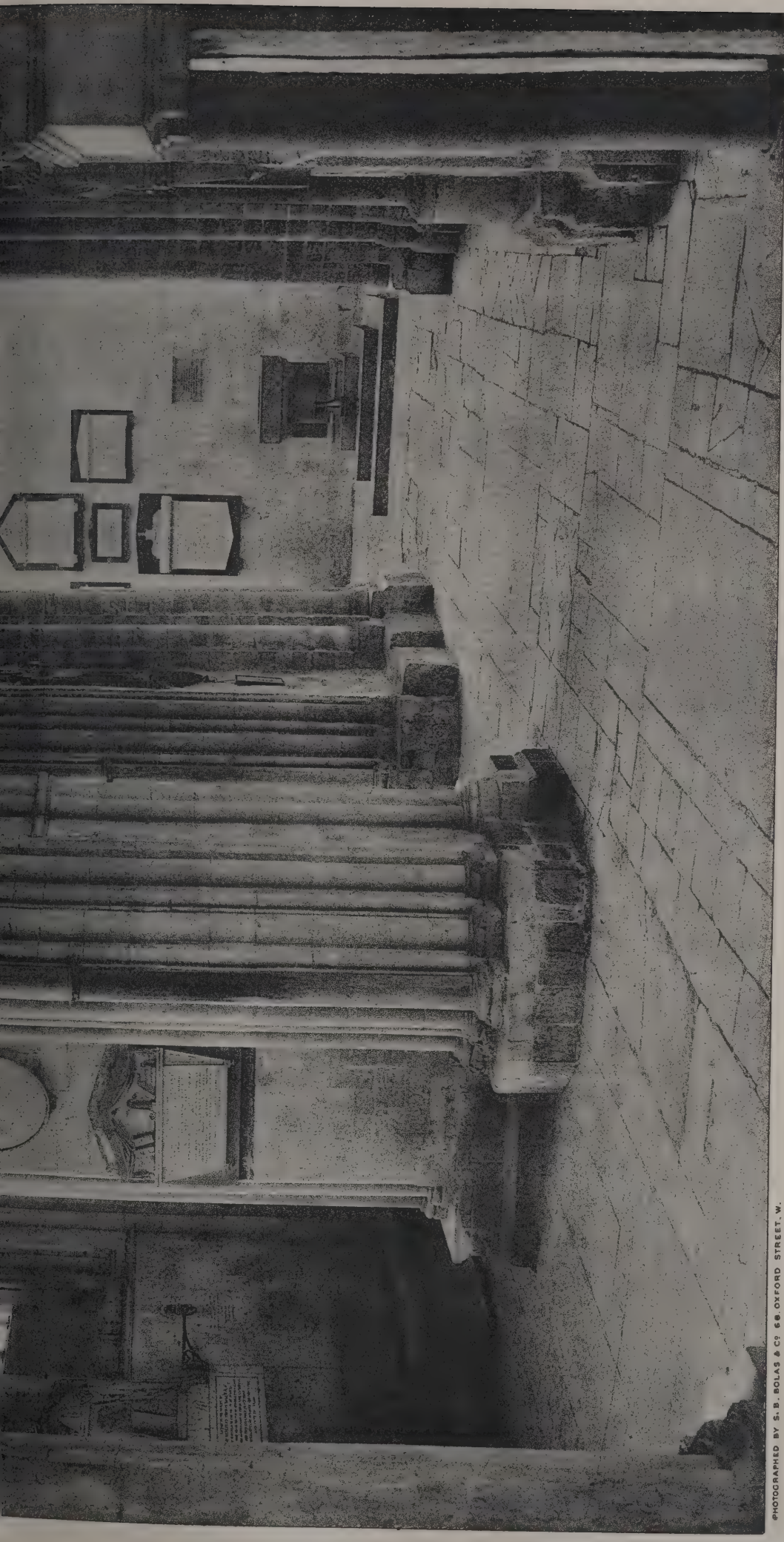
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CATHEDRAL SERIES, No. 369.—CHICHESTER: TRIFORIUM, &c., FROM WEST WINDOW.

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CATHEDRAL SERIES, No. 370.—CHICHESTER: WEST END OF SOUTH AISLE.

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THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BURSLER—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded to the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

GLASGOW—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

LIVERPOOL—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

CONTRACTS OPEN.

ARGENTINE REPUBLIC—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

ASHTON-IN-MAKERFIELD—Nov. 28.—For extension of the gasworks. Mr. Niven, gas manager at the gasworks, Ashton-in-Makerfield.

ASKAM-IN-FURNESS—Nov. 28.—For erection of new Primitive Methodist Sunday schools, and heating same and existing chapel. Rev. W. Carr, minister, Slater Terrace, Dalton-in-Furness.

ALNWICK—Dec. 14.—For erection of proposed Duke's school, Alnwick. Mr. T. Pickard, Estates Office, Alnwick Castle.

AYLSHAM—Dec. 2.—For conversion of dormitories into sick wards at the workhouse at Aylsham, Norfolk, installation of a hot and cold-water supply, heating by hot water, construction of invalids' lift and iron emergency staircase. Mr. John B. Pearce, architect, 15 Upper King Street, Norwich.

BAKEWELL—Dec. 13.—For supply of turned and bored spigot and socket cast-iron pipes. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

BAMBURGH—Nov. 29.—For erection of new coastguard buildings, consisting of quarters for two men and a look-out house, at Ross Links, near Bamburgh, Northumberland. Particulars may be seen at the Coastguard Station at Bamburgh, and at the Director of Works Department, Admiralty.

BETHNAL GREEN—Dec. 10.—For water-supply works at the workhouse and for the infirmary, comprising—(1) Enlarging the existing well and lining with iron cylinders; (2) supply and fixing of two gas-engines and pumping machinery; (3) erection of water-tower; (4) supply and fixing of cast-iron tank, about 70,000 gallons capacity; (5) supply and laying of 6-inch mains, &c. Mr. G. H. Hughes, engineer, 97 Queen Victoria Street, E.C.

BIRKENHEAD—Dec. 11.—For laying a 14-inch pumping main, spigot and socket, lead joints, from Station Road, Hooton, to the reservoirs on Prenton Hill, Birkenhead, a distance of 6½ miles. Mr. W. Martin Jones, secretary, Cheshire Water Co., 9 Hamilton Square, Birkenhead.

BOLTON ABBEY—For erection of four houses and appurtenances, Bolton Abbey, Yorks. Messrs. J. B. Bailey & Son, architects, 3 Scott Street, Keighley.

BRADFORD—Nov. 25.—For removal from Duckworth Lane and re-erection at Bankfoot of two temporary car-sheds. Mr. F. E. P. Edwards, city architect, Chapel Lane, Bradford.

BRIDLINGTON—Nov. 26.—For erection of a new wing and other buildings at Marine House, Promenade. Mr. Samuel Dyer, architect, Bridlington.

BRIGHTON—Nov. 25.—For supply of electricity meters for one year from January 1. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BROMLEY—Dec. 3.—For certain alterations and additions to the laundry buildings at the sick asylum, Devons Road, Bromley, Middlesex. Messrs. J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

BROWNHILLS—Dec. 2.—For alterations and additions at the Ogley Hay schools, Church Hill, Brownhills, Staffs. Mr. T. H. Fleming, architect, 102 Darlington Street, Wolverhampton.

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BURNLEY.—For erection of a brewery at Keighley Green, Burnley. Mr. Charles Riley, architect, St. James's Hall.

BURY.—Dec. 17.—For construction of sewage-disposal works, comprising circular precipitation tanks, bacteria beds, channels, sludge tank and roads at Livsey Fields. Mr. John Haslam, town clerk, Corporation Offices, Bury.

CAMBERWELL.—Dec. 2.—For providing and fixing steam boilers, economiser, feed-water apparatus, steam and condense mains, cold-water storage tank, mains and branches, hot-water storage heater, mains and branches, waste-pipes and branches to slipper-baths, slipper-bath valves and all connections, laundry apparatus and machinery to public and establishment laundry, and heating apparatus, &c., complete, to the new public baths, laundry and library now being erected in Wells Street. Mr. Maurice B. Adams, architect, Clement's House, Clement's Inn Passage, W.C.

CHESTERFIELD.—Dec. 13.—For construction of a storage reservoir upon the Bar Brook, between Totley and Baslow. Mr. R. F. Hartwright, clerk to Rural District Council, Chesterfield.

CHISLEDON.—Nov. 25.—For erection of three cottages, Draycot Farm, Chisledon, Wilts. Mr. Robert J. Beswick, architect, 35 Regent Street, Swindon.

CLECKHEATON.—Nov. 30.—For supply of plant to the Cleckheaton Urban District Council as follows:—(Section A) Lancashire boilers; (I) economiser; (J) jet condenser; (K) supply and feed pumps; (L) steam, exhaust, feed and drain pipes; (M) cast-iron water-tank. Messrs. Gibbings & Baker, Piccadilly Mansions, London, W.

CLITHEROE.—Nov. 30.—For excavating and building two new settling tanks, with channels, sluice valves, &c., on the sewage farm at Henthorne, Clitheroe, Lancs. Mr. Arthur R. Bleavard, borough surveyor, Church Street, Clitheroe.

COCKERMOUTH.—Nov. 25.—For pulling-down premises in St Helens Street. Mr. John Fearon, clerk to Urban District Council.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

CONSETT.—Nov. 28.—For erection of fourteen cottages in Nelson Street, Consett, Durham. Mr. Henry Holliday, Consett Iron Company, Ltd., Consett.

COVENTRY.—Nov. 27.—For supply and erection of a triple-expansion low-speed vertical marine-type engine and a 400-kw. direct-coupled alternator and exciter in one specification. Mr. J. A. Jeckell, Corporation Electricity Works, Coventry.

CROYDON.—Dec. 6.—For erection of extensions to the central polytechnic, Scarbrook Road, Croydon, and to the branch polytechnic, Selhurst Road, South Norwood. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DARTFORD.—Dec. 3.—For erection of refuse destructor. Mr. W. Harston, surveyor, High Street, Dartford.

DEWSBURY.—Dec. 2.—For supply of two 100-kw. dynamos. Mr. R. H. Campion, borough electrical engineer, Dewsbury.

DUNGENESS.—Dec. 2.—For erection of a new lighthouse, og-signal house, &c., at Dungeness. Mr. E. G. Verity, 7 Great Marlborough Street, W.

EAST BARNET.—Nov. 28.—For erection of a bridge at Cat Hill, East Barnet. Mr. Henry York, surveyor, Station Road, New Barnet.

EGREMONT.—Nov. 30.—For erection of schools in Main Street, Egremont, Cumberland. Mr. J. S. Moffatt, architect, 53 Church Street, Whitehaven.

EXETER.—Dec. 2.—For erection of a crane at the Basin. Mr. G. R. Shorto, town clerk, 8 Southernhay.

FILTON.—Dec. 3.—For erection of station buildings, &c., at Filton, Gloucestershire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

GREAT STANMORE.—Dec. 4.—For fixing an oak park fence on the site of the proposed new isolation hospital in Honey Pot Lane, Great Stanmore, Middlesex. Mr. F. J. Seabrook, clerk, Council Offices, Edgware.

HALIFAX.—Nov. 29.—For alterations and additions to bakery in Queen's Road. Mr. Medley Hall, architect, &c., 29 Northgate, Halifax.

HALIFAX.—Nov. 30.—For erection of a Liberal club and hall at Ripponden, near Halifax. Mr. W. Clement Williams, architect, 29 Southgate.

HALIFAX.—Nov. 30.—For erection of an infants' school at Haugh Shaw, Halifax. Messrs. C. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

HEDDONSMOUTH.—For alterations and additions at Hunter's inn, Heddonsmouth, North Devon. Messrs. T. H. Watson & Son, architects, 9 Nottingham Place, London, W.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

HEREFORD.—Nov. 29.—For erection of two cottages on Aylstone Hill. Messrs. Nicholson & Hartree, architects, Hereford.

HORNSEY.—Nov. 30.—For pulling-down and clearing the site of the Priory Priory Road. Mr. John Farrer, architect, 2 Coleman Street, E.C.

HORWICH.—Nov. 25.—For erection of an infectious diseases hospital in Fall Birch Lane, Horwich, Lancs. Messrs. Cressey & Keighley, architects, Morecambe.

HULL.—Nov. 28.—For supply of six rotary transformers for continuous-current transformation, 2,000 volts to 220 volts, 95 kw. each. Mr. T. G. Milner, city treasurer, Town Hall, Hull.

HULL.—Dec. 6.—For construction of a dock having a water area of about 50 acres, with lock and entrance from the river Humber, river embankments, drains, outfalls, &c. Sir John Wolfe Barry & Partners, 21 Delahay Street, Westminster.

HULL.—For erection of restaurant and shop premises in King Edward Street. Messrs. Archibald Neill & Son, architects, 36 Park Row, Leeds.

ILLOGAN.—Nov. 30.—For erection of the proposed girls' school at Illogan Churchtown, Cornwall. Mr. Sampson Hill, architect, Green Lane, Redruth.

IRELAND.—For erection of villa at Whitehead, Belfast. Mr. A. E. Wilson, valuator, estate agent, 22 Waring Street, Belfast.

IRELAND.—Nov. 25.—For sinking and lining, &c., a pump-well at 12th Lock, near Lucan, Celbridge. Mr. James Whelan, architect, Celbridge.

IRELAND.—Nov. 28.—For erecting a boundary wall and other works at the pump in the village of Dunbell, Kilkenny. Mr. Kieran Comerford, clerk.

IRELAND.—Nov. 28.—For (1) erection of dwellings for the working classes and formation of new roads, footpaths, sewers, &c.; (2) sanitary plumbing at Plunkett's area, Oxford Road, and Hollyfields, Upper Rathmines. Mr. Fred. P. Fawcett, clerk to the Urban District Council, Town Hall, Rathmines.

IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

IRELAND.—Dec. 2.—For erection of the new Gothenburg inn, at Ballywalter, co. Down. Mr. William J. Fennell, architect, Scottish Provident Buildings, 2 Wellington Place, Belfast.

IRELAND.—Dec. 16.—For erection of a viaduct for a single line of railway over the river Barrow in the south of Ireland, for the Fishguard and Rosslare Railways and Harbours Company. Mr. G. Whitelaw, Secretary of the Fishguard and Rosslare Railways and Harbours Company, Paddington Station, London.

ISLINGTON.—Nov. 26.—For supply of electric-lamp columns, complete with crutches and bases of similar pattern to those now in use in the borough. Mr. W. F. Dewey, town clerk, Town Hall, Upper Street, N.

KENDAL.—Nov. 26.—For additions to Netherfield Works. Mr. Robert Walker, architect, Windermere.

KETTERING.—Nov. 25.—For extension of the east and west outfall sewers and for alterations to flushing chambers on the town sewers. Mr. T. R. Smith, surveyor, Market Place, Kettering.

KING'S NORTON.—Jan. 6.—For erection of a refuse destructor at Lifford, near King's Norton, Worcestershire. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath, near Birmingham.

LAMBETH.—Nov. 27.—For tiling the kitchen at Prince's Road workhouse. Mr. W. Thurnall, clerk to the Guardians, Brook Street, Kennington Road.

LANCASTER.—Dec. 3.—For erection of an infant school and additions to mixed schools, Skerton. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

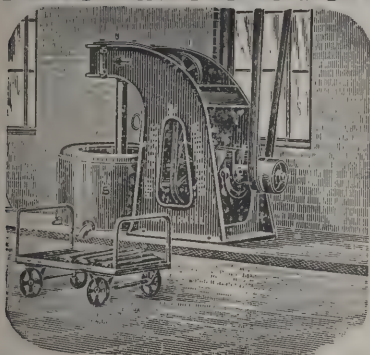
LEAMINGTON.—Dec. 4.—For additions and alterations to the Pump Room baths. Mr. Leo. Rawlinson, town clerk, Town Hall, Leamington.

LEYTONSTONE.—Nov. 27.—For supply and erection at the new infirmary, Forest House, Leytonstone, N.E., of (1) three 35 feet long by 8 feet diameter Lancashire steel boilers, with economisers, and (2) steel steam ring mains, with boiler-feed pumps. Mr. John Buley, engineer, Suffolk House, Laurence Pountney Hill, E.C.

LEYTONSTONE.—Dec. 3.—For extending the buildings at the electric-lighting works, Cathall Road, Leytonstone. Mr. William Dawson, engineer, Town Hall, Leyton.

LIVERPOOL.—Nov. 25.—For overhead electrical equipment of tramway lines and car dépôt. Messrs. Kincaid, Waller & Manville, consulting engineers, 29 Great George Street, Westminster.

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LIVERPOOL.—Nov. 26.—For laying about 31 miles of 21 in. cast-iron pipes from the Vyrnwy aqueduct at Delamere to Leasowe, in the county of Chester. Copies of the specification, schedule and form of tender may be obtained at the Water Engineer's Department, Municipal Offices, Liverpool.

LIVERPOOL.—Nov. 27.—For putting-in the foundations of a warehouse at Bankfield goods yard, for the Lancashire and Yorkshire Railway Company. Mr. Henry Sheldermine, architect, Hunt's Bank, Manchester.

MACCLESFIELD.—Nov. 28.—For improving the Macclesfield Certified Industrial school. Mr. Jabez Wright, architect, Macclesfield.

MANCHESTER.—Nov. 25.—For construction of a culvert and appurtenant works for the diversion of the Shooters Brook. The Secretary, Rivers Department, Town Hall, Manchester.

MANCHESTER.—Nov. 26.—For supply, &c., of steam, exhaust, feed and drain-pipes, feed pumps, feed heaters, tanks, tools, &c., at the Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Nov. 26.—For supply, &c., of coal-measuring gear, shoots, &c., at the Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Dec. 4.—For supply of electric plant at the Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MIDDLESBROUGH.—Nov. 25.—For erection of a county court at Middlesbrough. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, London, S.W.

MIDDLETON.—Nov. 26.—For wiring installation at the electricity works. Messrs. Lacey, Clirehugh & Sillar, electrical engineers, 78 King Street, Manchester.

MOSS SIDE.—Nov. 28.—For erection of entrance gates, bowl-house, shelters, potting-house, conveniences, &c., to the recreation ground, Moss Side, Lancs. Mr. Henry B. Longley, surveyor, Council Offices, Moss Side, Manchester.

NELSON.—Nov. 28.—For construction of a storage reservoir to hold 160,000,000 gallons in Ogden Valley, Nelson, Lancs. Messrs. John Newton, Son & Bayley, engineers, 17 Cooper Street, Manchester.

NEWBOTTLE.—Nov. 26.—For building extensions to the premises of the Co-operative Society, Newbottle, Durham.

Plans and specifications may be seen at the Society's office at Newbottle.

NEWCASTLE-ON-TYNE.—For erection of a three-storeyed building in West Blandford Street, to serve as stabling for fifty-six horses. Mr. F. E. L. Harris, architect, Co-operative Wholesale Society, Ltd., 1 Balloon Street, Manchester.

OXFORD.—Nov. 25.—For additions to the Littlemore Asylum, near Oxford. Names to be sent before 25th inst. to the county surveyor, Oxford.

PLUMSTEAD.—Dec. 2.—For the construction and erection of a steel lighthouse at Tripcock Point, near Plumstead, Kent. Mr. Charles A. Kent, secretary, Trinity House, E.C.

RAMSGATE.—Nov. 28.—For erection of a shelter seat around the tidal ball flagstaff, West Cliff. The Borough Surveyor, Albion House, Ramsgate.

RAVENSTHORPE.—Nov. 25.—For erection of a chimney 40 yards high at Ravensthorpe, Yorks. Mr. Fred H. Hare, architect, Town Hall, Mirfield.

ROTHERHAM.—Nov. 27.—For enlarging the National school at Braithwell. Mr. E. Isle Hubbard, architect, Moor-gate Street, Rotherham.

SCOTLAND.—Nov. 25.—For extensive additions to the Stotfield hotel, Lossiemouth. Mr. R. B. Platt, architect, Town and County Bank Buildings, Elgin, N.B.

SCOTLAND.—Nov. 26.—For supply and erection of overhead linework, the supply and laying of cables and the bonding of rails (bonds supplied by the Corporation) for the equipment of the Union Street and Holburn Street, Glasgow, tramways. Mr. J. Alex. Bell, city electrical engineer, Cotton Street, Aberdeen.

SCOTLAND.—Nov. 26.—For erection of warehouses and other buildings in Nelson Street and Bell Street, Glasgow. Messrs. Thomson & Sandilands, architects, 241 West George Street, Glasgow.

SCOTLAND.—Nov. 28.—For construction of an embankment and relative works for forming a reservoir in Barr Wood in the parish of St. Ninians, Stirlingshire. Messrs. Crouch & Hogg, 53 Bothwell Street, Glasgow.

SCOTLAND.—Nov. 30.—For supply of rolling stock with electrical equipments. Mr. W. L. Macindoe, town clerk, Kirkcaldy.

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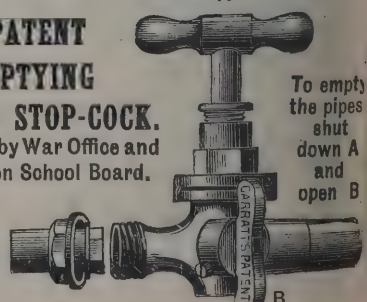
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SCOTLAND.—Dec. 2.—For erection of eastern district hospital in Duke Street, Glasgow. Mr. John Baxter, architect, 243 St. Vincent Street, Glasgow.

SHEFFIELD.—Nov. 28.—For erection of stabling, &c., Winter Street hospital, Sheffield. Mr. C. F. Wike, C.E., city surveyor, Town Hall, Sheffield.

SHOREDITCH.—Dec. 3.—For boring an artesian well at the public baths, Pitfield Street, N., and providing a pump for same. Mr. H. Mansfield Robinson, town clerk, Town Hall, Old Street, E.C.

SOUTHAMPTON.—Dec. 4.—For alterations and additions at the Ordnance Survey Offices at Southampton (second portion). Bills of quantities, with forms of tender, may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

SUNDERLAND.—Dec. 4.—For construction of a cement retaining wall at South Back Boppers Field and the reinstating of the sewer and paving. Particulars may be obtained at the Borough Engineer's Office, Town Hall.

SWINDON.—Nov. 23.—For construction at the gasworks, Gorse Hill, of a gasholder tank, 124 feet 6 inches diameter by 30 feet 9 inches deep. Mr. John J. Jervis, secretary, Gas Offices, Queen Street, Swindon.

TOTTINGTUN.—Nov. 27.—For erection of an iron girder footbridge over the stream at Kirklees, Tottington, Lancs. Mr. Lawrence Kenyon, surveyor, 33 Chapel Street, Tottington.

TYWARDREATH.—Dec. 17.—For erection of new schools at Tywardreath, Cornwall. Mr. J. Cook, clerk to School Board, Tywardreath, Par Station, Cornwall.

WALES.—For erection of three houses, &c., in Cemetery Road, Porth. Mr. E. Jones, architect, Porth.

WALES.—Nov. 25.—For erection of a public convenience at Roath, Cardiff. Mr. J. L. Wheatley, town clerk, Town Hall, Cardiff.

WALES.—Nov. 26.—For additions and alterations to the Bible Christian church, Garndiffaith, Pontypool. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport.

WALES.—Nov. 26.—For erection of infirmary, &c., at the workhouse, Swansea. Mr. Llewelyn Jenkins, clerk to Guardians, Union Offices, Alexandra Road, Swansea.

WALES.—Nov. 26.—For additions and alterations to the Sudbrook Board school, Portskewett. Messrs. Habershon, Fawcner & Groves, architects, Queen's Chambers, High Street, Newport.

WALES.—Nov. 27.—For alterations and additions to Mountain Ash police-station, Glamorgan. Mr. T. Mansel Franklen, clerk, Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—Nov. 30.—For erection of thirteen houses and two shops at Trelewis. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—Nov. 30.—For erection of four houses on the Pandy Estate, Aberkenfig. Mr. E. J. Pugh, Prince of Wales hotel, Aberkenfig.

WALES.—Dec. 2.—For erection of a mixed and infant Board school at Lower Garndiffaith, near Pontypool. Messrs. Lansdowne & Griggs, architects, Newport, Mon.

WALES.—Dec. 2.—For erection of nineteen cottages at Quaker's Yard Junction, Glamorgan. Mr. Wm. Dowdeswell, architect, John Street, Treharis.

WALES.—Dec. 7.—For erection of sliding glazed partitions, new desks and sundry other works at the Park Street Board school, Blaenavon. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Dec. 9.—For erection of new departments for girls and infants at Bodringallt, Ystradfydwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WANSTEAD.—Nov. 28.—For erection of a wooden room on brick substructure in the grounds of the Wanstead Cottage Hospital. Mr. C. H. Bressey, surveyor, Council Offices, Wanstead.

WARWICK.—Dec. 5.—For erection of a union infirmary and appurtenant buildings to accommodate 151 inmates and staff at Warwick, and the supply of steam, hot-water, cooking and other apparatus and fittings for the infirmary. Mr. F. P. Trepass, architect, 8 Jury Street, Warwick.

WATFORD.—For erection of a new boys' department (to accommodate 600) at the Watford Victoria Board school. Mr. John Hunt, architect, 40 Upper Baker Street, N.W.

WESTBOURNE PARK.—Dec. 5.—For erection of block of offices, stabling and tenements at Kensal Road. Messrs. Pilditch, Chadwick & Co., architects, 2 Pall Mall East, Charing Cross, S.W.

WEST HAM.—Nov. 26.—For erection of thirty-six double-tenement houses for the working classes in Invicta and Rendel Roads, Canning Town, E. Mr. John G. Morley, borough engineer, Town Hall, West Ham, E.

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WHITBY.—Nov. 30.—For alterations and additions to property in Baxtergate, Whitby. Mr. J. J. Milligan, architect, Baxtergate, Whitby.

WINDERMERE.—Nov. 30.—For erection of a residence, Mr. Robert Walker, architect, Windermere.

WINNINGTON.—Nov. 25.—For erection of a caretaker's house at the sewage outfall works at Winnington, Northwich. Messrs. H. Bancroft & Sons, civil engineers, 88 Mosley Street, Manchester.

WOBURN.—For the sinking of a trial well to a depth of about 100 feet, &c., in Longslade Lane, near Woburn, Beds. Messrs. D. Balfour & Son, engineers, 1 Victoria Street, Westminster, London, S.W.

WOLVERHAMPTON.—Dec. 9.—For erection of ice factory and cold stores in Wulfruna Street. Mr. George Green, borough engineer, Town Hall, Wolverhampton.

WOLVERHAMPTON.—Dec. 9.—For alterations and additions at the town hall. Mr. F. T. Book, architect, Wulfrun Chambers, Darlington Street, Wolverhampton.

A CURIOUS auctioneering incident is described as having occurred at a sale at Tokenhouse Yard, when Messrs. Farebrother, Ellis & Co. submitted three different properties as far apart as Hampstead, Ashtead, in Surrey, and the City of London. When the first-mentioned was brought forward it was knocked down for 4,500l. to a gentleman who subsequently disclosed that he thought he was bidding for Ashtead. On being asked if he would sign the contract, as the property was sold to his bid, he refused, and the auctioneer intimated that he would do it for him and leave the matter in the hands of the solicitors.

AT Monday's meeting of the Edinburgh School Board the report of the school management committee stated that they had had under consideration the question of the appointment of an architect and superintendent of works in room of the late Mr. Robert Wilson. It was agreed to recommend that the same person should hold both appointments as in the case of the late Mr. Wilson, and also that he be paid at the same rate of commission and salary as the late Mr. Wilson. It was likewise agreed to recommend that the Board should advertise for candidates.

TENDERS.

ASHTON-UNDER-LYNE.

For supply and erection of steel poles, bases, section boxes and overhead line for the equipment of the first section of electric tramways.

MCCARTNEY & McELROY, London (accepted).

BEDLINGTON.

For sewerage works, comprising the construction of 1,100 lineal yards of 9-inch sanitary pipes from the Ridley Arms to Gee's Houses, Cambois, with manholes, &c. Mr. CUTHBERT BROWN, surveyor, Bedlington, Northumberland.

M. Dykes	£536	0	0
J. Thomson	472	14	0
Tough Bros.	413	9	3
J. ROBSON, Newcastle (accepted)	406	8	9

BIRMINGHAM.

For erection of carpenters' shop at the infirmary, Dudley Road. Mr. W. H. WARD, architect, Paradise Street, Birmingham.

Rotherhoe & Co.	£497	10	0
F. Nicholls & Co.	489	10	6
Hood & Hards	480	0	0
J. Atkinson	459	0	0
W. H. Gibbs	445	0	0
Smith & Pitts	444	0	0
E. Crowder	430	0	0
E. Giles & Son	427	0	0
A. C. Hughes	420	0	0
W. J. Webb	400	0	0
W. Robinson	390	0	0
R. M. HUGHES, Birmingham (accepted)	387	0	0

BARNSELY.

For sewerage works in Back Stubbin and Allott Street, Elsecar, Hoyland. Mr. W. PERCY YOUNG, surveyor.

J. Moran	£161	18	4
G. H. Burrows	157	4	7
W. Grantham	154	10	0
M. O. Eyre	145	0	0
J. S. Duncan	136	16	5
F. HAGUE, Hoyland (accepted)	115	13	3

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BARNESLEY—continued.

For alterations and additions at the Hoyland Nether School Board. Mr. W. J. SYKES, architect, Hoyland Nether.

Accepted tenders.

Additional classrooms at boys' schools, Hoyland Common.

M. A. Hague, Hoyland, mason, &c.	£488 15 0
G. Cook, Hoyland Common, joiner, &c.	350 0 0
Firth & Sons, Hoyland, plumber, glazier and painter	112 0 0
M. Fleming, Eastgate, Barnsley, slater	83 0 0
M. Fleming, plasterer	34 15 0
Newton, Chambers & Co., Thorncliffe, Sheffield, heating	26 0 0

Caretaker's house, boys' school, Hoyland Common.

M. A. Hague, mason, &c.	183 10 0
H. Brearley, Hoyland Common, joiner	59 10 0
Firth & Sons, plumber, glazier and painter	30 10 0
M. Fleming, slater	21 12 6
M. Fleming, plasterer	14 15 0

Caretaker's house, girls' school, Hoyland Common.

S. Hawke, Hoyland Common, mason, &c.	202 10 0
H. Brearley, joiner	61 12 6
W. H. Rawlin, Hoyland, plumber, glazier and painter	33 19 0
M. Fleming, slater	21 17 0
J. McPartlain, Hoyland, plasterer	14 10 0

Caretaker's house at Hoyland Nether.

S. Hawke, mason, &c.	170 0 0
N. Mell, Hoyland Nether, joiner	64 18 0
W. H. Rawlin, plumber, glazier and painter	31 19 0
M. Fleming, slater	19 12 6
J. McPartlain, plasterer	14 10 0

Asphalting playgrounds, new conveniences, porch, &c., at the girls' school, Hoyland Common.

M. A. Hague, mason	235 10 0
H. Brearley, joiner	25 15 7
W. H. Rawlin, plumber, glazier and painter	10 19 0

Teacher's residence, Hoyland Common—alterations in positions of fireplaces, walling-up windows, &c.

A. Hemingway	22 0 0
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BARNESLEY—continued.

For erection of a Primitive Methodist chapel and schools, &c., at Hoyland Common. Mr. W. J. SYKES, architect, Hoyland Nether.

Accepted tenders.

M. A. Hague, mason, &c.	£1,080 0 0
G. Cook, joiner	730 0 0
W. Cooper, slater	157 0 0
C. Firth & Sons, plumber, glazier and painter	150 0 0
M. Fleming, plasterer	100 0 0
Newton, Chambers & Co., heating	97 0 0

BRADFORD.

For erection of workshop and stabling at Havelock Street, Great Horton. Mr. SAM SPENCER, architect, 344 Great Horton Road, Bradford.

Accepted tenders.

H. Wilson, Great Horton, mason.
Crabtree & Thornton, Great Horton, slater.
J. Smithies, Great Horton, slater.
Berry & Crabtree, Great Horton, plasterer.
T. Milnes, Great Horton, plumber.
J. H. Lawson, Great Horton, painter.

CHEADLE.

For supply of laundry machinery to the workhouse.

TAGG & CO., Newcastle (accepted)	£357 10 0
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CLATTERBRIDGE.

For erection of scarlet-fever pavilion, additions to administrative block, laundry extension for disinfectors and stabling accommodation, Clatterbridge, Cheshire. Mr. C. O. FRANCIS, architect, Leamington Chambers, 5 Richmond Street, Liverpool.

J. LEE & SONS (accepted)	£4,010 0 0
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FLIMBY.

For extension of buildings at St. Helens farm, near Flimby, Cumberland. Mr. J. S. MOFFAT, architect, Church Street, Whitehaven.

MAXWELL & TOPPIN, Aspatria (accepted).

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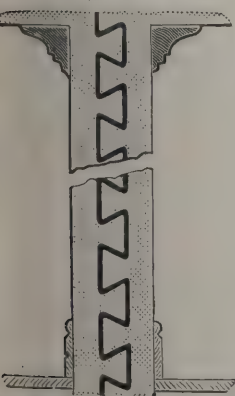
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CLAPHAM.

For erection of a postmen's office.

Jones Bros.	£5,600	0	0
General Builders, Ltd.	5,377	0	0
J. Mowlem & Co.	4,850	0	0
R. L. Tonge	4,669	0	0
W. S. Beaton	4,580	0	0
W. H. Lascelles & Co.	4,546	0	0
Holloway Bros.	4,500	0	0
J. Vicks, jun.	4,377	12	5
B. E. Nightingale	4,375	0	0
Foster Bros.	4,339	0	0
Martin, Wells & Co.	4,317	0	0
J. Garrett & Son	4,265	0	0
T. Laphorne & Co.	4,196	0	0
W. Johnson & Co., Ltd.	4,191	0	0
W. H. Lorden & Son	4,188	0	0
Wilson Bros.	4,159	0	0
W. Smith	4,157	0	0
H. L. Holloway	4,142	0	0
W. E. Keys	4,128	4	4
W. J. Renshaw	3,998	0	0
J. Appleby	3,955	0	0
H. Somerford & Son	3,939	0	0
H. Kent	3,794	0	0
Peacock Bros.	3,740	0	0
SPEECHLEY & SMITH (accepted)	3,660	0	0
J. Christie (withdrawn)	3,500	0	0

DOVER.

For erection of an infirmary and nurses' home at the work-house. Messrs. CRESSWELL & NEWMAN, architects, Castle Street, Dover.

G. Munro	£7,992	0	0
Brisley Bros.	7,988	0	0
Turner	7,965	0	0
Tapner	7,890	0	0
Warren & Son	7,732	0	0
Gann	7,695	0	0
G. H. Denne	7,674	0	0
G. Keeler	7,655	0	0
Austen & Lewis	7,492	0	0
W. G. Lewis	7,430	10	0
W. Bromley	7,410	0	0
G. Lewis & Son	6,290	0	0

DARTMOUTH.

For road works in Church Park field, Victoria Road, Dartmouth, and building retaining wall. Mr. E. H. BACK, architect, Dartmouth.

Roadway.

J. Buck	£120	0	0
R. C. Pillar	115	0	0
C. MICHELMORE, Dartmouth (accepted)	98	0	0

Retaining wall.

R. WATTS, Dartmouth (accepted)	24	9	0
E. Wills	21	18	0

ESSEX.

For erection of a women's new ward, administration block and covered ways, and alterations to existing infirmary at the Rochford Union, Essex, for the Rochford Board of Guardians. Messrs. GREENHALGH & BROCKBANK, architects, Southend-on-Sea. Quantities by Mr. G. T. G. WRIGHT, 3 Great Winchester Street, London, E.C.

Moss	£8,888	0	0
J. Band	7,500	0	0
Turner & Co.	6,995	0	0
Coulson & Loftus	6,776	0	0
F. & E. Davey	6,546	0	0
Howard & Ruffle	6,538	0	0
McKay	6,470	0	0
Shelbourne	6,389	0	0
Potter	6,318	0	0
Harris & Rowe	6,270	0	0
Davis & Leaney	6,195	0	0
Dupont	6,097	0	0
W. E. Davey	6,079	0	0
E. West	6,078	0	0

FULHAM.

For wood paving the carriageway and paving the footway of Distillery Lane. Mr. C. BOTTERILL, borough surveyor.

Roadway.

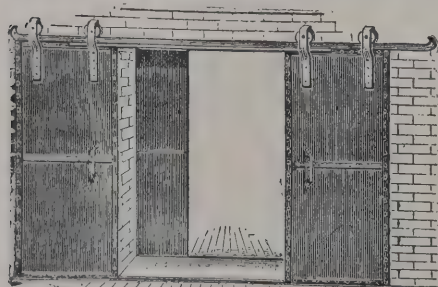
Acme Wood Paving Co.	£1,368	0	0
B. Nowell & Co.	975	0	0
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Acme Wood Paving Co. (York stone)	226	0	0
Acme Wood Paving Co. (patent adamant stone)	186	0	0
Acme Wood Paving Co. (Stuart's granolithic)	186	0	0
Acme Wood Paving Co. (Imperial stone)	166	0	0
Acme Wood Paving Co. (Victoria stone)	166	0	0
Acme Wood Paving Co. (Stanton stone)	126	0	0
Imperial Stone Co. (Imperial stone)	118	0	0
G. F. Thomson (Excelsior flags)	95	15	0

For erection of a branch library in the Lillie Road. Mr. CHAS. BOTTERILL, borough surveyor.

E. A. Roome & Co.	£7,500	0	0
J. Barker & Co.	6,998	0	0
J. Smith & Sons	6,997	0	0
Spencer, Santo & Co.	6,996	0	0
B. E. Nightingale	6,635	0	0
T. Bendon	6,587	0	0
Martin, Wells & Co.	6,440	0	0
Stimpson & Co.	6,380	0	0
H. L. Holloway	6,256	0	0
Foster Bros.	6,196	0	0
Lole & Lightfoot	5,984	5	0
F. G. Minter	5,891	0	0

HOYLAND.

For erection of two houses in Tinker Lane, Hoyland Common. Mr. W. J. SYKES, architect, Hoyland Nether.

T. THAWLEY, Barnsley (accepted) £520 0 0

For erection of two houses in Allott Street, Hoyland Common, Mr. W. J. SYKES, architect, Hoyland Nether.

Accepted tenders.

A. Hemingway, Hoyland Common, mason, &c.	£173	0	0
H. Brearley, Hoyland Common, joiner	83	0	0
J. McPartlain, Hoyland, plasterer	24	10	0
M. Fleming, Barnsley, slater	22	5	0
W. H. Rawlin, Hoyland, plumber, glazier and painter	18	0	0

For erection of a house in Queen Street, Hoyland Common. Mr. W. J. SYKES, architect, Hoyland Nether.

M. A. HAGUE, Hoyland (accepted) £135 10 0

HAMMERSMITH.

For erection of an open shed, supplying and fixing rolled-steel joists, and constructing concrete roof at the electricity works. Mr. H. MAIR, borough surveyor.

Open shed.

Deane, Ransome & Co.	£952	0	0
F. Clarke	814	0	0
Lightfoot & Ireland	733	3	6
T. Brough	698	0	0
J. Cross	694	2	0
G. Wimpey & Co.	669	0	0
E. G. Minter	640	0	0
A. Leather	614	0	0
J. McMANUS, 237 Hammersmith Road (accepted)	580	0	0
Pearson & Co.	157	13	8

Roofing over condenser.

D. R. Paterson	856	3	9
Martin, Wells & Co.	299	0	0
J. Cross	250	0	0
Lightfoot & Ireland	240	0	0
Deane, Ransome & Co.	215	0	0
E. G. Minter	200	0	0
A. Leather	198	0	0
F. Clarke	174	0	0
G. Wimpey & Co.	149	0	0
J. McMANUS (accepted)	145	10	0
T. Brough	117	0	0

HANDSWORTH.

For laying sewerage works in Oxhill Road, Sandwell Road. Mr. H. RICHARDSON, surveyor.

Nicholls & Co.	£2,636	0	0
A. Cooper	2,209	0	0
G. Trentham	2,189	0	0
Currall, Lewis & Martin	2,048	0	0
J. White, jun.	2,043	0	0
H. Weldon	1,885	0	0
T. Vale	1,742	0	0
J. MCKAY, Bearwood Road, Smethwick (accepted)	1,707	0	0

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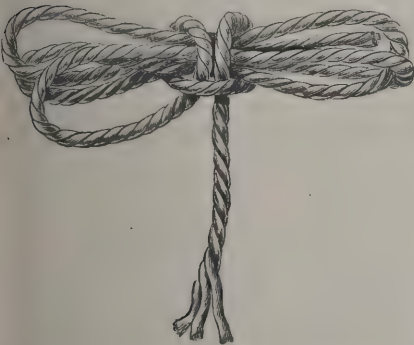
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(Incorporating The Ham Hill Stone Co. and C. Trask & Sons, The Doulting Stone Co.)

Chief Office, NORTON, STOKE-UNDER-HAM, SOMERSET. London Agent, Mr. E. A. WILLIAMS, 16 Craven St., STRAND.

SASH CORD

(PATENT APPLIED FOR.)



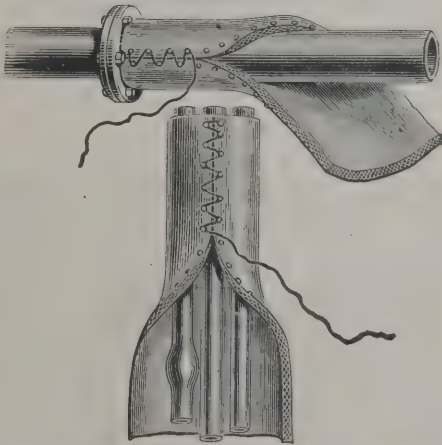
Specially prepared to Protect it from the ravages of the weather. It is Rot-proof, Water-proof, and Vermin-proof.

PATENT CHIMNEY POT, "KONKOR."



Specially and scientifically designed to prevent and mitigate the evils of Smoky Chimneys.

FLEXIBLE PIPE-COVERING, For Protecting Water and Steam Pipe from Cold and Frost.



Instantly Fixed and Unfixed. In ordering state whether for Steam or Water Pipes.

FURTHER PARTICULARS FROM THE

"KONKOR" CO., 94 SKINNER LANE, LEEDS.

HEMEL HEMPSTEAD.

For street works at Hemel Hempstead, Hertfordshire. Mr. U. A. SMITH, county surveyor, 41 Parliament Street, S.W.	
Stiff's Concrete Co.	£480 10 7
Dupont & Co.	485 2 8
H. Williams	456 8 10
A. T. Catley	443 7 1
J. Barry	392 1 2
H. BROWN, Watford (accepted)	391 0 0

HIGHAM FERRERS.

For construction of a retaining wall, 190 yards long and of an average height of 2 feet above ground level, and for channelling the entire length, in Station Road, Higham Ferrers, Northants. Mr. FREDERIC W. PRATT, borough surveyor,	
R. Marriott	£125 4 0
H. Sparrow	117 10 0
[Goodman & Markett	114 0 0
H. W. Mason	112 14 0
T. & C. Berrill	108 5 0
T. Wilmott	105 0 0
E. Mitchell	86 0 0
P. IRESON, Higham Ferrers (accepted)	85 0 0

HODDESDON.

For street works at Hoddesdon, Herts. Mr. U. A. SMITH, surveyor, 41 Parliament Street, S.W.	
Wallace & Inns	£1,043 13 0
Dupont & Co.	896 6 8
G. Mann	883 6 0
Free & Sons	862 13 4
T. Adams	816 17 4
Empire Stone Co.	805 13 4
M. S. Kitteringham	788 18 4
Nowell & Co.	782 5 0
W. Griffiths & Co.	778 9 2
W. & C. French	773 19 2
VICTORIA STONE Co., London (accepted)	759 6 1

IRELAND.

For the erection of a windmill for pumping purposes in the tower at the workhouse.	
MACKENZIE & SONS, Brunswick Street, Dublin (accepted)	£118 14 0

IRELAND—continued.

For the construction of a main sewer at Irishtown, New Ross.	
J. Connolly	£1,420 0 0
W. BAIRD, Lower Abbey Street, Dublin (accepted)	1,010 0 0

INGLETON.

For additions to Broadwood Cottage. Mr. JOHN KASSELL, architect, Kirkby Lonsdale.	
---	--

Accepted tenders.

W. Slinger, Ingleton, excavator, mason, brick-layer, slater and plasterer	£131 4 1
A. Moorhouse, Kirkby Lonsdale, plumber, painter and glazier	25 10 0
J. Slinger, Clapham, carpenter and joiner	53 0 0

LEEDS.

For supply of fifty electric motor cars. Mr. THOMAS HEWSON city engineer.	
BRITISH THOMSON-HOUSTON CO., LTD. (accepted)	£25,951 4 0

LITTLEHAMPTON.

For construction of pumping machinery at the new waterworks at Warning Camp. Mr. A. F. PHILLIPS, consulting engineer.	
SIMPSON & Co., London (accepted)	£3,600 0 0

LONDON SCHOOL BOARD.

For enlargement by 414 places, Ennersdale Road school.	
W. Downs	£8,424 0 0
Kirk & Randall	8,236 0 0
F. & H. F. Higgs	7,803 0 0
Johnson & Co.	7,752 0 0
T. D. Leng	7,548 0 0
E. P. Bulled & Co.	7,379 0 0
J. Garrett & Son	7,355 0 0
Holliday & Greenwood, Ltd.	7,290 0 0
J. & M. Patrick	7,049 0 0
J. Smith & Sons, Ltd.	6,962 0 0
J. & C. Bowyer	6,897 0 0
W. Johnson & Co., Ltd.	6,730 0 0
Treasure & Son*	6,654 0 0

* Recommended for acceptance.

THE UNION PLATE GLASS CO., LTD., POCKET NOOK, ST. HELENS.

Telegrams, "Union, St. Helens." Nat. Tel. 48.

ESTABLISHED 1837.



Interior Lighted by ordinary Plate Glass.

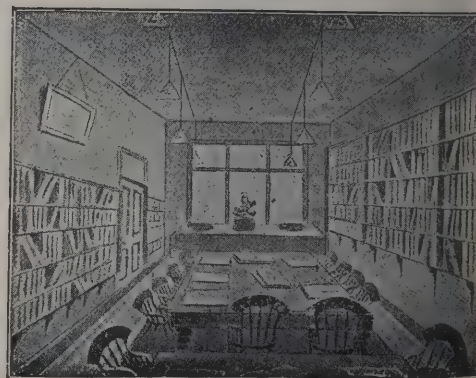
Makers of Ground, Smoothed, Polished, Silvered, Bevelled, Brilliant Cut, and Bent Plate Glass; Rough Rolled and Rough Cast Plate Glass; also of Rough and Polished Prismatic Glass, &c., &c.

SPECIALITE: "REFRAX"

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Extracts from Testimonials received:
 "The 'Refrax' Glass is a GREAT IMPROVEMENT."
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 "The Glass I am perfectly satisfied with; GREAT SUCCESS."
 "Compared with Polished Plate Glass 'Refrax' gives TWICE AS MUCH LIGHT FOR EQUAL COST."

Sold by all Dealers.



Same Interior lighted by "Refrax" Glass.

J. HORWOOD, WHOLESALE BUILDERS' MERCHANT,
19, 21, 23 & 25 STRATFORD BROADWAY, LONDON, E.

The "EXCEL-ALL" is the best Self-setting Range.

The "EXCEL-ALL" Fire Covers and Rings are double the usual thickness.

Thousands of The "EXCEL-ALL" in use. It is the Housewife's friend.

The "EXCEL-ALL" requires no Brick Setting.

[2]

The "EXCEL-ALL"

With Open and Close Fire and Fall Bar (A 1923 as drawn).
 FITTED WITH PATENTED FLUE NOZZLE.

Sizes 24 26 28 30 32 34 36 37 inches wide.

Oven and Sham 26/- 28/- 32/- 35/- 37/- 38/6 39/9 50/- each.

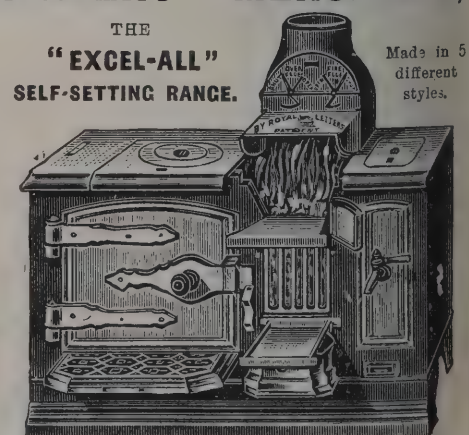
Sizes 27 30 32 34 36 39 42 inches wide.

Oven and Boiler with Tap } 36/- 38/- 39/9 42/- 46/6 58/- 65/- each.

THESE PRICES INCLUDE 2-FEET PIPE AND SMOKE-PLATE.

CATALOGUE of Builders', Plumbers', and Gasfitters' Goods will be sent on receipt of Trade Card and 4d. for postage.

PAPERHANGINGS.—Send Trade Card and deposit of 5/- for Pattern Book. Unusually Large Discount to the Trade. Deposit refunded from paper bought to value of £3.



Made in 5 different styles.

LONGTON.

For erection of an isolation hospital.

H. P. EMBREY, King Street, Fenton (accepted) £9,153 0 0

LONDON.

For works at Nos. 202-203 Harrow Road, for the Metropolitan Asylums Board.

Wilson Bros. & Lamplough £1,760 0 0
J. Peattie 1,375 0 0
J. Westbrook 1,275 0 0
R. Seed 1,150 0 0
Marchant & Sons 1,138 0 0
W. Rogers 1,099 0 0
J. C. Mason 922 17 0
T. COLE, Barnsbury (accepted) 879 0 0

For erection of new offices, &c., at No. 246 Rotherhithe Street, S E, for Messrs. Bellamy's Wharf, Ltd. Mr. JOHN JAS DOWNES, architect, 199 Lewisham High Road, New Cross, S E.

Chalkley £2,600 0 0
S. J. Jerrard & Sons 2,184 0 0
S. R. Best 2,147 0 0
T. D. LENG (accepted) 2,118 0 0

For electric-wiring and fittings at the fire stations in course of erection, East Greenwich, West Hampstead, Homerton and Perry Vale.

East Greenwich station.

Tamplin & Makovski, Ltd. £253 0 0
Barlow Bros. & Co. 237 0 0
F. A. Glover & Co. 203 0 0
W. Simmons 190 0 0
T. Clarke 189 0 0
D. Firth & Son 167 0 0
G. Hignett & Co. 165 0 0
A. W. Penrose & Co. 155 0 0
G. Weston & Co. 154 4 0
Troup, Curtis & Co. 152 2 8
Nunn, Watts & Co. 150 0 0
Electrical and General Engineering Co. 146 0 0
Handley & Shanks 130 12 11
National Electric Wiring Co., Ltd. 106 10 0
Ellis, Pollen & Co. 102 11 0

LONDON—continued.

West Hampstead station.

Tamplin & Makovski, Ltd. £277 0 0
Barlow Bros. & Co. 263 0 0
E. Wight 250 10 0
F. A. Glover & Co. 220 0 0
T. Clarke 190 0 0
D. Firth & Son 185 0 0
Troup, Curtis & Co. 171 10 6
G. Hignett & Co. 170 15 6
A. W. Penrose & Co. 170 0 0
G. Weston & Co. 165 8 0
Nunn, Watts & Co. 159 0 0
Electrical and General Engineering Co. 156 0 0
National Electric Wiring Co., Ltd. 146 15 0
Handley & Shanks 145 17 8
H. E. Gill 126 5 0
Ellis, Pollen & Co. 111 10 0

Homerton sub-station

Tamplin & Makovski, Ltd. 218 0 0
Barlow Bros. & Co. 190 0 0
E. Wight 170 0 0
F. A. Glover & Co. 148 0 0
T. Clarke 140 0 0
D. Firth & Son 122 0 0
G. Hignett & Co. 119 18 0
A. W. Penrose & Co. 119 0 0
G. Weston & Co. 117 8 0
Troup, Curtis & Co. 111 9 6
Electrical and General Engineering Co. 111 0 0
Nunn, Watts & Co. 108 0 0
Handley & Shanks 107 0 0
W. Simmons 106 0 0
National Electric Wiring Co., Ltd. 95 15 0
Ellis, Pollen & Co. 73 17 0

THE BATH STONE FIRMS, LTD.

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"OOLITE, BATH."
"OOLITE, PORTLAND."
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BATH and PORTLAND QUARRY OWNERS.

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CORSHAM DOWN.
CORNGRIT.
FARLEIGH DOWN.
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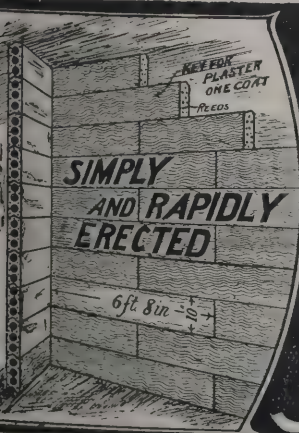
Fluate,
FOR HARDENING,
WATERPROOFING & PRESERVING
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To be
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The Bath Stone Firms, Ltd.

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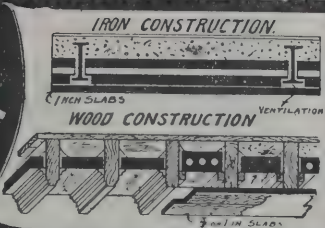
BOX GROUND.
COMBE DOWN.
STOKE GROUND.
WESTWOOD GROUND.
PORTLAND.



OWNERS OF "THE WESTON" AND "STEWARDS, LTD.," QUARRIES, PORTLAND.



THE MACK PATENT SLABS AND BLOCKS
FIRE SOUND & VERMINPROOF
GOLD AND BRONZE MEDAL AWARDS ~ HIGHEST AWARDS AT FIRE TESTS
2 2 3/4 4 PARTITIONS
INCH FLOORS CEILINGS ROOFS
SAVING SPACE TIME & MONEY
J. A. KING & CO
181 QUEEN VICTORIA ST. EC



LONDON—continued.*Perry Vale station—wiring and fittings.*

Tamplin & Makovski, Ltd.	£287	0	0
Barlow Bros. & Co.	253	0	0
F. A. Glover & Co.	226	0	0
T. Clarke	206	10	0
D. Firth & Son	184	10	0
A. W. Penrose & Co.	175	0	0
Troup, Curtis & Co.	174	19	3
Nunn, Watts & Co.	170	0	0
G. Weston & Co.	169	12	6
G. Hignett & Co.	168	12	0
Electrical and General Engineering Co.	165	0	0
Handley & Shanks	149	16	6
National Electric Wiring Co., Ltd.	129	6	0
Ellis, Pollen & Co.	113	0	0

Wiring only.

Tamplin & Makovski, Ltd.	269	0	0
Barlow Bros. & Co.	214	0	0
F. A. Glover & Co.	175	0	0
T. Clarke	165	10	0
D. Firth & Son	156	10	0
Troup, Curtis & Co.	143	19	0
G. Hignett & Co.	142	12	0
Electrical and General Engineering Co.	139	0	0
Nunn, Watts & Co.	138	0	0
G. Weston & Co.	136	0	0
Handley & Shanks	126	6	6
A. W. Penrose & Co.	123	0	0
National Electric Wiring Co., Ltd.	104	5	0
Ellis, Pollen & Co.	89	0	0

Note.—The fire brigade committee recommend that the tenders of Ellis, Pollen & Co., to execute for £110 10s., £102 11s., £113 and £73 17s., the wiring, and to supply the fittings for electric-light installations at the West Hampstead, East Greenwich and Perry Vale stations and the Homerton sub-station respectively be accepted.

MOSS SIDE.

For supply and fixing of a steam disinfecting apparatus at the refuse destructor works.

GODDARD, MASSEY & WARNER, Nottingham	£200	0	0
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(accepted)

MUSWELL HILL.

For erection of a Presbyterian church, Muswell Hill, N. Messrs. GEO. BAINES & REGINALD P. BAINES, architects, 5 Clement's Inn, Strand, London.

Lascelles & Co.	£7,820	0	0
Higgs & Hill	7,562	0	0
F. & H. F. Higgs	7,560	0	0
Matlock Bros.	7,267	0	0
W. J. Maddison	7,261	0	0
J. Chessum & Son	7,244	0	0
Holliday & Greenwood	7,222	0	0
Battley, Sons & Holness	7,048	0	0
Thompson & Beveridge	6,979	0	0
Turtle & Appleton	6,971	0	0
T. G. Minter	6,887	0	0
W. JOHNSON & CO., LTD. (accepted)	6,251	0	0
J. O. Richardson (withdrawn)	6,122	0	0

NEW BARNET.

For street works in Fergusson Road, Tudor Road and Victoria Avenue, New Barnet. Mr. HENRY YORK, surveyor.

Fergusson Road.

Frazer & Co.	£773	0	0
Kitteringham	768	0	0
Nowell & Co.	700	0	0
Myers, Gilson & Rose, Ltd.	673	6	9
T. Adams	673	0	0
Williamson & Sons	671	0	0
Rogers & Co.	643	0	0

Tudor Road.

Nowell & Co.	765	0	0
Williamson & Sons	763	0	0
T. Adams	712	0	0
Rogers & Co.	675	0	0
Myers, Gilson & Rose, Ltd.	655	16	11
Kitteringham	638	0	0

Victoria Avenue.

T. Adams	222	0	0
Kitteringham	191	0	0
Williamson & Sons	182	0	0
Rogers & Co.	175	0	9
Myers, Gilson & Rose, Ltd.	170	18	0

HEWETSONS FURNITURE



Council Chamber at Hemel Hempstead, fitted and furnished by HEWETSONS.

Plans, Estimates, and Specifications Free.

Estimates for Architects' Plans, &c.

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CATHEDRAL SERIES.—CHICHESTER: TRIFORIUM, &c., FROM WEST WINDOW. WEST END OF SOUTH AISLE.

COBURG HOTEL, GROSVENOR SQUARE.

PAIGNTON.

For alterations and additions to Primley House, for Mr. H. C. Belfield. Messrs. BRIDGMAN & BRIDGMAN, A.R.I.B.A. and M.S.A., architects, Torquay and Paignton. Quantities by Mr. VINCENT CATTERMOLLE BROWN, Paignton.

General constructive works.

R. Harris	£2,689	0	0
G. Webber	2,664	0	0
E. Westlake	2,652	0	0
C. & R. E. Drew	2,648	0	0
W. Lethbridge	2,639	0	0
H. Webber & Sons	2,615	0	0
DART & POLLARD (accepted)	2,602	0	0

Internal plumberwork.

C. BOOTYMAN (accepted)	209	18	0
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Decorations.

H. Webber & Sons	195	0	0
THOMAS & GENNING (accepted)	188	15	0
C. & R. E. Drew	188	10	0
Thomas & Son	184	0	0

PLAISTOW.

For erection of two blocks of buildings in Carter Road, comprising pupil teachers', laundry and cookery centres, and caretaker's house. Mr. WILLIAM JACQUES, architect, 2 Fen Court, E.C. Quantities by Messrs. R. L. CURTIS & SONS.

A. E. Symes	£26,111	0	0
B. E. Nightingale	24,901	0	0
Stimpson & Co.	22,537	0	0
Battley, Sons & Holness	22,319	0	0
G. Sharpe	22,055	0	0
W. J. Maddison	21,615	0	0
A. Reed	21,220	0	0
GREGAR & SON, Stratford (provisionally accepted)	21,159	0	0

RADCLIFFE.

For construction of a reservoir (to hold about 22,000,000 gallons) at Crow Trees Farm. Messrs. JAMES SELLERS & SON, surveyors, &c, Union Chambers, Bury
ETHERIDGE & CLARK, Norfolk Street, Manchester (accepted).

REDWORTH.

For erection of a cottage at Redworth, near Totnes. Mr. W. F. TOLLIT, architect, High Street, Totnes.

T. Brook	£296	0	0
W. Reeves & Sons	287	0	0
H. J. Almond	250	0	0
Leaman & Kinsman	248	0	0
Tozer & Son	247	0	0
H. Albert	203	0	0
R. E. NARRACOTT, Stoke Gabriel (accepted)	197	0	0

ROCHDALE.

For providing and laying about 4½ miles of cast-iron pipes, 13 inches in diameter, from Bottoms, in the borough of Todmorden, to Littleborough.

R. ROBINSON & SON, Rochdale (accepted).

For erection of a retaining wall at Spotland Bridge.

T. ASHWORTH & SONS, Norden, near Rochdale (accepted).

RUNCORN.

For converting the common lands into a pleasure-ground.

W. MOORS (accepted)	£250	0	0
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SELBY.

For sewerage works. Mr. BRUCE MCG. GRAY, town surveyor.

F. Loveday	£650	0	0
T. Rowland	561	17	2
S. C. Starkey	483	7	0
J. Brunton	450	16	0
T. Egan & Sons	446	9	6
Woodall & Woodall	442	10	0
R. Fisher	439	1	3
J. H. Whitaker	423	15	11
W. Needham	383	14	3
J. Smith	375	0	0
M. Hall	355	10	6
B. Roberts	345	5	6
A. H. ATKINSON, Hull (accepted)	331	15	0

The Cattybrook Brick Co. Ltd. BRISTOL.

ESTABLISHED 35 YEARS.

“Pressed” and “Wire Cut”

Red Facing Bricks.

Buff Do. Do.

Blue Do. Do.

Red and Buff Terra-Cotta, Moulded Bricks, &c.

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FOR ENGINEERING & HYDRAULIC PURPOSES.

LIST OF WORKS AND BUILDINGS IN WHICH CATTYBROOK BRICKS AND TERRA-COTTA HAVE BEEN USED, ALSO SAMPLES, FREE ON APPLICATION.

SCOTLAND.

For erection of new Gordon Arms hotel at Inverurie. Mr. GEORGE GRAY, architect, 133 High Street, Inverurie.

Accepted tenders.

J. Smith, Kintore, mason	£888	0	0
W. Allan, carpenter	550	10	0
J. Laing & Sons, plumber	230	0	0
R. Moir, plasterer	206	0	0
Sutherland & Son, painter and glazier	135	0	0
A. Rhind, slater	54	17	6

For erection of forty-six houses in Auchterderran Road, Lochgelly. Mr. JOHN HOUSTON, architect, Dunfermline.

Accepted tenders.

J. Gair, Lochgelly, builder	£1,955	7	0
D. Arnott, Cardenden, joiner	1,955	0	0
J. Adam, Lochgelly, plasterer	710	11	0
J. Downie, Dunfermline, slater	562	1	0
A. Rolland & Co., Dunfermline, plumber	316	5	0

STEETON.

For erection of a residence in Station Road, Steeton, Yorks. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.

Accepted tenders.

T. Atkinson, mason.	J. Gill, joiner.
Smith & Pickles, plumber	W. H. & E. Walton, slater.
J. Greenwood, plasterer.	

STREATHAM.

For erection of a pair of semi-detached houses. Messrs. BELL, WITHERS & MEREDITH, architects, 3 Salter's Hall Court, London.

D. Waller	£2,457	0	0
Spencer Santo, Ltd.	2,350	0	0
Gathercole Bros.	2,000	0	0
W. H. LARMAN, Wimbledon (<i>accepted</i>)	1,600	0	0

TIPTON.

For street improvement near Toll End canal bridge. Mr. W. H. JUKES, surveyor.

J. Sisman	£110	0	0
E. Boore	97	0	0
W. SLATER, Vale Street, Upper Gornal, near Dudley (<i>accepted</i>)	75	10	0

TENTERDEN.

For construction of bacteria tanks, &c., and supplying siphons, &c., at outfall. Mr. W. L. C. TURNER, borough surveyor.

*Accepted tenders.**Contract No. 1.*

W. Elliott & Sons	£350	0	0
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Contract No. 2.

Adams & Co.	107	18	0
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WALES.

For furnishing municipal buildings, Llandudno.

Lamont & Sons	£488	5	0
Pioneer House Furnishing Stores	459	10	0
Goodall, Lamb & Heighway	450	0	0
Rhydwen, Jones & Davies	435	16	0
Gillow & Co.	422	17	0
J. Shoolbred & Co.	412	14	0
F. Restall	407	10	0
Taylor Bros.	394	0	0
Turner, Son & Walker	380	0	0
Norton & Co., Ltd.	324	14	6
H. Hughes	314	0	0
North of England School Furnishing Co.	310	0	0
R. Williams & Sons	298	7	6
Parker's Joinery and Cabinet Co., Ltd.	294	15	10
E. Hughes	290	12	0
S. ROBERTS, Egremont (<i>accepted</i>)	258	0	0

For erection of school buildings, Brynteg. Messrs. LOCKWOOD & SONS, architects, 80 Foregate Street, Chester.

New schools.

T. Williams	£3,899	19	0
W. E. Samuel	3,600	0	0
R. Williams	3,498	14	6
Davies Bros.	3,385	0	0
W. H. WYCHERLEY, Broughton, near Wrexham (<i>accepted</i>)	3,169	0	0

Alterations.

T. Williams	1,509	7	0
W. E. Samuel	1,380	0	0
Davies Bros.	1,317	0	0
R. Williams	1,281	12	0
W. H. WYCHERLEY (<i>accepted</i>)	1,199	0	0

FISHBURN'S LABOUR SAVING WINCHES.

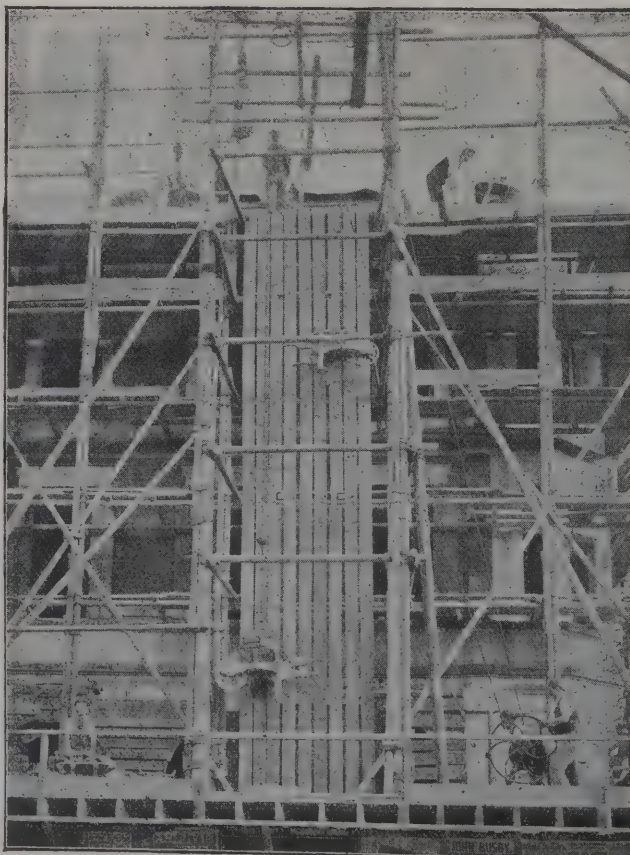
To Builders and Contractors, Masons, Fireproof Building Constructors, Excavators, Plumbers, Manufacturers, Merchants, and others.

By its use in Building operations ordinary Wheelbarrows, Handbarrows, Baskets, Buckets, or other receptacle being used, the loaded one ascends while the empty one descends, and rendering unnecessary the dangerous practice of carrying loads up ladders. Prepared Stonework, Bricks and Ornamental Work, can be dealt with without risk of damage. Also material for Carpenters, Plumbers, &c. Cost of the Winch covered in a few weeks.

This Machine will be found invaluable in Warehouses, Factories, Maltings, &c., for lifting or lowering by hand-power goods in bulk. Also Barley, Wheat, Flour, Cement, &c., in sacks. It can be placed in the basement, intermediate, or top floor, to work entirely or partly inside the building.

The Machine is so named because of its adaptability as means of lifting or lowering articles and materials of every kind with great despatch and Safety.

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CHURCHES, RESIDENCES,
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**LOW-PRESSURE HOT WATER,
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REGENT SQUARE, GRAY'S INN ROAD, W.C.

WALES—continued.

For additions to warehouses in Millicent Street, Cardiff. Mr. EDGAR G. C. DOWN, architect, 31 High Street, Cardiff.

W. Thomas & Co.	£570	0	0
G. Griffiths	455	0	0
Lattey & Co., Ltd.	439	0	0
Knox & Wells	435	0	0
Skepton & Son	416	10	0
D. Davies	405	0	0
W. T. MORGAN, Cardiff (accepted)	398	0	0
F. Small	390	0	0

For erection of a new workhouse infirmary, Pembroke. Mr. E. H. LINGEN BARKER, architect, Hereford.

T. & J. Brown	£4,124	5	0
Davies & Griffiths	3,702	3	9
W. P. Lewis & Co.	3,645	0	0
Davies & Morgan	3,573	0	0
D. Davies	3,378	0	0
Thomas, Watkins & Co.	3,378	0	0

WATERLOO (LANCS).

For erection of boundary walls, iron railings and gates at the Bowersdale Park, Seaforth, and wood fencing and gates at the Sandheys Park, Waterloo. Mr. F. SPENCER YATES, surveyor.

Accepted tenders.

Contract No. 1.—Boundary walls, &c.

T. Taylor, Brighton-le-Sands, Waterloo, near Liverpool.

Contract No. 2.—Fencing, gates, &c.

T. Breckell, Mount Pleasant, Waterloo, near Liverpool.

WEST HARTLEPOOL.

For sewerage works, comprising about 875 lineal yards of 6 feet by 4 feet egg-shaped brick sewer, and about 308 lineal yards of 5 feet 3 inches by 3 feet 6 inches egg-shaped brick sewer, and about 360 lineal yards of 4 feet 6 inches by 3 feet egg-shaped brick sewer, with connections, at Elwick Road, Park Road, Victoria Road, Lowthian Road, and Middleton Road. Mr. J. W. BROWN, borough engineer.

JOHNSON & LANGLEY, Leicester (accepted).

WILLENHALL.

For erection of a disinfecting station at the sewage outfall works, Willenhall, Staffs. Mr. T. EDGAR FELLOWS, surveyor

R. M. Hughes	£343	0	0
J. Hicken & Sons	334	0	0
T. & S. Ham	320	0	0
J. Moseley & Sons	300	0	0
H. Gough	290	0	0
J. M. Tildesley	289	0	0
G. Gibbons	282	6	4
T. Tildesley	275	0	0
HAMMOND BROS., Darlaston (accepted)	274	0	0

WOOLWICH.

For erection of a gardener's cottage. Messrs. CHURCH, QUICK & WHINCOP, architects, William Street, Woolwich.

Foster Bros.	£562	0	0
C. Killey	533	8	0
Stephens & Son	498	0	0
G. J. Page	483	10	0
THOMAS & EDGE, Woolwich (accepted)	447	0	0

A DEPUTATION from the Netherlands Government visited Dover on the 16th inst., inspecting the plans, charts and works of the new harbour, with a view to making Dover a port of call for Transatlantic and Netherlands traffic. The deputation consisted of M. Lemans, chief inspector of works at The Hague; M. de Jonghs, director of public works at Rotterdam, and M. van Woelderen, a director of the Zeeland Steamship Company. To meet them were His Excellency Baron Gericke von Herwyven, the Netherlands Ambassador in London, Sir William Crundall and other members of the Dover Harbour Board, and Sir John Jackson. The plans were described by Sir William at a conference held at the Lord Warden hotel, and critically examined by the deputation, who made suggestions with reference to future arrangements at Dover for merchandise as well as passenger traffic, expressing the opinion that in the immediate future Dover would be compelled to provide for a very large transatlantic and continental merchandise traffic.

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BUILDING AND BUILDERS.

THE Local Government Board has sanctioned a loan of 52,000*l.* for the extension of the Bucks County Lunatic Asylum at Stone.

THE town clerk of Pwllheli has received official intimation of a Government grant of 17,500*l.* towards the projected harbour scheme at Pwllheli.

AT Bolton, on the 16th inst., a slater named James Taylor fell from a house-top into the street below, and was killed instantly. On the same day a similar accident happened to Henry Tate, also a slater, who was working on the roof of a house in Bolton, from which he fell with fatal results.

A LOCAL Government inquiry was held at Greetland by Colonel Luard, R.E., respecting an application by the District Council for sanction to borrow 2,339*l.* for land and the erection of a dépôt, stables, &c., and 1,836*l.* for sewage purposes. The inspector afterwards visited the sites.

A SCHEME is being inaugurated at Handsworth whereby four new churches at least are to be erected in the district. Two of these will be situated in the ecclesiastical parish of St James's, namely, one in Grove Lane, for which the site has been secured, and the other in Rookery Road.

AT a meeting of Annan (N.B.) district committee—Major Carlyle, of Templehill, presiding—it was stated, with regard to the combination between the Town Council of Annan and the Annan district committee for the extension of the hospital, and for sharing equitably in the administration of the building in the future, that the probable cost of the extension would be between 2,500*l.* and 3,000*l.*

A NEW hospital for women and children is being erected in Leeds from the drawings of Messrs. Chorley, Connon & Chorley. The building now in use, which was originally a private residence, has become quite inadequate to the demands on it. It is estimated that the new buildings, which will be erected in sections as the funds allow, will cost altogether about 24,000*l.*

THE tender of Messrs. Collins & Godfrey has been accepted for the erection of the new town hall at Cheltenham, out of nineteen sent in. These were divided under three heads, viz.:

(1) The foundations and main building; (2) the structural connection of the proposed hall with the Winter Garden; and (3) the cost of structural decorations. Messrs. Collins & Godfrey's figures were as follows:—(1) 26,867*l.*, (2) 455*l.*, (3)

1,988*l.* The work has to be completed within twenty months. The architects are Messrs. Waller & Son, of Gloucester.

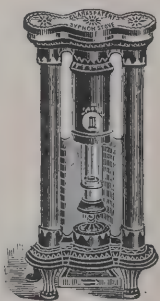
THE Lincoln City Council have received a direct warning from the Local Government Board of the serious risk they ran in commencing public improvements—or, rather, what they deemed to be such—prior to loans being sanctioned. Two applications for loans were on Tuesday inquired into, the first being for 3,441*l.* for the purpose of acquiring the Grey Friary and adjoining grounds for the purposes of a museum and gymnasium, and the second for 1,500*l.* for the rebuilding of the shops on the High Bridge.

THE Wrexham Waterworks Company are applying to Parliament for powers to construct a new storage reservoir to the north of Ty Mawr farmhouse and to the east of Cae Soff farm. Several new pipe lines will also be laid if the necessary powers applied for are granted, and to carry out these works the company are asking for authority to purchase the necessary lands. The company are also seeking powers to impound the waters of the Pentrebychan Brook and the Moreton and Erwy tributaries of that brook, and of all brooks and streams flowing into the same above the intended new reservoir, all of which waters now flow into the river Dee.

A SPACIOUS villa residence, with stabling, coachman's house, &c., is being erected on Dysart Road, Kirkcaldy, for Mr. James Wishart, from the designs of Mr. David Forbes Smith, A.R.I.B.A., the following being the contractors for the work:—Masons, Messrs. Balfour Bros., Sinclairtown; joiner, Matthew Wishart, Kirkcaldy; slaters, Currie & Cant, Kirkcaldy; plumbers, Blyth & Dougall, Sinclairtown; plasterer and tileworks, Mr. Henry Masterton, Sinclairtown. This villa is the first to be erected on the land belonging to Mr. M. B. Nairn, just being opened up for building purposes. Mr. David Gilmour is contractor for the streets proposed to be made to the north and west of the site, and also for the laying-out of grounds, terraces, &c.

THE foundation of the new United Free church at Newlands, Langside, was laid recently. The church, which is cruciform in plan, having nave, transepts and choir recess, is designed to accommodate 800, and with the exception of five sittings, all the others will have an unobstructed view of the pulpit. Part of the accommodation is provided in an end gallery constructed over the main vestibule. The principal entrance is by a large porch at the south-east corner, the other two doors being intended for egress. The style of architecture

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is fifteenth-century Gothic, treated in a simple manner, the principal effect being obtained by the mullioned and traceried windows in contrast to the plain wall surface and strong buttresses. The corner porch is constructed in such a way that it can be continued into a tower at any future time. The feature of the interior of the church will be the large aisle arches, with octagonal piers, all of freestone. Owing to the wide span of these arches and their consequent height, a clerestory is dispensed with, and the church lighted at the side walls by large traceried windows placed high above the floor. The aisles will be simply passages, no pews being placed behind the stone piers. All the windows and doors will show stone jambs inside. The roof timbers will all be exposed, showing an open timber hammer-beam roof. The windows are to be double glazed. The heating is to be by hot-water pipes and radiators. Arrangements are made for the admission of fresh air and the extraction of the vitiated air. The exterior of the church is to be built of Giffnock stone, and the stonework of the interior of Auchenheath stone. It is intended to have the church completed by Christmas 1902. The work is being superintended by Mr. John Sim, inspector of works, and Mr. H. E. Clifford is the architect.

ELECTRIC NOTES.

A VERY satisfactory trial of an electric rock drill was made recently at the Otis Engineering Works, South Melbourne. The drill is to be used in driving a tunnel on the mine of the North Gippsland Proprietary Company, Grant, North Gippsland.

By a large majority the Camberwell Borough Council have decided to supply electricity for public and private purposes within the borough. It was resolved to purchase the existing rights of the London Electric Supply Corporation, Limited, for 25,000*l*.

The number of motors and arc lamps supplied from the Bradford Corporation cables continues to increase. On June 30 there were 708 motors supplied from the Corporation mains, of which 487 were owned by the Electricity Department. The total number of consumers is 1,405, being an increase of 227 in twelve months, or equal to 19.3 per cent. The total number of arc lamps is fifty-one, together with twenty-four incandescents used for street lighting.

At a meeting of the lighting committee of the Leeds Corporation further steps were taken in connection with the lighting by electricity of East Parade, Infirmary Street, Park Lane, Cookridge Street and Woodhouse Lane to Blackman Lane, the work in connection with which will be put in hand at once. The lighting will be by arc lights on ornamental columns at the side of the road, the height of the lights above the road being 16 feet, or slightly more than half the height of the columns in the centre of the city.

THE inauguration of the Rhyl electric light and refuse destructor works, which have recently been completed, took place on the 7th inst. with a series of social functions and an inspection of the works. The combined electricity and destructor works were erected at a cost of 30,000*l*., the method of electric supply adopted being the Assen three-wire system with a declared pressure of 230 volts at consumers' terminals. In all some sixteen miles of cables had been laid, the system being paper and jute insulated lead covered and laid solid with bitumen in creosoted troughs. The lamps of consumers connected represent about 2,000 8 candle-power lamps: There are also 56 twelve-ampère 16-hour arc lamps, 36 of them along the promenade.

ITALY claims to rank first in electrical undertakings. Her local tram lines have long been driven by electricity, and lately she has extended the system to longer journeys for passengers as well as goods. In the year 1900 110 kilometres (about sixty-six miles) of the Lecco-Sondria and Colico-Chiavenna lines were coached for passengers and goods by electricity. The same may be said of the Milan to Ponte Ceresio line. The electric line between Milan and Monza will soon be followed by that from Bologna to Modena, and another from Bologna to St. Felice. The largest Italian railway companies, the Mediterranean and the Southern, are considering the question of electric installation, the trial of electricity on the shorter lines having been more or less an experiment with a view to its general introduction on all the railways at no distant date.

At Birmingham on Friday last the city surveyor, Mr. John Price, in the name of his staff, presented Mr. Russell Tippetts, a popular member of his engineering department, with handsome cases of razors and pipes. Mr. Tippetts has obtained a valuable engineering appointment in Mexico on sewerage works and waterworks of considerable magnitude which are being executed by Messrs. S. Pearson & Son.

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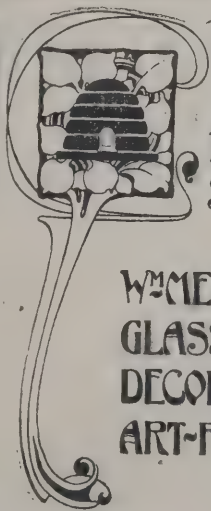
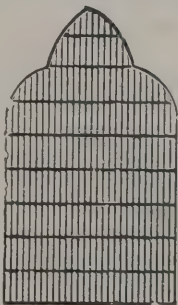
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TRADE NOTES.

H.M. REVENUE OFFICES, Liverpool, have lately been warmed by Messrs. John King, Limited, engineers, Liverpool, by their improved "Rahnee" radiators, fitted with patent "Rex" radiator valves.

APROPOS of the opening of the new Board schools in Wesley Street, Farsley, to which we referred last week, Messrs. Roger L. Lowe, Ltd., of Farnworth, ask us to mention that the floors of this building are laid with their patent pitch-pine wood-block flooring.

THE extensive alterations which are to be made in connection with the Royal apartments at Epsom Grand Stand will embody an electric passenger lift, the order for which has been entrusted to Archibald Smith & Stevens, Queen's Road, Battersea, and it is interesting to know that the whole of this machine will be of home manufacture.

ELECTRIC LIGHTING BOARDS (British Manufacturing Co) Ltd., have transferred their sales department to 9 Grosvenor Mansions, Victoria Street, Westminster, which will serve as the head depôt. The company's counting-house was also transferred to this address on November 1. A company described as Belgian Electric Lighting Boards, Ltd., was incorporated under Belgian law at Brussels at the beginning of the month, the principal shareholders being Belgian builders and contractors, and the directorate comprising Mr. Justin Alardin, sen. (chairman), Messrs. Edwin O Sachs, Justin Alardin, jun., and George Mombel. This company will work the parent syndicate's patent rights throughout Belgium and Holland.

WE are pleased to note that the electric fire-alarm of the May-Oatway Fire Appliances, Ltd., to the great value of which we have had occasion more than once to refer, is now attracting the attention it deserves. Among other installations of this automatic system we understand that the Ilford Urban District Council have contracted with the company to equip the new town hall with the apparatus, and to place it in direct communication with the fire brigade station. This will be the first town hall in Great Britain of which it can be said that no fire breaking out can exist for more than half a dozen seconds without the alarm being given, the machine calling the brigade and indicating the exact position, extent and course of its fire. Other important negotiations are, we believe, in progress, and we are assured that no fire has ever succeeded in damaging to a greater extent than 10%, and that no lives have ever been lost in, a building in which the system in question has been installed.

NEW CATALOGUE.

MESSRS. EWART & SONS, of Euston Road, are sending out a new illustrated catalogue of geysers and instantaneous water-heaters, in which will be found a graphic description of their new methods for the instant production of hot water for whatever purpose it may be required, the medium for heating being gas or oil. Several varieties are illustrated of the "Califont," for supplying hot water instantly under high pressure with or without circulation. A convenient combination of geyser with shower-bath arrangement and lavatory supply is also shown, as well as a variety of baths, boilers, radiators, urns, &c.

VARIETIES.

THE cross which the Dowager Duchess of Argyll recently erected at Machariorch, an exposed part of the coast of Kintyre, to the memory of the late duke, was blown down and broken during the recent gale.

DURING the recent storm a new hotel which was being roofed, at North Queensferry, was razed to the ground, and some slight damage was done to the piers and the loading banks near the village.

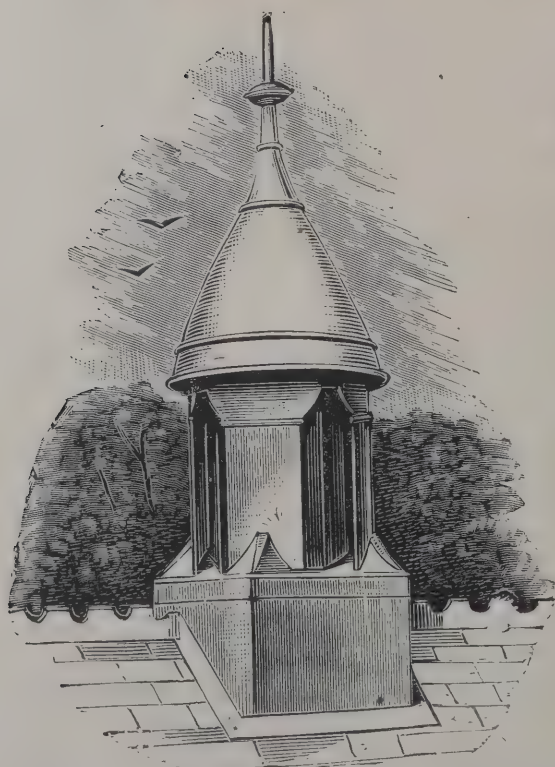
AT Cockerton on Saturday last the Bishop of Durham consecrated a new church. The style of the building, which will seat about 200, is Early English, and the work has been carried out by Messrs. J. P. Pritchett & Son, architects, of Darlington.

IT is gratifying to learn that Messrs. Head, Wrightson & Co., Limited, the well-known bridge builders, of Stockton, have just secured, despite the competition of American firms, a very large order for bridgework to replace that destroyed during the war in Natal.

MESSRS. BELTON & SONS, auctioneers, will sell by auction on Tuesday, the 26th inst., the freehold licensed premises known as the Grand Hotel, Henley. The building is an entirely new one, and has been furnished throughout by Messrs. Oetzmann & Co., of Hampstead Road.

THE associate section of the Edinburgh Architectural Association held a meeting on the 13th inst., in their rooms, 117 George Street, Mr. J. Stuart-Syme in the chair. Mr. W. S. A. Gordon read a paper on Canterbury Cathedral, and sketched its history from the landing of Augustine in England.

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n 597. Brief sketches of York and Beverley were also given. The lecture was illustrated by limelight views.

A NEW mission church at Penruddock, six miles from Penrith, was consecrated on the 16th inst. by the Bishop of Carlisle. The parish of Greystoke, of which Penruddock forms part, used to be one of the largest in the North of England, but from time to time chapelries were formed which became separate parishes. The new church will meet the needs of another district, Penruddock being over two miles from the parish church.

REPAIRS have recently been made in some of the more dilapidated parts of Linlithgow Palace. Chief among these has been the wall on the north side of the quadrangle and the apartment known as Queen Mary's room, where the old lintels have been replaced by new ones. The ancient fireplace has also been strengthened by the erection of an iron lintel. Repairs of a more or less important nature have been effected on other parts of the Palace, and also in connection with the dock harbour.

AN important seizure of a large quantity of Belgian cement has been made at Deganwy by H.M. principal officer of Customs, Mr. J. W. Mortimer, of Conway. The *Lord Devon*, from Antwerp, arrived at Deganwy last week with a cargo of cement consigned to Mr. Joseph Parr, builders' merchant, carrying on business at Bootle, Ramsey and Deganwy. On part of the cargo being discharged, the remainder was found to be packed in bags branded on one side with the name and style of Mr. Parr, and on the other with the legend, "Portland Cement." The officer of Customs suspected something wrong, and has detained the cargo under the Merchandise Marks Act, and before releasing it he will insist upon every bag being marked "Made in Belgium."

At the last meeting of the Woodford (Essex) School Board, Mr. W. S. Page, the chairman of the building committee, reported that the committee unanimously recommended the adoption by the Board of the plans submitted by Mr. E. Tidman, C.E., the architect, for a block of new schools to be erected in Snakes Lane for the Woodford Bridge and Ray Lodge districts. The proposed schools will be a two-storey building, and will provide at first for 700 children (300 infants, 200 girls and 200 boys), and with provision for an extension to the total of 1,000 when complete. It was resolved to adopt the plans, and Mr. Tidman was instructed to submit them for approval to the Board of Education without delay.

THE persons interested in the Manchester Market Street area improvement scheme, which came before Parliament last year and failed to win the approval of the committee of the House of Lords, have decided to renew their application in the next session of Parliament. A meeting of the shareholders in the Manchester City Properties Company, Ltd., was held on Tuesday, and it was unanimously resolved that another application to Parliament be made to carry out the scheme. The notices will be published in due course, and plans will be deposited in Parliament on or about November 30, in accordance with the requirements of the statute. Mr. W. H. Vaudrey is still the solicitor to the promoters, and Messrs. W. Telford Gunson & Son are the architects.

A CHURCH of fine dimensions and appearance, which has been erected at Stirchley, Warwickshire, on a site abutting on the main Pershore Road, has been recently consecrated by the Bishop of Coventry. The new building, which has kneeling accommodation for 578 persons, is in the Later Decorated style of Gothic architecture, and has a nave 82 feet long and 35 feet wide with ambulatory aisles borne upon five low but bold arches. The chancel is 32 feet 6 inches by 22 feet, the roof being waggon-shaped and divided into panels, whilst there is a seven-light east window. On the south side are the clergy and choir vestries, the latter being carried up as a tower in which is the organ chamber. There is a ringing-loft and belfry, in which provision has been made for a peal of eight bells. At the western end of the nave, and connected with it by a triple arcaded and traceried opening, is an apsidal-shaped baptistery, which constitutes one of the most striking and graceful features of the church. The baptistery, together with the two western bays, has been built by the vicar of King's Norton as a memorial to his parents, both of whom have died during his tenure of the living. The walls throughout are of brick, with external dressings of red terra-cotta, and the internal piers, arches and other dressings are in selected Farleigh Down Bath stone. A three-manual organ possessing good tone has been presented, and, including the price of the instrument, the total cost of carrying-out the scheme is estimated at 8,400*l*.

NEW police stations for the Bradshaw and Belmont districts of the Bolton petty sessional division of Lancashire have been completed at Bradshaw and Belmont, and both buildings are now in use. They have been designed by Mr. Littler, the county architect, and their erection has been supervised by Mr. John T. Parker, clerk of works for these and other county

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undertakings. The new station at Bradshaw is situate immediately opposite the parish church, and has been erected at a cost of 3,500*l*. The style of architecture is a Gothic peculiar to the county, and seen from the roadway the structure has a fine appearance. It is mainly of bricks supplied from Huncoat, Accrington; the dressings are of Holmfirth (Yorkshire) stone, and the carving has been undertaken by Messrs. Selle, of London. There are two cells which will accommodate four prisoners each, the cells being filled in with glazed brick in colours. The charge office will also serve as a parade room for the staff, and there is excellent convenience for the sergeant in charge, including parlour, kitchen, scullery, pantry, three bedrooms, bathroom and lavatory complete. There is a cellar underneath and complete heating apparatus. A weights and measures office is also provided. The Belmont new station is situated on the main road leading into the village, immediately opposite the Independent school. It is constructed of Whinnehill bricks, with Holmfirth stone dressings. It is smaller than the Bradshaw station, and the cost is correspondingly lower—about 2,300*l*. There is a charge office, two cells, and suitable accommodation for the constable who will be in charge, the rooms including front living kitchen, scullery, pantry and three bedrooms, with bathroom over.

TYNECASTLE CHURCH, Edinburgh, which was opened on the 9th inst., has a frontage of 66 feet, and to secure better light for the portion of the interior darkened by some neighbouring tenements two entrances are provided, one near either extremity. The building is constructed with nave, 94 feet by 29 feet, and aisles 64 feet long, the total width being 51 feet. These divisions are indicated on the front by buttresses of varied size, but the same projection, finishing at the top with pinnacles and carved finials. One larger than the rest is completed as a belfry. Vestibules and gallery staircases are provided with the entrances, and below the circular arch which carries the east staircase is a pend, open to the passage leading to the hall behind the church. The plans, by Messrs. Hardy & Wight, are in Decorated Gothic. The doorways have richly moulded piers, with engaged pillars and arches to correspond. The gallery at this end is lighted by a large window, 20 feet by 10 feet, having the moulded mullions and elaborate tracery of the style. The space under the gallery has five moulded lancets. The upper windows at the sides are also large, with the mullions and more simple tracery of the style, in order to diffuse a better light in the area below. The interior has a ceiling boarded nearly to the ridge both in nave

and aisles. It is heated by hot-water pipes carried above the floor, which is laid solid on a bed of asphaltic composition. The decoration of the newly plastered walls is simple, tinted in primrose yellow, relieved by blue marginal lines and some stencilling in the apse. The general tone of the furnishings is lighter and darker walnut. The windows are glazed with clear glass in large panes, with blue and gold border in leaded panels. The church is seated for 1,000, including choir and elders' seats. A communion table and chairs in oak, with decorated details, and a stone font, have been presented to the church, which will cost under 4,000*l*.

ART IN LAMBETH.

THE gratifying success attending the work of the Art Institute founded by the late Sir Henry Doulton, is abundantly shown by the very interesting loan collection of pictures, sculpture, &c., which is now on view at the Doulton Institute in Lambeth High Street. The exhibition, which has been admirably arranged under the auspices of Mr. J. C. L. Sparkes, late of the South Kensington School of Art, consists almost, if not quite exclusively, of the work of past students of the institute. Many of the works shown are of high artistic merit, and have been seen before at the various picture exhibitions, and among these the place of honour is assigned to Mr. Walter Oulless, R.A., who is represented by his well-known portrait of Cardinal Manning, and another not less excellent of Mr. P. M. Westlake. From among the students of the institute the artists employed by Messrs. Doulton & Co. are largely enlisted, and the ability of some of these is not by any means confined to the decoration of pottery, one exhibitor, for instance, showing, besides specimens of his artwork, a bicycle, a mandoline, and an electric battery, all specimens of his individual handiwork.

A BRICKMAKING DISPUTE.

ON the 12th inst. His Honour Judge Martineau was occupied for some hours at the Horsham County Court in hearing an action brought by Messrs. Hull & Redford, builders and brick-makers, of Horsham, against William Myson, formerly a brickmaker. According to the *Sussex Daily News*, plaintiffs' claim was for the amount overpaid by plaintiffs to defendant on account of defendant's contract to make bricks for plaintiffs during the season 1900-1, 46*l*. 1*s*. 4*d*.; balance due to defendant on contract for 1899-1900, 11*l*. 16*s*.; damages sustained

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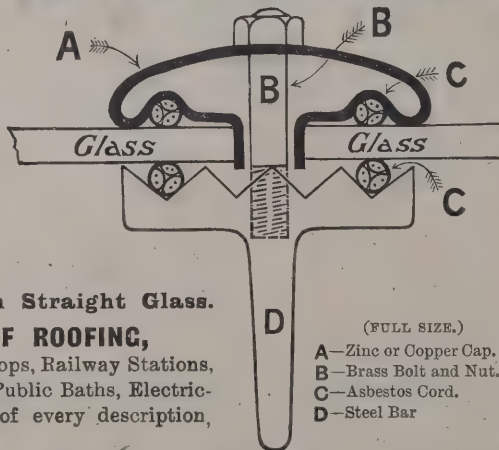
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by plaintiffs owing to the defendant's improper making and stacking of bricks during season 1900, 15*l* 15*s*. 6*d*. There was a counterclaim as follows:—For balance due for making bricks during 1900 season, 11*l*. 16*s*. 10*d*.; digging and soiling for 600,000 at 2*s*. 6*d*. per 1,000, 75*l*.; less drawn on account, 70*l*. 14*s*., leaving balance of 4*l*. 6*s*. The total amount of counterclaim was 16*l*. 2*s*. 10*d*.

Plaintiffs in the autumn of 1898 opened a brickyard upon Spencers Farm, Horsham. In that year defendant was engaged to make bricks for the season at the rate of 12*s*. 6*d*. per thousand, and this arrangement was entered into until the last week in March 1901, when defendant left in order to become the licensee of a public-house. The plaintiffs' contention was that defendant was to dig soil, make and burn bricks for 12*s*. 6*d*. per thousand, and by arrangement he was to make the back ground and keep it in repair. This contract continued the following season, and also during 1900-1. Defendant was paid 70*l*. 14*s*.; each week he drew what he required.

Mr. Rawlison, for plaintiffs, said no account or check was kept about overdrawing, but he submitted that very much was drawn in advance of work actually done. In consequence of His Honour's decision in a previous case at that court plaintiffs were not going to proceed with any claim for breach of contract.

William Hull, one of the plaintiffs, bore out this statement, and added that defendant left the last week in March. A man named Gear was employed, and surveys were taken. Before defendant left he did not make any application for measurement. Neither had he since. He had not made any claim for money which he considered he was entitled to. After Mr. Potter measured the clay, Messrs. Smith & Son were called in and witness found a great difference in the surveys.

Thomas Redford, another plaintiff, having over twenty years' experience in brickmaking, said no question was raised as to whether defendant would be paid for rough ashes. Defendant had no rough ashes to use, except in the second season. The sum of 12*s*. 6*d*. would be the price to pay a man using rough ashes. In the second year the bricks were bad.

George Gear stated that the usual price for digging and soiling was 2*s*. per thousand, 1*s*. 6*d*. for digging and 6*d*. for soiling. He paid his men 42*l*. 15*s*. for digging and soiling.

J. R. Pocock, assistant at Messrs. Smith & Son's, land and estate agents, took the measurements of a heap of clay, which he estimated 839½ yards.

Sydney Smith, of the firm of Smith & Son, spoke as to the accuracy of this measurement.

Harry W. Parsons also gave evidence.

John Burrage, a brickmaker of thirty years' experience, said 2*s*. was the price for digging and soiling. He never received anything extra for rough ashes. He had to take the ashes as they came. The better the ashes the better was the work for the men. Defendant told witness that he had a lot of rough ashes, but that he did not intend to sift them. Defendant did not say that he was paid 6*d*. per thousand for sifting them. Witness should require extra for hacks.

This was plaintiffs' case.

Defendant was called, and said he had been a brickmaker for thirty years. He made the bricks for 12*s*. 6*d*. per thousand. Nothing was said by plaintiffs about keeping hacks in repair. He agreed to make them for the first year, and without any remuneration. The first year there were no rough ashes, but in the second year they were all rough. The bricks were made properly, but the soil would not stand knocking about. He dug as deeply as he could for the soil, but the soil was bad. In cross-examination, witness stated that when he found rough ashes he asked for extra pay, but plaintiffs told him that he would not get any rough ashes.

George Burstow, who worked in the field, said the soil was light, and Frank Potter was called in respect to his measurements of the heap of clay, which he said was 1,500 yards.

Mr. Humphrys, for defendant, submitted that in regard to the claim for bad workmanship that this was a pure afterthought. It was the plaintiffs' soil, and unless there was bad workmanship there was no claim in the least degree, as it had been stated that the soil was bad. Plaintiffs did not object to defendant having the money, and this he contended was sufficient for them to think that defendant had done enough to warrant them giving him the money. What His Honour had to arrive at was a fair price for digging and soiling, and this he would have to do.

His Honour (interposing): In the best way I can.

Mr. Humphrys dealt with the measurement figures, and Mr. Rawlison in reply submitted that the defendant's figures were arrived at in a rough-and-ready manner and not scientifically like those of the plaintiffs.

Mr. Rawlison was about to deal with the question of damages, when His Honour said he did not think there was anything in the shape of a claim.

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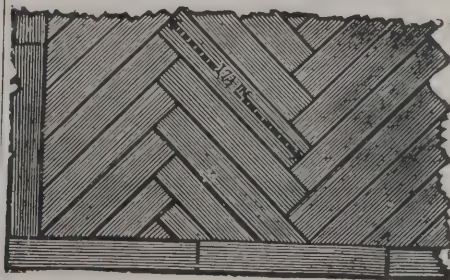


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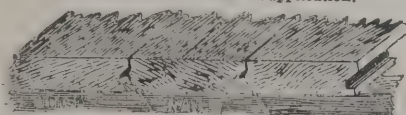
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Mr. Rawlison said originally the damages would have been in respect of breach of contract; and in regard to the bad bricks these were partly due to the clay, but not entirely.

His Honour reviewed the evidence and said the valuation was made as to the work done. Two valuers were employed—Messrs. Smith & Son and Mr. Potter—and the under-accurate measurement was that of Messrs. Smith & Son. He, however, accepted Mr. Potter's valuation. He thought three yards must be allowed for a thousand bricks. On the other hand, Mr. Potter had allowed 2s. 6d for digging out and soiling, and he was only going to allow 2s. He therefore gave judgment for plaintiffs for 27l. 19s. He was not going to allow anything for damage because he had a strong suspicion that the bricks were indifferently made. It was not due to wilful negligence or breach of contract on the part of Myson. He entered judgment for defendant on the counterclaim for 11l. 16s.

METROPOLITAN ASYLUMS BOARD.

A MEETING of the managers of the Metropolitan Asylums District was held on Saturday last. A letter was read from the Local Government Board formally approving the plans of the Southern Hospital; promising an order authorising an expenditure of 284,312l. on the hospital, and the borrowing of that sum; stating that the loan should be repaid as to 264,312l. in thirty years and as to 20,000l. in fifteen years, and that managers would be expected to adhere as nearly as possible to the estimated cost in carrying out the works. At the last meeting of the Board it was decided to complete forthwith the permanent hospital at Joyce Green by the erection of the remaining twelve blocks and the isolation block for patients, and the works committee were instructed to advise the managers as to the course to be adopted for giving effect to that decision. It was now resolved, on the recommendation of the committee, that subject to the sanction of the Local Government Board, the managers should accept the offer of Leslie & Co., Limited, the contractors for the erection of Joyce Green Hospital, to erect and complete the remaining twelve pavilions, isolation hospital, and other works connected therewith at a schedule of prices based on their contract for the main portion of the hospital, in accordance with plans and specifications prepared by Messrs. A. & C. Harston, architects.

BUILDERS' BENEVOLENT INSTITUTION.

THE fifty-fourth annual dinner of the Builders' Benevolent Institution took place at the hall of the Worshipful Company of Carpenters, Throgmorton Avenue, E.C., on Thursday, the 14th inst. Mr. J. Carmichael (president of the Institution) occupied the chair, and amongst those present were Mr. G. I. Fellowes-Prynn, Mr. J. Howard Colls, Mr. D. Duff, Dr. R. Oram, Mr. W. B. Brown, Mr. K. D. Young, Mr. T. Brooke Hitching, Mr. A. Ritchie, Mr. W. Gilbert Scott, E. P. Anson, Mr. H. N. Lancaster, Mr. J. Gibson, Mr. T. Hare, Mr. J. Wigley, Mr. A. Masson, Mr. F. Farquharson, Mr. B. P. Ellis, Mr. A. E. Parker, Mr. B. Woodward, Mr. Scott Balfour, Mr. H. Holloway, Mr. R. J. Greenwood, Mr. H. Barlett, Mr. J. Randall and Mr. T. Rider. The company numbered altogether about 200.

After the usual loyal and patriotic toasts the Chairman proposed the toast of the evening, "Success to the Builders' Benevolent Institution." He pointed out that the object of the charity was to relieve men who had been builders and business for at least ten years, whose age must not be less than fifty-five, whose character would bear the strictest scrutiny, and who were now in poverty and want. He had often thought had he been a Carnegie, nothing would have given him greater pleasure than to search for and find out the thousands of poor but honest tradesmen scattered throughout the length and breadth of our land, so that he might help and assist them. He believed there was no more deserving class of men, and none who would more highly appreciate a little financial aid. The cause was a good one, and, whilst they were exceedingly grateful for all donations received, he wished to make a special appeal to all London builders to help this deserving charity by becoming regular annual subscribers. This was essentially builders' charity, and ought to be supported by builders. Our merchants did nobly, but he regretted he could not say the same of some of our builders. The annual subscriptions had fallen off considerably this year, but he hoped they would make up the deficiency that night. The funds were administered with the greatest possible care and a minimum of cost. It might well be written over the doorway of the committee-room, "No impostors need apply." In conclusion he asked the company to remember the words of his fellow countryman, Thomas Carlyle, "I pass through this world but once, therefore any good thing that I may do or any

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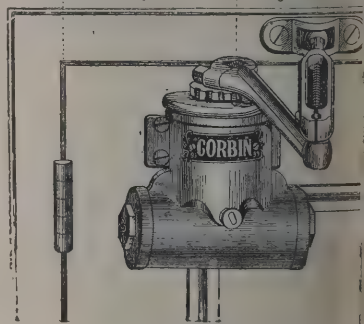
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indness that I may show, let me do it now; let me not neglect, as I shall not pass this way again."

The other toasts were "The Worshipful Company of Carpenters," proposed by Mr. B. J. Greenwood and responded to by Mr. John Wilson, J.P., the Worshipful Master of the Carpenters' Company; "The President," proposed by Mr. A. Ritchie, J.P., and responded to by the Chairman; "The Architects and Surveyors," proposed by Mr. J. Howard Colls, and responded to by Mr. G. H. Fellowes-Pryne, and Mr. W. Blumfield Brown; and "The Vice-Presidents, Committee and Stewards," proposed by Mr. Henry Holloway and responded to by Mr. E. J. Lough.

During the evening the secretary, Major R. A. Brutton, read the list of subscriptions and donations, which amounted to £1,019/3s. The President's list showed a total of 948/17s.6d, towards which the President himself contributed 105/.

CO-OPERATIVE TOWNS.

MEETING was held lately in Coventry to consider the "Garden Cities Scheme." A paper was read by Mr. A. Williams, in which he said:—

Overcrowding and high rents have become a national calamity. Not only do respectable workers lose a large part of their wages in order that the owners of town sites may draw large sums for doing nothing. That would be an injustice, but when we consider how the young people are constantly streaming from the country to the towns to find work, how the high rents compel many of them to crowd together in slums, and to bring up their families under conditions which are demoralising to character and destructive to health and strength, we are bound to recognise that a great national regeneration is going on. Thousands of lives are being lost, and what is still worse, the quality of our race is being deteriorated.

Some remedy for such a state of things is a crying need of times. Of course the simplest remedy seems to be to enforce sanitary regulations and prohibit overcrowding. Yes, if you turn the people out of the slums and overcrowded tenements, where are they to go to? There are no good places for them. "Well, then," some will say, "let the municipalities build houses." A good enough answer perhaps

up to a certain point, but even if the municipality can find vacant land in the town it will be excessively dear, and so usually will be the houses erected on it. In big towns, however, there is little or no vacant land. The municipality buys up slums at a huge cost and puts up high blocks of tenements. Even so it often does not accommodate more people than it displaces, and the new homes are far too dear for the very poor who were turned out. They, poor creatures, just move on and overcrowd the next handiest locality, and new slums are created. Even if more people are accommodated, the result is just to attract more people from the country, and in the long run rather to increase the overcrowding than relieve it. Meanwhile part of the expense is likely to fall on the rates, and the workman finds his home costs him more than ever.

Apparently there is no real cure available in the present for the evils of overcrowded towns. At least, so we might have said two or three years back. But about that time there came out a book called "To-morrow," by Mr. Ebenezer Howard, who offers us a remedy essentially different from any of those we have considered. It is not enough to reform your existing cities, he says, still less to build on to them. What you want to do is to build new cities, and to build them on a rational plan, not haphazard. Don't merely move your homes to the outskirts, but move men and factories together to new sites where they can enjoy the advantages both of town and country life. Thus you will not only have new model cities, but incidentally you will render easier the improvements of the old ones, because you will relieve the pressure upon them. Manufacturers even now are sometimes moving their factories out into country places because high rents and rates are killing their trade. Systematise this, says Mr. Howard, and get a number of manufacturers and, if possible, of co-operators also, to move out together. And this is how he proposes they should do it. Let them combine to buy, say, 6,000 acres of land somewhere where it can be got at agricultural value, but it must be near a railway. In the middle of this let them build a garden city, that is, a city which shall have a conspicuous feature, gardens, both private and public. By building on this land they will very greatly raise its value. What perhaps cost 20/ or 40/ an acre will become worth 500/ an acre in its central part, but all this increased value they will retain for themselves, not make a present of it as an "unearned increment" to a ground landlord. Let them, moreover, build on a plan and so secure open spaces, gardens, sanitation, convenient public buildings, in fact, all the conveniences of the

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best town life together with those of country life. For the country will be all around them.

Manufacturers are moving out into country places, but they are doing so in quite an unorganised way—one here and one there. Garden City, on the other hand, is to be an organised movement. Compare the advantages of the two things. To move into the country a single manufacturer must have a large capital to build his own factory; he must make his own arrangements for sidings and so on with the railways; further, he must either find money to build houses for his employées, or he must leave them at the mercy of the speculative builder or whatever else fate may bring them. That establishing industries in country places in a disorganised way by no means necessarily leads to good results is shown, I think, by the condition of Cradley Heath and similar places round about Birmingham. Moreover, the single manufacturer, when he has moved, finds himself cut off from the help of the many trades to be found in a city, and one result of his enterprise and hard work is to give away a great part of the wealth produced in the shape of an unearned increment to the ground landlord. In an organised movement, on the other hand, it should be easy to find investors whose capital will build factories and houses; advantageous arrangements could be made with the railways; the whole increased value created by the industry of the place would be retained for those who made it; one factory would in many ways help another; one would employ men, another chiefly women; one would be busy at one season, one at another; subsidiary trades would grow up. There would be a variety of choice of employment for the young people and the inhabitants would have society.

Meanwhile Garden City Association, founded to make known Mr. Howard's ideas, appeals to the general public as well as to co-operators. Its plan is not only co-operative, but so far as ownership and development of the land goes it is purely so, and for the rest, it will necessarily give splendid opportunities for co-operation in all forms. The first thing needed will be much building and road-making, and here will be a first-rate opportunity for a co-operative builders' society. Then, as soon as there are a few inhabitants, a store will be needed, for they will certainly not wait for little shops to grow up, or for Liptons to start a branch. Then will come co-operative cottage owning, printing and engineering. Perhaps a creamery and jam making, and so on. Some of our co-operative productive societies, which already

have established businesses, may even find it worth while to move their factories or establish branches in Garden City. At the present time I know of one of the largest of them which is making plans to move out into the country. Of course very many points will require careful consideration, and Garden City Association has sub-committees already at work considering such questions as the choice of site, the kind of leases to be granted, the drink traffic and the smoke difficulty. So much for co-operators. The private employer for his part will find better accommodation at a lower rent, and, as Mr. Caddell told us the other day at Bournville, he will find that it is good business to move to a place where he has plenty of room to expand. Indeed, some manufacturers have already expressed their willingness to start business in Garden City.

It is intended after getting the option of a suitable estate to register a limited liability company with a large share capital—perhaps 100,000—perhaps a good deal more. There ought at least to be enough share capital to buy out and out the estate chosen. Interest on shares will be limited to 4 or 5 per cent, and as soon as possible after the city is established the whole property will be made over to the actual inhabitants subject, of course, to their paying off the shareholders and carrying on the work on the principles on which it started. I do not suggest that any co-operative societies should invest heavily in the shares of this company, though it is difficult to see that such an investment could be very risky; but I could wish that each society would take a moderate number of shares in proportion to its membership. Later, again, money for the development of the estate may be wanted on mortgage or debentures, and this should afford our societies a first-rate investment. It may be said, and truly, that drawing 30,000 people into a garden city would not greatly relieve the overcrowding of our great towns. But if the first be successful there will certainly be more to follow. Other companies may be formed, and town councils and county councils may form garden cities of their own, once the practicability is proved. In that case, why should not the stores and the co-operative wholesale society and the co-operative workshops of the country combine to found one such settlement of their own on purely co-operative lines? In addition to all that I have already described, it might have near it a great co-operative convalescent home; it might be a holiday resort for co-operators with a summer camp for lads and young men, a school of cycling, a golf-links, a cricket-ground, and I know not what else.

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NATIONAL ASSOCIATION OF MASTER PLUMBERS.

THE half-yearly meeting of the National Association of Master Plumbers of Great Britain and Ireland was held in Bolton on the 13th inst., in the Sale Rooms, Bowker's Row. There was a large and representative gathering of delegates from all parts of the United Kingdom. The business part of the proceedings was conducted in private, but at the close of the morning session the delegates, to the number of nearly a hundred, were entertained to dinner by the local branch at the town hall. The mayor (Alderman Miles, J.P.) had kindly lent the banqueting-room for the occasion and also attended in person, being supported by the deputy mayor (Alderman Nicholson, J.P.), Mr. Isaac Jones (president of the local branch), Mr. J. T. Vause (vice-president), Mr. D. Cuerden (treasurer), Mr. R. Walsh (secretary), Mr. W. L. Harrison, Hull (president of the National Association), Mr. J. Beal, Hull (secretary of the National Association), Mr. A. S. Dyson (treasurer of the National Association), Councillors J. W. Witter and D. Maginnis, and many others. An excellent repast was served up by Mrs. Priestley, after which the Chairman proposed the toast of "The King and the Royal Family," which was received with musical honours. The Mayor was next called upon to submit "The Delegates and Visitors," and was enthusiastically greeted on rising. He said he was glad, as his first official act as mayor, to have the privilege of meeting such a body of men from all parts of the country. They were formed into an important Association whose objects were good, their motto being "Defence, not defiance." That was their first visit to Bolton, but he hoped it would not be the last. He was pleased, as mayor, to give them a most hearty welcome and to express his appreciation of the excellent manner in which the Association was doing its work in the way of conciliation, a word he was very fond of. Disputes would arise whatever they might do to avoid them, but if these disputes could be settled in a conciliatory manner how much better it would be for the world. That was one of their main objects, and he wished them every success in carrying it out. He had been reminded that there was a little fault to find with Bolton on account of the trading of the waterworks and gas committees, but he was not going to enter into anything controversial that day, and would conclude by proposing the toast.

Mr. Harrison (Hull) responded in a humorous speech, in

which he spoke warmly of the hospitality extended by the Bolton people, and trusted that when the plumbers came again they would find Councillor Witter wearing the mayoral chain. He congratulated Bolton on being a progressive municipality, remarking that it appeared to him Bolton had everything Hull possessed but a crematorium.

Mr. Skirrow (Leeds) proposed "The Mayor and Corporation," and Alderman Nicholson responded, remarking that to the uninitiated the plumbing trade was certainly unknown. Still, it was a trade that had many excellent members, amongst whom he mentioned Alderman Vause, who had rendered splendid service to the town of Bolton as chairman of the streets committee. He spoke of Councillor J. W. Witter's great victory in Smithills Ward, and trusted his services would prove as valuable as those of Alderman Vause.

Alderman Nicholson next commented on the variety of the Bolton industries, placing Bolton only second to Manchester and Liverpool for its splendid works and workers. Bolton as a manufacturing town was A1, and Bolton plumbers ranked A1 amongst traders.

Councillor Witter also responded in a few happy remarks.

Mr. J. Beal (Hull) toasted "The President" (Mr. I. Jones), whom he described as a man of genuine grit. He went on to say there were evils in their trade they were trying to remedy, and he asked the mayor and the deputy mayor to help them in securing fair play, which was all they wanted as traders.

Mr. Jones appropriately responded, and the business portion of the proceedings was then resumed at the Sale Rooms.

EDINBURGH CASTLE.

THE finished drawings of the new buildings which are to be erected in Edinburgh Castle are now on view to the public in one of the committee-rooms of the City Chambers. They have been prepared at the War Office under Major Hemming, R.E., and show a building of the castellated or Scottish baronial style of architecture, providing officers' mess-room accommodation and quarters for seventeen officers and their servants. The new structure, which is 124 feet long and 100 feet deep, is for the most part two storeys in height, but the fall in the ground at the north side is utilised for the kitchen, cellars, offices and servants' quarters, and that part of the building is thereby increased to four storeys. The site is on the old Mills Mount, to the immediate east of the recently-erected military

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hospital, and the barracks now occupying the site will be demolished to make way for the new quarters, the design of which is in harmony with the architectural features of the existing buildings. On entering the castle the new building will be to the right, after passing the Argyle battery. The ground-floor, which is entered through a vestibule and hall—in which there is a recess for the band—will contain the principal apartments, including mess-room, ante-room, billiard-room, and the usual mess offices, which communicate with the kitchen by a separate staircase and lift. On the north side of the entrance are suites of rooms for two field officers, one on the ground floor and the other on the upper flat, with separate entrances, and the rest of the building is devoted to bedroom accommodation. In front of the mess there is a terrace, with a stone parapet, and on the north side a spacious flat over the billiard-room commands a view of Princes Street and the Fife coast. The plans are exhibited in elaborate detail, and show all the sections of the work as well as the completed buildings, seen from different points of view, so that one can judge of their effect on the sky-line. There are also four sets of photographs showing the buildings as they now exist and as they will appear when the contemplated erection has been carried out, the views being taken from the north side of Princes Street, the foot of the Mound, the Waverley Bridge and the Calton Hill, and an inspection of the designs and of the different elevations will enable the public to satisfy themselves as to the effect of the proposed alterations from an æsthetic standpoint. The contracts have not yet been let, but it is understood that they will be placed with local firms, and the probable cost is estimated at about 20,000*l*.

KESTEVEN NEW ASYLUM.

ON Wednesday last advantage was taken of the practical completion of the new county asylum at Rauceby, to hold the quarterly meeting of the Kesteven County Council, and the members were afforded an opportunity of inspecting the institution, which will be formally opened in February next.

The asylum, which stands in an estate of 115 acres—the actual buildings covering over 7 acres—has cost 166,000*l*., will accommodate 500 patients, and is elevated 100 feet above the sea level. Trees have been extensively planted, and will in time add to the beauty of the estate. The most modern ideas regarding the treatment of the insane have dictated the

arrangement of the buildings, which were planned by Mr. G. T. Hine, of London, and have been erected by Messrs. Kirk, Knight & Co., of Sleaford. The patients' blocks are placed in the brightest and most sunny aspects, and the quarters of the staff and officers are conveniently situated. The equipment of the premises is on a liberal, if not lavish, scale, the furniture alone costing 10,000*l*.. A feature of the institution is a theatre capable of seating 700 spectators. This has an attractive appearance, the windows being filled in with stained glass, and its accessories are quite professional, a permanent stage and footlights being provided. Another interesting department of the institution is formed by the laundry block, in which modern machinery will be used, the power being supplied by an electric motor. There is also a bakery on similarly up-to-date lines. A well-designed chapel stands detached from the main buildings, and comprises nave and aisles, north and south transepts, an organ-chamber and vestry; it is arranged on lines complete enough to please the most exacting worshipper.

The buildings are of Leicestershire red bricks with Ancaster stone dressings, the roofs being of Vermont green slate. The patients' blocks bulk largely in the façade, but between them are the quarters of the head nurse and house-keeper and the assistant medical officer. The administrative block is between these on the south and the front entrance on the north, and to the east of this are the attendants' quarters, which look into a large court. On the west are the quarters for the nurses, with another large court in front. Adjoining are the laundries, drying ground and mortuary. Each block has two entrances from the main corridors, which are 9 feet wide, paved with wood, and made cheerful by a golden-brown dado of glazed brick. The floors and ceilings are fireproof, being laid by the Stuart Granolithic Company, and the finely-fitted lavatories are the work of Messrs. Douilton & Co. For water-supply purposes there is a tower upwards of 100 feet high, forming a splendid example of brickwork. At its summit are two large tanks, each of nearly 14,000 gallons capacity. These are supplied from borings on the premises, the water being softened by a patent process before its elevation. The motive power for the machinery throughout the buildings is obtained from two massive boilers 28 feet long. The hot and cold-water mains, condensers, &c., are placed in a large subway running under the main corridors. The medical superintendent's house, 200 yards distant, is a most attractive residence, with a greenhouse, stabling and carriage houses.

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The Architect.

THE WEEK.

BATTLE ABBEY was sold by auction on Tuesday by Mr. JOSEPH STOWER for 200,000*l.* to Mr. Fox (Messrs. EDWIN FOX & BOUSFIELD), who represented an unnamed purchaser. When we regard it simply as an ordinary estate the price cannot be said to be excessive. The land comprises about 6,118 acres, and the rent-roll is 5,500*l.* In addition must be reckoned the abbey, park, home-farm and extensive woodlands. The timber was recently valued at about 43,000*l.* But the historic interest of the estate should count for much. The possessor of the most memorable battlefield in England and of all that remains of the monastery which WILLIAM THE CONQUEROR founded must always be a noteworthy person. On that account it is to be hoped the latest purchaser will remember that in this case especially property may be said to have its duties as well as its rights. The Duke and Duchess of CLEVELAND recognised that the public possessed some interest in the land, and their example we hope will always be imitated.

WHEN we find the Court of Appeal, consisting of such judges as the Master of the Rolls and Lords Justices STIRLING and MATHEW, differ in opinion as to whether a "crawling board" is a scaffolding, we must not be surprised at the continual litigation which arises out of the slovenly-framed Workmen's Compensation Act. According to clause 7 the Act can be put into operation by any one injured when employed in, on or about any building which exceeds 30 feet in height, and is either being constructed or repaired by means of a "scaffolding." It has been already decided that a scaffolding cannot be a single article such as a ladder or a plank, even when fastened at one end to the rung of a ladder, with the other end on a window-sill, but the scaffolding can be a thing easily movable, and can remain untied or unfastened. In *VEAZEY v. CHATTLE*, which was the action considered by the Court of Appeal, the plaintiff and another man erected a ladder and carried up a crawling-board in order that they might work on the roof. Before the board could be placed in position it slipped and the plaintiff was injured. The judge of the Derby County Court held that the board was a scaffolding, and gave an award in favour of the claimant. The builder appealed. The Master of the Rolls held that previous decisions gave authority for holding that that which not ordinarily could be called scaffolding might be called scaffolding within the meaning of the Act, and his lordship therefore concluded that a ladder might become scaffolding, especially when it was, as in the case before them, part of an arrangement. Lord Justice MATHEW also expressed the opinion that the arrangement was a scaffolding within the meaning of the Act. Lord Justice STIRLING, on the contrary, said the contrivance appeared to him to be only a form of ladder, and indeed ladders were often used in the way it was proposed to use the crawling-board. The combination could not either fairly or properly be called a scaffolding, and therefore the appeal ought to be allowed. But as the majority considered the award of the county-court judge should not be disturbed, the appeal was dismissed.

It is satisfactory to learn that the standards committee representing civil engineers, mechanical engineers, naval architects and iron or steel masters has received much evidence, and will therefore endeavour to obtain uniformity in the various sections which are now rolled in the mills of this country. As we remarked at the time of the appointment of the committee, there was no representative of building construction admitted as a member. It must have been known how largely rolled beams are employed in buildings, and that the want of uniformity in sections was often an inconvenience. The calculations which may be made on a particular section will not exactly apply to another section slightly differing in depth or in width of flanges. Our insular independence, by which each individual becomes a law to himself, is exemplified in rolled joists as much as in other classes of work. America,

that holds so important a place in the world of steel, contrives to satisfy native and foreign customers by means of forty-nine different sections. Germany rolls sixty-seven sections. We require in England no less than 171, or 50 per cent. more than America and Germany united. The same rule applies to rails. Some readers may know by experience how difficult a problem it is to determine the best section for a rail of a prescribed weight per yard, and yet the variety of rails that are in the market is incredible. Now the cutting of rolls is an expensive operation, and it is not to be supposed that the requirements on different railways are so unlike as to prevent the same rail from being used in many places. When we remember the importance which is attached to a very trifling difference between two angles or bars, it is easily understood that the sections required for bridges which have to be put together in a hurry are not always at hand. Concessions which will not be made in England are allowed to Americans, and thus it happens that much work which should have been produced in English yards has come from the other side of the Atlantic.

THE breaking of large plate-glass windows is one of the amusements which the legislature seems to have provided for the roughs in Dublin. One firm this week obtained 31*l.* 11*s.* 10*d.* and another 7*l.* 5*s.* as compensation for the malicious injury to their windows. The Recorder said that the claims were becoming a public scandal, for it was unfair that the ratepayers of Dublin should have to pay for criminal acts, although they no more instigated them than people in Australia. If the windows are insured the insurance companies make the claim, and it is therefore impossible for the people of Dublin to escape from the consequences of acts of criminals. Sometimes the culprit is arrested and convicted, but the compensation has to be provided by others. A remedy is unfortunately not easily provided, for if a change were made in Dublin it would apply to small districts in the country, where it is believed malicious injuries to cattle and property could often be prevented if the people in general disapproved of such acts.]

WE lately announced that tenders were to be invited for roofing the eastern quadrangle of the University Library, Cambridge, according to plans prepared by Mr. W. C. MARSHALL. The outlay was not to exceed 6,500*l.* The subject was brought before Congregation on the 21st inst. The matter had been fully discussed by the Senate, and met with much opposition on various grounds. A number of flysheets had been circulated both by the opponents and by the supporters of the scheme, and so far as weight of authority it was evident that the division would be close. The report of the Financial Board recommending a very large outlay for the purchase of more land from Downing College for the erection of University buildings no doubt had a great influence, as it was urged that at the present time it was inexpedient to incur so great an expenditure, and that the interests of the library would not suffer by delay. On a division being taken it was found that while 158 members were in favour of the roofing, 177 were opposed to it if undertaken at the present time. Tenders will not, therefore, be invited for the work.

THE Prince Regent of BAVARIA has selected several high functionaries and artists to form a consultative committee in connection with various public buildings which are to be erected in Munich, and later in other towns of the kingdom. The Minister of the Interior *ex officio* holds the foremost place, and he will be assisted by nineteen members. Seven will be officials connected with Government departments, who will be able to advise upon the requirements which will have to be provided for. There will be three Parliamentary representatives of Munich and three professors who can be consulted with advantage. Architecture will be represented by Herr VON SEIDL and Herr VON THIERSCH, sculpture by Herr VON MILLER and Herr HILDEBRAND and painting by Herr VON LENBACH and Herr VON KAULBACH. The object of a council so varied in its elements is to attain the utmost architectural success of which Bavarian architects are capable. It is expected also that if Government buildings are attractive they will be taken as models by ordinary citizens when about to erect houses.

ILLUSIONS IN ARCHITECTURE.

TO be given over to illusions is believed to mark a very low degree of spiritual abandonment. But as youth is prone to them they cannot be considered as the punishment of guilt. Some of the most favoured mortals are addicted to them, and without illusions we should have neither poets nor artists. The purpose of imagination, according to a high authority, is to embody the forms of things unknown, and with that sort of creation everyone of an artistic nature must be familiar.

It is hardly an exaggeration to say that among the artists, architects are the most liable to illusions. The common expression *châteaux en Espagne* suggests a connection between them and buildings, and the designer has generally a superabundant and it may be a sorrowful experience of unrealities which once seemed to be substantial enough for grasping. To employ stone, bricks, iron, wood, &c., in order to express one's thoughts and to meet the desires of others would appear at first sight as the reverse of illusory. But, as in most things, there are apparent contradictions about buildings. In architecture we have a combination of what is objective as well as subjective; physical science accepts the control of fancy. It is unnecessary to work out the question in a philosophic sense, although it would not be difficult, for, as the Germans say, a memorial of any kind, so long as it has a structural form, is a *Denkmal*, or, in other words, a form of thought. It will, however, be preferable to glance at illusions in another way.

Let us start with the architect's pupil. In the majority of cases he has only the vaguest notions about the career to which his parents or guardians have devoted him. He may have read a little about the wonders of architecture, or may have attended popular lectures in which the great buildings of the world were described. It is natural he should come to the conclusion that his pleasant vocation will be to erect structures of the same kind, and which apparently can be done without extraordinary difficulty by builders and their workmen under his directions. Here is the first illusion. It only requires a short experience in an architect's office in order to discover that the creative faculty, assuming it to exist, is exercised in a very prosaic manner. The plans and sections he may be set to trace, or the documents he is asked to copy, have to his mind little that is imaginative, and it is not long before a sense of disappointment comes over him. A pupil who has an undoubted talent for art is more likely to suffer through the humdrum procedure than one who has no special aptitude for it in any form, and who joins an architect's office in the same spirit as he would become an apprentice in a commercial house. The history of the late WILLIAM MORRIS affords a revelation of what has to be undergone by pupils who are really eligible. When he entered Mr. STREET's office Mediæval art and poetry appeared to him to be two phases of the same inspiration, and he may have imagined that he could better express himself in architectural forms, including painting and sculpture, than by words alone. He could not at the time have selected a more suitable office for a young Christian enthusiast than Mr. STREET's. But the ordinary routine was too much for him, and his pupilage was never completed. He did not abandon architecture, for it exerted influence over him throughout his life, in his poetry as in his decoration, but he concluded that such knowledge of it as he and others sought after was to be attained by a very different process. MORRIS's illusion about architecture as a practice was dispelled. He no doubt suffered when the idol appeared as a figure of clay, but he was sound enough to recover, although he continued to grumble. Many pupils, from not possessing MORRIS's means, are obliged to act differently. They discover that practical architecture is very unlike the art their fancy created for them, but they have to make the best of their fate, and they will meet with plenty of practitioners to assure them there are other disappointments awaiting them which are still harder to endure.

A pupil, it will be said, must encounter much that is disagreeable in all classes of business as well as in architecture. But once that ordeal is over the opportunities of carrying out the teaching he has obtained will be found to be more remote for the young architect than for the majority of those belonging to the other classes of business.

It is not sufficient for him to be competent to design buildings; he has to convince men that he has power, and that the expenditure of what will be considered as large sums of money can be entrusted to him. Those who have dreamed that it is only necessary to hire an office and have a name engraved on a brass plate, or set up on a painted slip in the hall of an office building, will find that a mere announcement is not persuasive enough to bring clients. There are no more dazzling illusions than those which arise when the time comes for setting up in practice, and the smart which follows experience of their collapse does not easily pass away. Lawyers and medical men in a similar position are fond of saying that the architect has in public competitions one advantageous means of gaining attention of which they are deprived. They would not speak so lightly if they could have a trial of a competition. That system has proved beneficial to many a young architect; but to make it profitable it is usually needful to treat competitions in periods, and to judge of the results of several rather than by taking one as a test. Indeed, it rarely happens that his first competition is successful for an architect. But whatever may be the fate of his first competitive design, the author is certain to have assured himself that he is bound to win. The discovery that he is not the greatest of the unknown architects is a serviceable lesson, but it is always a bitter one.

What, however, is harder to endure is the winning of a prize in a competition, and then to find that beyond the moderate sum which is gained no other advantage is likely to follow. How many architects who daily pass by the Royal Exchange have heard of WILLIAM GRELLIER? Yet it was to him the first premium was awarded in the competition of 1839. He would have been justified in indulging in the illusion that after erecting so important a building he was certain to be recognised as one of the foremost architects. But with the exception of an insurance office in Liverpool it would now be hard to name a work which he designed. The competition for the Government offices in Parliament Street was another instance of prizemen being passed over, and who failed to reach the heights to which they must have believed they were destined. A third instance was the Law Courts competition, which seemed to have taken place in order to disappoint many able men. The young competitor should therefore remember that unless he hardens his mind he is only running the chance of creating sorrow for himself when he enters on a contest. For that reason it is advisable to take part in as many students' competitions as possible; for a confiding youth cannot begin too early inuring himself to disappointments. Imagination and susceptibility usually go together, and those who may seem to their friends to be stoical have often felt more deeply the failure of their attempts.

Apart from competitions, the difficulty of securing commissions will to many people appear as incredible. Take for example, one of the men who were selected to struggle for the Law Courts. EDWARD BARRY's design was considered to be equal to GEORGE EDMUND STREET's. When it was found that the two men who were declared to be the most successful would not agree to co-operate, EDWARD BARRY received as compensation the commissions which were to arise out of the improvement of the National Gallery. It was a futile boon, for the works which were undertaken under his superintendence were of no consequence. But this recognition of BARRY's ability was without avail in bringing him clients of another kind, and for a man who started under such favourable circumstances his works, public or private, are not an encouragement to others who do not inherit a great name in architecture.

There was a time when even Sir CHARLES BARRY was not regarded as equal as an artist to CHARLES COCKERELL. As the son of an architect, and as a trained assistant, the latter was able to derive the fullest benefit from his studies in Greece and Italy. But high as is COCKERELL's reputation, it is not based on a large number of buildings. Many of his contemporaries would have admitted his right to a foremost place in the profession, and when he returned to England he was to be excused for indulging in day dreams about what he was to accomplish. COCKERELL was permitted to occupy his leisure, like a student of the French Academy, in restoring on paper the great works of antiquity, and he might create as many panorami-

views as he pleased of ancient cities in order to display his knowledge of architecture. But the public were not to be caught by his scholarship or good taste, and his reputation among foreigners was rather a handicap on him. COCKERELL was infinitely more fortunate in a professional sense than the master who inspired him with the love of the essential beauty of Greek architecture. GEORGE MADDOX taught him as well as DECIMUS BURTON and other successful architects, but nobody can discover the humblest building which was entrusted to the master. He is stated to have excelled the best of his pupils, but his skill was of no account in the eyes of the public. About the time COCKERELL came back to England JOHN SINNELL BOND set out for Greece and Italy. He had gained the Academy gold medal some years earlier, and had exhibited designs which were never executed. But he was obliged to help as a ghost in subsequent years, and of those who imitate CANOVA in praising Waterloo Bridge few are aware that its architectural effect is not to be credited to JOHN RENNIE but to JOHN BOND. It would be easy to bring parallel cases of frustration of hopes out of the experience of a later time as well as from what takes place in our day. But enough has been said to make it evident that success does not always follow either ability or laborious exertion in architecture, and on that account it is not wise to over-indulge in illusions.

November is generally taken to be the commencement of the year for the novice in architecture, and a great many who hope to follow architecture as a profession are now eager for the time to come when they can contend on an equal footing with men who are older as well as with those who are the same age as themselves. To their ardent minds the struggle may appear to be much easier than it will be found; but if they desire to be successful they must prepare themselves and be armed at all points, or otherwise they will have to feel that defeat is merited, and that their illusions were never justified.

MEDIÆVAL LONDON.*

IF MACAULAY's New Zealander were to antedate his visit and take up his position on the parapet of London Bridge he would see very little which belonged to Mediæval London. Let the air be clear of fog, he might have a glimpse of the Tower and one or other of the Southwark churches; but it would be necessary for him to perambulate a great many streets before he could discover evidence of what London was like prior to the Reformation. Soon after that great event the old landmarks began to give place to other structures. Outside of the city a new region was created, and a class of people arose who did not care much for the old place. The Great Fire in its turn removed much that was ancient, and then the city began to assume its present character, and was looked upon as a place of business rather than as an abode of men and women who could claim to be of higher rank than the trading classes.

It must be confessed, however, that Mediæval London continues to sound well in the ears of Englishmen. Romance has surrounded it with an interest which the historian could not attain. In spirit we can still walk through its narrow streets with overhanging houses, take part in its sports, share in its feasts and enjoy the spectacle of the variously-clad strangers who came to it as to a second Venice. But for anyone who would seek to revivify London as it was the task is of extreme difficulty. PETER CUNNINGHAM took only a partial view, and yet his "Handbook" required no less than seven years' toil for its preparation. JOHN TIMES, who modestly sought for information of an unambitious kind in byways rather than in highways, said his "Curiosities of London" occupied him for twenty-seven years, and that, moreover, he received much aid from fellow students who had also tried to realise the old conditions of the great Metropolis. In the latest book by the Rev. W. BENHAM and Mr. CHARLES WELCH we only have an attempt to present an outline sketch of the old city. But as both the authors, through official and other reasons, have long taken an interest in all

that relates to the city, they were certain to make their sketch pleasing, and as far as possible truthful. In illustrations they have had advantages which were denied to earlier historians. Modern processes enable old views to be reproduced, which become more eloquent about the past than any description in words. The frontispiece, for example, shows London Bridge and the Tower as they appeared to the eyes of CHARLES, Duke of Orleans, about A.D. 1500. We see the prince in one of the rooms engaged in writing, while the number of guards in the background indicate that he was a prisoner. He is shown also looking out of one of the windows and receiving a visitor, probably an English prince. The turrets have finials which bear coats of arms. London Bridge is in mid-distance, with the houses on the roadway and the waters rushing violently through the arches. In the background, which extends to Westminster, many church towers rise up. In the mind of the French artist, London was evidently a great city. A coloured drawing of a tournament from the "Romance of Sire Jehan de Saintré" suggests one class of spectacles which were occasionally witnessed in Cheapside. Bow Church still has its royal gallery, although knights in armour are never likely to break spears in front of it. A picture of RICHARD II. recalls passages which FROISSART recorded. The king, dressed as richly as any modern herald, is passing through a gateway surrounded by knights in black armour, on his way to war with the half-naked rebels in Ireland. The unlucky king delivered by BOLINGBROKE to the citizens of London, who show no reverence for fallen Majesty, is the subject of the next picture. In this illumination another of London's gateways is introduced. Then we see the funeral of the king, who was first buried in King's Langley, and subsequently in Westminster Abbey. But even more interesting in a topographical sense are the reproductions of drawings by ANTONIE VAN DEN WYNGAERDE, which are now in the Bodleian Library, and which were probably made for PHILIP II before 1561. In them are shown Westminster Abbey and the Eleanor Cross at the end of the Strand. The dwellers in the Strand could enjoy at the time a background of fields. St. Paul's Cathedral then, as now, dominated the city, but a lofty tower and steeple took the place of the present dome. London was so crowded with houses that we can hardly detect any signs of the streets. We have a view of Greenwich and of the distant city taken from the Observatory Hill. The copies of the Flemish artist's drawings are valuable evidence, and deserve to be prized. In addition are several reproductions of the drawings of J. WYKEHAM ARCHER. He was a Newcastle engraver, but he had the soul of a true antiquarian, and vestiges of old London he held in a peculiar admiration. Between 1830 and 1864 he made many drawings, which are now in the British Museum, and fill no less than seventeen portfolios. A selection of them will be found in the volume, and as several of the subjects represented have been demolished or transformed, the interest of the drawings will be increased as time passes.

In Mediæval London there were two centres, St. Paul's and Cheapside, corresponding with the spiritual and material necessities of the inhabitants. Of the disposition of the space between them the authors give the following sketch:

The Bishop lived on the north side of the cathedral; his palace and gardens extended back to Paternoster Row; the chapter-house and the cloisters round it lay on the south side of the nave; fragments of it may be seen to this day. Adjoining the S-W. wall of the nave was the church of St. Gregory-by-St. Paul. The parish still exists. In that church the body of St. Edmund, king and martyr, lay for some years before it was buried at the town which bears his name. On the east side of the churchyard was a large grass-grown space, just such a spot as we still see so constantly on the borders of country towns and villages—the "village green," in fact. Across it came the great Roman road, which started from London Stone, passed along what we now call Newgate Street, and went away to Che-hire, following, as we may say, the course of the N-W. Railway. This after Roman times received the name of Watling Street, i.e. "Atheling Street" (= High Street). It does not, indeed, as far as the city is concerned, answer to the present Watling Street, for after leaving what we call Budge Row, which was part of it, it went straight on over ground which is now covered

* *Mediæval London.* By William Benham, D.D., F.S.A., and Charles Welch, F.S.A. London: Seeley & Co., Ltd.

with the streets south of Cheapside. It became necessary later on to change its course, owing to difficulties connected with the enlargement of St. Paul's Churchyard, and the new Watling Street is the substitute. But to return to the "Green by St. Paul's." This, after Norman times, was the site of the Folk-mote, of which the present "Common Council" are the elected representatives. The citizens met on this green in the open air, seats being plentifully dispersed about, and here the public business of the city was carried on. Nor must we omit mention of "Paul's Cross," at the east corner of the north transept of the cathedral, the site of which was discovered by Mr. Penrose, and is now marked by an inscription on the ground. At the east end of the green there was a short, narrow street, passing through which you came (just where is the fine plane-tree) into Cheapside. But it will tax the imagination of the reader considerably to realise how different was this locality from that which bears the same name to-day. "Side" means "place" or "part." Cheapside means, therefore, "Market-place." It was as much the London market-place as that of any provincial town of to-day. It was a large square, reaching back as far as the present Honey Lane and other streets in a straight line with it, and with booth-decked streets branching away as far as the Guildhall and Basing Hall.

It is shown that the Cistercian movement exercised extraordinary influence in London. GILBERT BECKET of Cheapside was affected by it, and his son THOMAS also. The works at the cathedral were then taken up with energy. RAHERE, the minstrel, became creator of the Priory of St. Bartholomew. In Aldgate another priory was founded. London previous to the Reformation, if gauged by the number of religious houses, might be considered as a religious city, and the Flemish artist was not using his imagination or working at random when he introduced a large number of church towers in his drawings.

A chapter is devoted to the civic rule which has done so much for London. The trade guilds are stated to have been originally the union of "neighbours who met together for the purpose of good-fellowship and for association in religious duties." It was in the reign of EDWARD III. they were transformed into crafts and mysteries. An Act was passed in 1364 which enjoined all artificers to choose a mystery and to use no other. The election of officers was a curious affair, for we are told that "the retiring masters and wardens entered with garlands on their heads, preceded by the beadle and the minstrels playing. Then the garlands were taken off, and after a little show of trying whose heads among the assistants the said garlands best fitted, it was found by a remarkable coincidence that the persons previously chosen were the right wearers." A similar course was, we believe, adopted for more important duties. The book includes chapters on the Thames and on the religious life of London. In the latter there is a reference to the residence of the Archbishop of Canterbury at Lambeth. It may not be generally known that the buildings up to the nineteenth century were called Lambeth House or Lambeth Manor, not Lambeth Palace. It is also worth noting that the "Lollards Tower" is a misnomer; the inscriptions on the walls are assumed to have been written by prisoners during the Puritan wars, for the building which bore that title and with which the Lollards were acquainted was at St. Paul's. It would have been easy for the authors to have devoted several large volumes to an account of Mediæval London. But the present "Comprehensive Survey" contains as much information as ordinary citizens are likely to require. The various parts are well arranged, and the impression produced by the pages is that, with all their shortcomings, the old citizens were worthy men, and many of them discharged difficult and dangerous duties in an honourable manner. The latest book on the history of the city deserves to be popular with all classes, from the Lord Mayor to the youngest apprentice.

A Testimonial is to be presented to Mr. Thomas Fairbairn in recognition of his long service as honorary secretary to the Edinburgh Architectural Association, and subscriptions for same are invited.

The Next Meeting of the Civil and Mechanical Engineers' Society will be held on Thursday, December 5, at 8 P.M., at St. Ermin's Hotel, Caxton Street, near St. James's Park station, Westminster, when a paper will be read by Mr. J. Bridges-Lee, M.A., on "The Geometric Interpretation of Photographs as applied to Photographic Surveying."

STAINED GLASS IN ENGLAND SINCE THE GOTHIC REVIVAL.

INCLUDING SOME ACCOUNT OF ECCLESIOLOGICAL PROGRESS, FROM 1860 TO THE PRESENT TIME.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays among The Glories of France," &c.

(Continued from page 315.)

IF not presenting that imposing assemblage of parts possessed by St. Columba's and St. Chad's churches, that of St. Saviour, Hoxton, is perhaps quite as remarkable from the manner in which the architect adapted it to a somewhat restricted site at the junction of Penn Street and Northmore Street, near the Rosemary Branch Bridge of the London Canal. Red and yellow brick sparingly dressed with stone is the external material, while inside the walls are of red brick only. The First Pointed style in which St. Saviour's is built has a somewhat Italian caste, but in external appearance it calls to mind certain of those spacious town churches built by the Preaching Orders in the Low Countries. The site of this church precluded its being very long, but it was necessary from its breadth and from the juxtaposition of houses to its west and south sides that it should be lofty. There is, however, a good space to the north-east of St. Saviour's whence the best general view of it can be obtained, and from which one can appreciate the skill with which Mr. Brooks contrived to avoid any unpleasantness that might have been produced by disparity of dimension. This was effected not only by the roofing, which with its red-tiled ridge crest is only broken by a simple but pleasingly contoured *fleche* denoting the separation between nave and chancel, but by the broad lean-to aisles which extend from end to end, a small outgabling sacristy at the eastern extremity of the northern one breaking up the monotony very pleasingly, but without interrupting the continuity of line. The simple semicircular apse is a fine feature in this view of St. Saviour's, and although its employment must have reduced the size of the sanctuary, it certainly does much towards taking off from that truncated appearance which great height and inconsiderable length invariably present. Seventy-five feet high to the roof ridge, this apsidal east end of St. Saviour's, Hoxton, tells to great advantage, viewed both from near and far. It is worthy of remark that Mr. Brooks, when not terminating his churches rectangularly, always used the true semicircular apsis, and never that hexagonal form of it which, so frequently employed by his contemporaries, does not appear to have been a favourite in England during any age of Pointed.

At a first glance the only apparent distinction between the nave and chancel is effected at St. Saviour's by the spirelet, but a more careful notice will show that this has been quietly but decidedly accomplished by the fenestration of the clerestory. To that of the chancel and apse there are thirteen tall narrow lancets, the nave being lighted by windows of the same kind, alternating with a couple of shorter ones surmounted by a foliated circle. Thoroughly brick in its construction, such an unbroken series of windows is another feature that has no inconsiderable share in giving the church an air of much greater length than it really possesses.

Interiorly we find the same end accomplished by the omission of the chancel arch, and by the prolongation of the string-course below the clerestory completely round the church without any break, the distinction between nave and chancel being emphasised by the roof, which in the former has a close succession of semicircular ribs with tie-beams, and in the latter is ceiled. Five arches compose the arcade, which is formed of two orders—the inner one of stone, the outer of red brick; but from the absence of dripstones an air of weakness is imparted to the whole, besides which some break seems needed between the outer order and the walling, which is of the same material—red brick unrelieved either by stone bands or by patterns in black or white. The columns are octofoiled in section with conventionally foliated capitals, the fourth on either hand being raised upon a plinth commensurate in height with the base of the screen at the entrance of the chancel, which is formed within this last bay.

St. Saviour's is rich in decoration, both mural and vitreous. The frescoes filling the six shallow arcades relieving the apse wall below the windows—three on either side the reredos—are by Mr. N. H. J. Westlake, their gold grounds and brilliant tones striking a note of rich colour and harmonising with the surrounding architecture. The reredos, composed of three stilted arcades surmounted by four circles and contained beneath an arch and straight-sided gable, is flanked by pinnacled buttresses somewhat in the school of Butterfield. The circles contain sculptured half figures of angels, and the arcades one subject, that of the Ascension, upon a background of colour.

Of the thirteen lancets lighting the apse, five have received stained glass. The figure of Our Lord standing with an open book in the central one was inserted shortly after the completion of the church in 1865. Crimson and brown are the prevailing tinctures, the canopywork being treated by Messrs. Clayton & Bell in the conventional style employed by those artists at that period. With this glass Messrs. Lavers & Westlake's in the two windows on either side compares most favourably.

Here we have effigies of the Evangelists, into which just the right amount of naturalism, consonant with their situation, is imported, the greenish-white of the quarries, quite free from canopy or other accessory work, forming a striking contrast to the rich tinctures of the figures themselves, and while a sufficiency of colour is obtained, grateful to the eye, little or no light is excluded. So successful are these windows that it is to be hoped the completion of the remainder in the same style will be entrusted to the same hands. Hardly so successful is the work of Messrs. Lavers & Westlake at the west end of the church, where, 60 feet from the ground, is a plate-traceried rose, and below it, at a distance of 40 feet from the ground, a couple of windows, each formed of two lancets surmounted by a foliated circle, all within a containing arch of brick. At present the rose which constitutes such a fine feature of the west front, viewed externally at a little distance, remains plain. The two windows below it have stained glass—partly a memorial to a former vicar, Rev. John Oakley, Dean of Carlisle 1881-84, and of Manchester 1884-90—comprising groups which, while exhibiting good draughtsmanship and refinement of tincture, are too large for the lights, the result in certain portions being rather confusing. For windows of this description and at such a distance from the eye, it would have been better had a more archaic treatment been pursued, this being a case in which great clearness was desirable, the very excellent work of Messrs. Clayton & Bell in the aisles being in some measure taken as a guide.

MANCHESTER SOCIETY OF ARCHITECTS.

THE annual dinner of the Manchester Society of Architects was held at the Queen's Hotel on the 21st inst. The president (Mr. Alfred Darbyshire) took the chair.

Mr. Darbyshire, in proposing "The Royal Institute of British Architects," referred to the Liverpool Cathedral scheme so far as it concerned Mr. William Emerson, the president of the Royal Institute. Fourteen or fifteen years ago there was a general competition for designs for that cathedral, and the adjudicator, after taking twelve months to make his award, selected Mr. Emerson's designs as the best. Since then it had been decided to build on another site, and that the design must be Gothic, but on representations from several people, the war as to style had been removed, and now members of the profession were asked to send in portfolio drawings for a cathedral. Where was the President of the Institute in all this? It was one of the most regrettable instances of the whole business that Mr. Emerson was not going to compete again. The man who had first been selected as the right man to undertake the work would now retire into oblivion, and the work would be left to men who came fourteen or fifteen years after him—a change so extraordinary in the development of their art that they could not be surprised at anything else that might happen.

Mr. William Emerson, in reply, said he could only hope, for his own sake, that the chairman might be mistaken in supposing that he was going to retire into oblivion. With regard to the art of architecture, he had seen something in the newspapers with regard to this Liverpool building, which included the expression of a hope that the genius of the country might produce a building in the new style, and that such a building

would be received with acclamation. He could not help thinking that such remarks were calculated to do an enormous amount of harm and cause deterioration in the architect's profession, and for this reason, that there was a considerable striving after originality at the present time. He had recently seen a work by a gentleman who had a considerable following among younger men in which the principal *motif* was columns of about 15 or 16 diameters high—the sort of proportion which those accustomed to the best class of work did not really understand. He could not help thinking that instead of diverging from known principles of proportion, unless one could prove that the proportions and principles were better, one had best stick to old ones. Then, again, there was another school affecting what they termed *l'art nouveau*. He saw some examples of that school in a town a few miles north some few weeks ago, and the impression made on him was that there was entire ignorance of all that had gone before, that known rules of construction had been wilfully ignored, and that there had been a purposed going out of the way to make eccentric detail. He did not think that could be called high-class art. It seemed to him that one could not do better than start with a masterful knowledge of precedent and the best of old work, and then design to meet modern requirements, showing one's own individuality in the details.

Mr. E. Salomons gave "The Corporation of Manchester," and expressed regret that the Manchester improvement committee was simply an improvement committee and not an originating committee. He contrasted the barrenness of Manchester's record for the last fifty years with the achievements of continental cities in constructing fine, tree-bordered boulevards in the centre of the city; and subsequently he referred in terms of satisfaction to the fact that it was on the *tapis* to appoint a city architect who should be something more than a city surveyor or a city engineer.

The Lord Mayor, in his reply, differed from Mr. Salomons as to the appointment of a city architect. He submitted that it was much better for Manchester that the competition for public buildings should be open, and he expressed the opinion that it would be a loss to the community if all the public buildings were to be of one stamp.

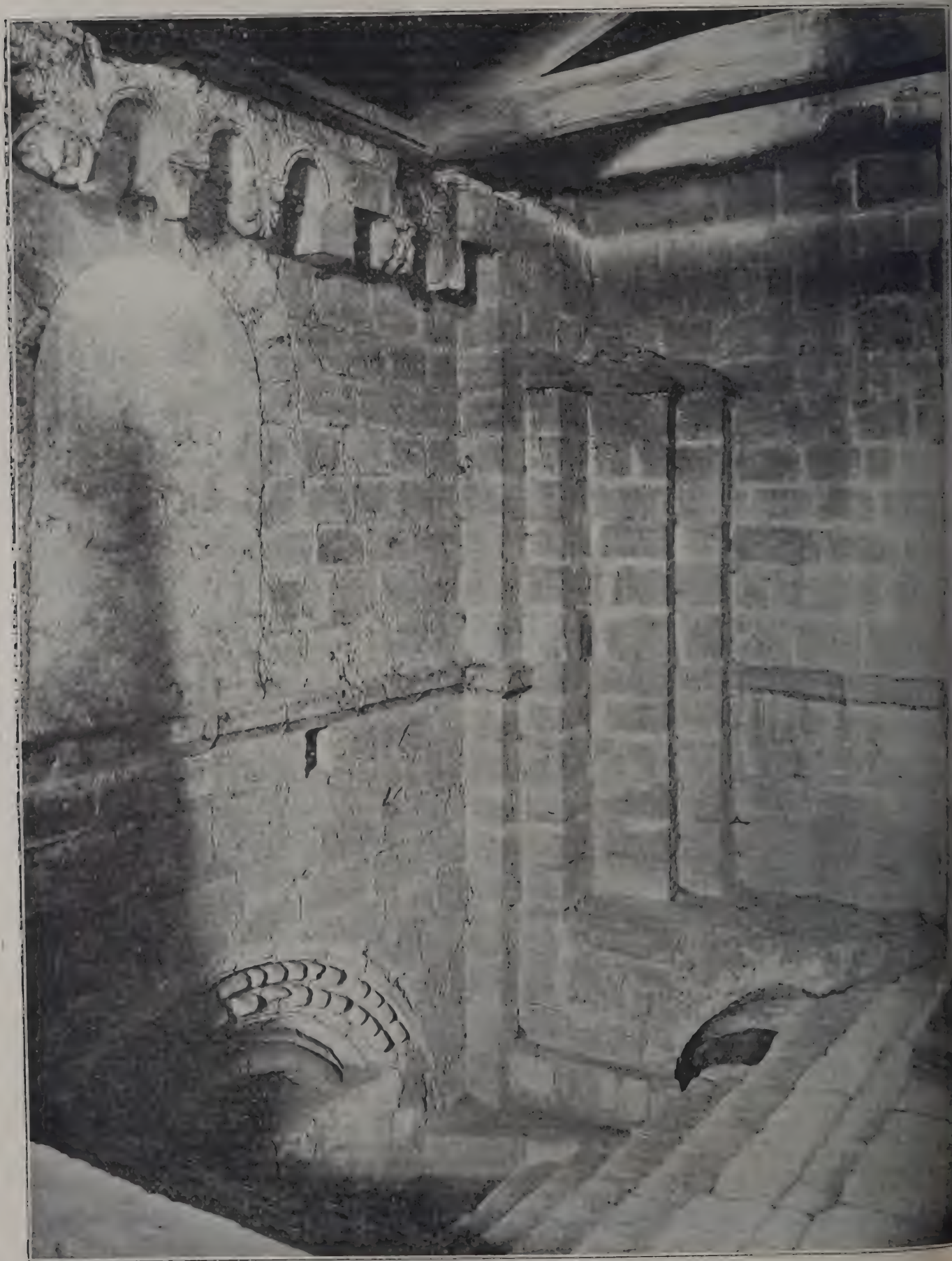
Mr. P. S. Worthington gave "The Victoria University and the Owens College."

Mr. Alfred Hopkinson replied, and, speaking of the Owens College, he said that the College was gaining more and more the hearty support of the commercial, industrial and professional community. There was no profession with which they desired more close association than with the architect's profession. At the College an endeavour was being made to adapt young men to the practical side of life just as in the profession of architecture buildings were being adapted for the practical purposes for which they were required. He offered in this connection one word against an old heresy—the mere idea that adaptation to practical purposes would necessarily produce beauty. The most hideous object of the day was the bicycle scorch. Was he not adapted to his purpose? Did he not put himself into a position to offer the least resistance to the wind and did he not devote himself wholly to the purpose of getting quickly over the ground? One never saw an "object" of that kind without thinking how hideous he was, and that one would like to show him that it was possible to get over the ground just as fast without that offence against the laws of deportment.

Other toasts were "The Manchester Society of Architects," given by Professor Tout; "The honorary legal adviser," acknowledged by Mr. W. Goldthorpe; and "The hon secretary," acknowledged by Mr. P. Ogden.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE Council of the Edinburgh Architectural Association have had under discussion the designs of the proposed new buildings at the Castle, recently exhibited in the City Chambers. After having inspected the plans, the site and the probable effect from various points of view, and having fully considered the question, they resolved as follows:—"The Council desires to express its sense of the courtesy of the War Office in giving the citizens an opportunity of seeing and discussing what is proposed to be erected on a site so unique in position as Edinburgh Castle. The Council feels most strongly that a site of its commanding position demands the most careful and skilful consideration, and although it is evident that no little attention has been directed to the preparation of the designs, the Council observes with great regret that from any point of view the outline of the great mass of the Castle and its buildings will be disfigured; and, further, that the general designs do not commend themselves as being in harmony with the better work on the Castle Rock. The Council trusts that, as this question is one of very great and permanent importance, nothing will be done without further serious consideration."



CATHEDRAL STREET, No. 372A.—CHICHESTER: ABOVE LIBRARY ON TRIFORIUM LEVEL.



CATHEDRAL SERIES NO 3723.—CHICHESTER: DOORWAY IN S.W. TOWER

NOTES AND COMMENTS.

THE London County Council have been persistent in denying that in the enormous works which they have undertaken any malpractices were connived at. The Council were all honourable men, and their employés of all ranks were no less distinguished for rectitude in business. We have, from time to time pointed out instances which made the official conviction appear dubious. It cannot any longer be concealed that the system on which works are carried out is a disgrace to the whole Council. The statement of the *Times* correspondent about the County Council bricklayers restricting themselves to laying 330 bricks a day, which is not one-half the normal quantity, was confirmed at the meeting on Tuesday. The chairman of the finance committee could only say there was no official sanction of that limit. We are afraid a great many other misdeeds are occurring of which official sanction is not recorded in the books of the Council. The sub-committee entrusted with the investigation of the subject admit that there had of recent years been a diminution in the amount of work done by the bricklayers, but that recently there had been an improvement. But the value of the "improvement" will be manifest when it is said that the sub-committee were unable to state in any specific form what the production had been and what had been the increase of late. The worst part, however, of the affair, is that the sub-committee of the Council do not say one word about the dismissal of the men who have not been doing a fair day's work for their very liberal wages. The Council dare not turn them out, for the members hold their office through the votes of workmen and of others who resemble them in holding peculiar ethical doctrines. As long, however, as the great body of the ratepayers of the Metropolis remains indifferent to the elections of the County Council it must be expected that works will be conducted on a system that is ruinous to those who have to bear the expense.

To many students of the history of architecture the PERROT-CHIEPIEZ partnership for the production of volumes on the history of art appeared to be as indissoluble as that of ERCKMANN-CHATRAIN in romance. In the latter case prosperity broke the bond, and we regret to say that owing to the death of CHARLES CHIEPIEZ his co-operation is no longer possible, and M. GEORGES PERROT will have to continue the series relating to the history of art in antiquity without the aid of the friend through whose knowledge the volumes possessed a distinct character. Already volumes have appeared on art in ancient Egypt, in Chaldea and Assyria, in Persia, in Phrygia, Lydia, Caria and Lycia, and in Greece. What is remarkable in them is that the importance of architecture in all those regions is demonstrated, whilst in most other histories sculpture or painting is made dominant. It is to the credit of M. PERROT that when he projected the series he was able to realise the position of architecture, and therefore sought the aid of CHARLES CHIEPIEZ, who was competent to treat the subject with the definiteness which was to be expected from a professional architect. CHARLES CHIEPIEZ was born in 1835. Although he was the son of an architect he did not find clients awaiting him, and he was obliged to utilise his abilities in teaching the arts of design. M. TRÉLAT engaged him for his architectural school in the Boulevard Mont Parnasse. The buildings he was enabled to carry out were very few, but between professional and literary tasks his time was fully employed. His reputation as an authority was not confined to France, for when the directors of the Metropolitan Museum of New York wished to possess restorations of the Parthenon and the Pantheon for the instruction of visitors, the work was entrusted to CHARLES CHIEPIEZ. He had also made large models of other ancient buildings. All who have read the volumes which bear his name must hope that he left manuscripts which will enable the series to be completed on the original plan.

THE object of the United States Government in imposing a high duty on imported goods was, of course, to promote native production. There was no reason why

native art should not be reckoned as an industry and helped in every legitimate way. The Customs officers may be as useful aids as any other class of non-purchasers. But in carrying out regulations which seem to be restrictions on the enriching of America with paintings and sculpture by foreign artists, much has to be said and done which appears to denote indifference to art. That the Customs authorities are not, however, narrow-minded has been shown by a recent incident. An American gentleman who had obtained a bas-relief which was said to be a work by MINO DA FIESOLE, was annoyed when he heard it was detained at the Custom House as an example of "manufactured marble." As such the duty on it was 50 per cent. of the value, but a work of art can gain admittance by paying 20 per cent. An appeal was accordingly made to the higher officials, and no difficulty was experienced in effecting the change. Now some people may be amused because a Customs officer imagined that MINO was a modern instead of a fifteenth-century sculptor, but it is not to be expected that civil servants should be able to pass an examination in the history of art. The readiness with which the error was corrected and a reduced duty accepted speak well for the liberality of the Americans. If a case of the kind arose in England, we are afraid our Customs officers would insist on some way by which the heavy duty would continue to be exacted.

THE Corporation of London have regulations respecting lamps and clocks. Both are to be licensed and annual fees paid for them. A lamp, for instance, other than a French lamp is not within the City to exceed 4 feet in height and 2 feet 3 inches measured sideways, nor is it to project more than 4 feet 6 inches from the front of a house. The regulation has been about two years in operation and does not appear to have caused much inconvenience. The London County Council also propose to issue by-laws for the regulation of lamps, signs or other structures overhanging the public way. A special committee of manufacturers and traders have been dealing with the subject, and they have come to this conclusion, "that the by-laws as drafted would injuriously affect the great bulk of traders within the County of London (and several industries concerned in the supply of lamps, signs and other accessories) coming within the scope of the by-laws. The traders concerned are large contributors to the rates, and resent the interference thus contemplated in the free prosecution of their business. They object absolutely in principle to the provisions in the said by-laws involving the special "sanction" of the local authority in matters of everyday necessity and established custom in trading communities, except so far as may be necessary for the public safety. Moreover, the by-laws are an innovation, and if applied retrospectively without amendment will cause immediate inconvenience, expense, and even loss, to many traders in whose businesses outside lamps, signs and similar structures are useful adjuncts alike to them and to the public generally." As well as we can judge from the words, the objectors are more dissatisfied with the novelty of regulations than with any of the enactments. It should be remembered by them that pavements are to some extent owned by the public, who should be protected while using them. It is true that if a lamp or a signboard falls on anyone passing and injury arises, damages can be claimed. Hanging signboards can sometimes become picturesque additions to a house, but those who are most desirous for their revival realise the necessity of enactments which will insure the public safety.

ILLUSTRATIONS.

CATHEDRAL SERIES.—CHICHESTER. THE REREDOS. THE LIBRARY.

PREMISES: ST. JAMES'S STREET, W.

THE GREAT CENTRAL HOTEL: THE DINING-ROOM. THE STAIRCASE.

SOCIETY OF ARCHITECTS.

THE opening meeting of the session of the Society of Architects was held last night, when the president, Mr. Silvanus Trevail, mayor of Truro, delivered the inaugural address.

The President began by thanking the members for the unanimous voting for his election. He congratulated them on the success of the Society, to which Mr. Ellis Marsland as honorary secretary, Mr. Quartermain as treasurer, and Mr. M'Arthur Butler as secretary, had contributed. The Society was to be regarded as having been primarily formed to look after the business side of the profession, whilst not ignoring the educational, the scientific, or the artistic. The President then said:—

It is to this business side or aspect of our Society that I purpose to address myself mainly to-night, as being what I conceive to be more in accord with the wishes of my professional brethren, especially those in the provinces, who suffer in a greater degree than do those in the Metropolis and larger provincial cities from the neglect of the central architectural bodies in taking up practical matters that affect the everyday life of the provincial practitioner.

In London and in the larger centres, the position of an architect is better defined and understood; his qualifications, his executed works and his professional status are recognised. In smaller places these points do not appear to have the same weight, and in too many instances the qualified architect stands simply on a parity in the public mind with another calling himself by the same name, regardless of the relative qualifications of the two men, and particularly so if the charlatan offers to do the job at an inclusive fee that may on the face of it appear to be much below the recognised professional rate.

Instances of wholesale plagiarism and abuse of the term "architect" come almost daily under the observation of country practitioners, that would simply be regarded as incredible and could have no existence in our larger centres through the different conditions that obtain there.

I regret to say that, from various examples that have been brought to my notice, the local district surveyor's office in small provincial towns is frequently made the medium for plagiarism of the most impudent description. Plans and sections of new buildings have to be deposited in accordance with the provisions of the local by-laws. The local council, acting upon the recommendation of their surveyor, issue a notice to the effect that these must be in duplicate, one set to be retained by the authority and the other for stamping and return. But latterly elevations as well as plans and sections have been required, with the result that complete sets of drawings, minus the details, are in the archives of the surveyor and his batch of assistants, so that they have a complete record of all the work done in that particular town or district.

Soon we see the effect. Mr. A. builds a residence in the locality from designs furnished by a London or other distant architect of recognised standing. Afterwards Mr. B. wants a house, and likes the style of Mr. A's residence. It is known locally Mr. B. is about to build, when he is visited by either the local surveyor or some member of his staff with the plausible intimation that if Mr. B. wants a residence like Mr. A's, everything can be done for him in the "office" much more expeditiously and better than can be the case from a distance, at a cheaper rate, and with the certainty of the plans passing the authority without revision or delay. The result, of course, being that the surveyor or his assistant gets the instruction to proceed, and forthwith does so by providing himself with the necessary sheets of tracing paper or linen, copying the deposited plans in his possession, after making such trifling modifications as the altered conditions of the site or other requirements may necessitate.

Of course, I am aware that such a state of things could not for a moment exist in the Metropolis or in our larger municipalities, where district surveyors have something else to do and would scorn such practices; but they do exist to an extraordinary extent in our smaller ones, and scarcely a week passes but complaint comes from one architect or another of abuses of this sort, and so much so that I have been requested to call attention to the matter in this address.

Possibly the greater men in the profession do not suffer to the same extent as the smaller ones, because their work is usually not of what may be deemed the ordinary character. Still they do suffer, and to a far greater extent than they are conscious of. But seeing that all cannot be engaged upon large and extraordinary works, and that the average practitioner has to live by what is mostly in demand around him, and that it is the status and well-being of these that this Society wishes particularly to protect, it appears to me that here is a subject that may well demand its attention.

All local surveyors and their assistants should be debarred from practice as "architects" as a condition of their appointment, at any rate, within the areas over which they have adjudicatory powers. Such an abuse as I have outlined would be tolerated in no other profession, and the model by-laws of

the Local Government Board were never intended as an instrument for the fostering of any such contemptible practices.

But the class I have mentioned have some knowledge of architectural work, and certainly of drainage and sanitary matters, and, with this, possibly greater excuse for "dabbling" than other examples that have come under my notice, where board schoolmasters, builders' clerks, auctioneers, land agents, general contractors, clerks of works, boys from the nearest art school, photographers, highway surveyors, and in one instance a marine-store dealer, have signed themselves as "architects," and submitted plans to local authorities, and otherwise acted as professional advisers to their clients. With such absurdly unpractical drawings as is the natural product from such sources, something generally happens either during the progress of the building or afterwards, when the fault is of course the "architect's," and our profession as a body gets stigmatised for the monstrosity created or the melée in the law court, when any recognised member of it has had about as much to do with the unsatisfactory business as the "man in the moon."

This naturally brings me to the subject of registration—the statutory registration of the architectural profession—which was one of the main objects for which this Society was established, and which still remains the cardinal article of its faith. In fact, those who are carefully watching the progress of events, both at home and abroad, see that there is greater necessity than ever for registration to-day, and that almost every civilised state worthy of the name has adopted the principle in some shape or form. So much is this in evidence that this country will not be able to hold back much longer.

In certain quarters there has been some fear that qualification by special training and examination, with compulsory registration following, would be productive of a low average mediocrity, and might prevent the artistic genius from ever entering the profession. This I consider to be a great slight upon men of genius and real power. It would do nothing of the sort. It would raise the general standard of efficiency and the general status of the profession, and real genius would have quite as good opportunities of coming to the front, if not better, than it has to-day.

From registration I will turn to another subject that the Society has taken up, in the belief that it would be of public as well as professional advantage. I refer to that much-vexed question of "ancient lights." Who amongst us when starting a building in a town has not been threatened at the very outset with an injunction, frequently upon the most flimsy grounds that could only be described as an excuse for an attempt to levy blackmail upon one who, having the money to build, is supposed to be good game to be plucked for fanciful damages and costs?

In one of such instances, where I happened to be the architect for the new building, we pushed our building back by 3 feet, but went 3 feet 6 inches higher than the old one that previously stood on the same site. But although there was a space of something like 30 feet between the two buildings that had been increased by 3 feet, we were sued by our neighbour opposite for damages to his lights. After close upon six months' preparation of the case on both sides, with a whole crowd of witnesses, expert and otherwise, and five days' waiting at the Law Courts in London to all of them for the termination of the case that was in front of ours, the hearing came off and occupied another couple of days. You will all of you have a pretty keen appreciation of how the costs were mounting up by this time. But the end of it all was that no damage could be proved against any of the windows on the ground, first or second floors, but that there was one little tiny window of the basement just peeping above the pavement level, measuring in all 84 square inches of glass area, that the learned judge thought might possibly have suffered an infinitesimal diminution of light, because we had gone 3 feet 6 inches higher than the previous building, although we had gone backwards 3 feet. For this he awarded the sum of 50*l.* damages, and this carried the costs against the building owners, which amounted to over 900*l.*, although in delivering judgment his lordship characterised it as one of the most trumpety cases that had ever been brought before him, and that it ought never to have been taken into court. So much for the law, which was perhaps technically right, but how about the justice? and what inducement was there after this for other property owners to improve their properties with such risks as these staring them in the face? My experience has since been that when an owner smells a claim of this sort as likely to arise, he at once cancels his instructions, buttons up his pockets, and allows matters to remain just as they were, to the detriment of the locality, the ratepayers, the architect and the property itself. I have many such postponements now in a pigeon-hole, as I dare say have other practising architects, where elaborate schemes have been carefully prepared that would be of the greatest possible benefit to the locality and to individuals, but are stopped because of the uncertainty and expense of what might happen if the work was commenced.

Now, what we as architects require, and what the British

public wants, is a preliminary court of appeal in each locality, where plans can be deposited when any improvement is contemplated likely at all to affect others. Those who may adjoin should have notice of what was intended, and the full right of inspection of plans and the pros and cons should then be gone into fully, and if in the opinion of the court damage was likely to be sustained, they might say so with or without assessing it, as might be agreed to on both sides, but at any rate to have the power of giving a permit for proceeding with the work if the damage in their opinion was not such as to materially affect the user of the complainant's premises, when the subject of actual damage sustained could be subsequently ascertained by arbitration or in the law court in the usual way. This at any rate would release properties from the state of absolute block that many are in to-day, and I always maintain that the public as a body and architects as a body are interested in motion and improvement rather than in stagnation, though in certain cases big fees may be obtainable for assisting to create a state of stagnation.

There are other subjects of an essentially practical character that the Society might fairly express its opinions upon. I was not long since accosted in the street by a gentleman who, as a member of many building committees, has had a great deal to do with different architects, and he told me that he was astonished to find such a great variation as existed among architects as to what services should be rendered for the ordinary commission of 5 per cent. He remarked that if there was a clear and definite statement upon the matter it would be of great advantage to the profession as well as to the public, and be a means of securing uniformity of practice. Now, I take it that we as a body do not want to be told what is included in our ordinary fee of 5 per cent., but as there are others outside who would like to know, and seeing that anything that will conduce to uniformity of practice is a distinct advantage, I will take upon myself to define the duties concisely as follows, as coming within the ordinary commission:—(1) Reasonable preliminary sketches in pencil, revised until the wishes of the client are exactly ascertained. (2) Approximate estimate of cost, such as may be obtained by cubing. (3) Preparation of a full set of one-eighth scale drawings complete in all respects, with one traced copy of the same for the builder's use in carrying out the works. (4) A complete detailed specification, with conditions of contract and in duplicate, one copy being for the builder's use. (5) Advertising and obtaining tenders for the work if let by public contract. (6) Complete details, sufficient for the ordinary workman in each trade to execute his portion of the building. This would mean $\frac{1}{4}$ -inch or $\frac{1}{2}$ -inch scale drawings of the better class of work that might differ, and half and full-size sections of all mouldings and the more delicate parts, and that full and explicit instructions for the proper execution of the work should be given in all cases. (7) Personal supervision by the architect or his deputy should generally be made monthly, or say once in six weeks, dependent upon the size of the buildings. For all other services, such as extra copies of the plans for local authorities, for taking out quantities, surveys of site, arrangements with adjoining owners, travelling or other out-of-pocket expenses, the architect is entitled to charge separately.

I have made this statement for the benefit not only of my querist of the building committees, but also of architects who sometimes come across very exacting clients, who not only want occasionally a 4,000*l.* job done for half the money, but will put an architect to the trouble of drawing, and redrawing, until it is brought back bit by bit to the point where he has probably been told at the start that could not be exceeded for the proposed expenditure.

On the other hand, I have heard of architects, and some of them whose work has been hung in the Royal Academy, being content to supply builders with the flimsiest plans to one-eighth scale, partly drawn, some portions to scale and others not, with no specification nor detail drawings, and then expecting their 5 per cent., which I maintain is not fair to either the public or to their professional brethren, as it tends to bring architects and their work into disrepute. And in the question of personal supervision I have heard of cases of really large works of a national character where the architect has been seen on them only at intervals of six months.

To merit the public confidence we must, as architects, show ourselves to be worthy of it by our actions, and I think that perhaps, after all, it is well occasionally to recognise what our duties are, because, though the ninety-nine members of our profession may go perfectly right and the single one may not, we hear more of that solitary case than of all the others put together.

After describing improvements required in the Metropolis and provincial towns, the President said:—I fear, however, that my remarks have already been too long, possibly too discursive, and that I have trespassed too far upon your time and patience. I must therefore necessarily bring this address to a close, but having started out upon the practical or business

aspect of our profession, there is yet another point that I feel I must not omit upon an occasion of this sort, that is closely allied with building operations and the development of the best construction and the highest forms in our art. I refer to the tenure of land. The more and more I see of the evil results of the leasehold system in this country, one of the last relics of feudal times, the more am I constrained to speak out and to condemn it. It should be tolerated under no modern civilisation. It is unknown on the Continent of Europe. It is unknown in the United States. It has no hold in our Colonies. Even in Spanish and Portuguese America a building owner possesses the freehold of his site before he commences operations, and so it should be here, when one of the greatest aids that has ever yet been given to good building and true art would be afforded, as well as the greatest blow that could be rendered to the contemptible squalidness and jerry-building of which I have been complaining. Then the building owner would be interested in putting everything of the best, and having a structure that would not only last the lease out, but for all posterity. Because, if his own descendants did not wish to retain possession, they would still be interested in having the most substantial and artistic property for sale.

So far is this principle recognised in Austria, for example, that not only do they insist there in becoming the owners of the freehold before building, but the building owner is exempted for a fixed number of years from local taxation, in consideration of the advantage it is to the State in the fact of his putting a new building where previously there was either nothing or an old one. We can imagine what an impetus this would give to London improvement if the same principle was followed here, instead of the opposite, which is to immediately increase a building owner's assessment with every improvement he makes. Needless to say, with freehold tenure and relief from taxation upon improvements, in Austria we find some of the best building in Europe, whilst in England, where the converse obtains, we find some of the worst.

In conclusion let me say, however, that I am still a great believer in the destinies of our dear old country; that these and other obstacles to real progress will, by common consent, in course of time be removed, as have been others of equal importance, and that to the careful plodder in architecture, as in the other liberal professions, there are prospects still before us as good as any that have been enjoyed by our predecessors. That we should on every convenient occasion endeavour to make ourselves worthy of them. That our watchwords should be education, qualification and registration, and that by a strictly conscientious attention to our duties, we should command the respect, the confidence and the esteem of our clients and the public generally; for be it remembered that whatever we build cannot be hidden, and will stand permanently in evidence for or against us, long, long after all that are now in this hall have passed away and are otherwise forgotten.

LEEDS ARCHITECTURAL SOCIETY.

THE first meeting of the winter session of the Leeds and Yorkshire Architectural Society was held on the 21st inst. at Leeds. Mr. Butler Wilson, president, was in the chair.

The prizes were distributed to the successful students. For the best measured drawing work the prize was given to Mr. S. R. Day, of Skipton. To Mr. J. Hinchcliffe, formerly assistant with Mr. Bowman in Leeds, and now of Chorley, in Lancashire, four prizes, making a total of 11 guineas, were presented. One was for the design of a village church, another for the construction of a village church roof, a third for the best essay on ancient ecclesiastical architecture in Leeds, and a fourth for sketching. A letter was read from Mr. George Corson presenting to the Society the portrait of himself which had been given to him by the members of the Society. Mr. Corson was the Society's first president when it was founded twenty-five years ago, and it is partly in commemoration of that fact that the painting, which is by Mr. H. Wilson, was subscribed for. The gift was gratefully accepted.

The President then delivered the following inaugural address:—

Although you did me the great honour of election to the high office of President of your Society in May last (an honour for which, with a full and deep sense of its responsibility, I take this opportunity to offer my grateful thanks), the active duties of the office do not come into operation until November, that is, at this the opening meeting of our winter session. This arrangement has given the officers opportunity to prepare some plan of campaign for the year's work, and to deal with any matters of urgency that may arise during the summer recess.

One of the first questions to which your Council gave its attention was that of the increase of our membership, and I am indebted to the honorary secretary, Mr. H. S. Chorley, for the information that our numbers have increased since May by the addition of twenty-six new members.

It is a regrettable circumstance that some of our older members have seen fit to retire. There are one or two particular instances in which the members may have taken this step without due regard to the great respect which the Society has always had for them; and we hold out the hand of invitation to such, and ask that they would reconsider their action and rejoin us. The ultimate success of the Society will be found not so much in the increase of its membership as in the guarding of the entrance to its ranks. Nevertheless, your Council will continue their efforts so long as eligible men can be found who will add to its usefulness and influence.

During the summer two visits were paid. One to the Giggleswick school chapel and the other to two houses at Headingley.

Some six papers have been arranged for upon subjects which we trust will prove interesting to the Society. Full particulars of these will be found in the syllabus which has been sent to you, and we look for a good attendance during the coming winter.

It was thought that the information with regard to the Society, which in the past has had to be sought for in innumerable publications, might be epitomised, and the Council have therefore prepared a compendium, to which they give the name of "The Green Book." They hope that in this form it will prove more convenient and available for reference. The book will contain the rules of the Society, a full list of members, information as to classes at the Yorkshire College, the Leeds Institute, the Royal Institute of British Architects and the London Architectural Association, together with the President's address, which "The Green Book" waits to receive before being issued to the members. I am indebted to the hon. treasurer, Mr. W. H. Thorp, for the assurance that our finances till show a satisfactory balance.

The Council have to report the retirement of a gentleman who has adorned the profession in this district, whose character, abilities and work are too well known to you to need any remark from me. In Mr. George Corson the profession will lose an ornament, but we as a Society have every good wish for him in a well-earned retirement.

We have to note with regret the removal of Mr. William Watson from our ranks by the hand of death. Mr. Watson practised for many years in Wakefield, and occupied this chair 1866 to 1897. His ability, work and character commended itself to all who had the advantage of his acquaintance.

The Yorkshire Union of Artists place a certain amount of space for architectural exhibits in their annual exhibition, particulars of which are given in "The Green Book," and I trust our members will take advantage of this and all other means of properly displaying their best work.

Your Council have been asked to render advice and assistance in connection with a number of important matters. The Leeds Property Owners' Association requested your President to prepare evidence on their behalf against the Leeds Improvements Bill recently before Parliament.

The City Council submitted for our consideration and criticism the draft of the proposed new building by-laws, and we are to have the opportunity of being represented at the inquiry on this important matter before the Local Government Board inspector.

Your Council recently had the opportunity of pronouncing the opinion of your Society on the proposed Memorial in Leeds to Her late Majesty Queen Victoria. As a result of a suggestion made at a meeting of the Leeds Queen Victoria Memorial committee that your Society might be willing to render some assistance in obtaining designs for the Memorial, together with the architectural treatment of Victoria Square, your Council passed the following resolutions:—

"That in the event of the Leeds Queen Victoria Memorial committee deciding to place the proposed Memorial to Her late Majesty Queen Victoria in Victoria Square, it is recommended that the area of the square be increased, and that an architectural laying-out of the square form an inseparable part of the scheme."

"That a limited number of architects be invited to submit sketch designs for the Memorial, including the architectural surroundings and the laying-out of the Square."

"That an honorarium be paid to each for his services."

"That a professional assessor be appointed to place the designs in order of merit, and that afterwards the successful architect collaborate with the sculptor in the preparation of complete detailed designs and model of the Memorial itself."

These resolutions were forwarded to the ex-Lord Mayor, who laid them before the committee, and we have every reason to hope that they will receive consideration.

In the indication of these considerations, dealt with during the recess, which, I venture to think, are some evidence of the usefulness and standing of our Society in the city, I trust that it is shown that your Council have not been altogether idle in the fulfilment of the duties devolving upon it.

May I now address myself more particularly to the students? Perhaps we may lay hold of an odd thought here and there

which may be useful. The student of to-day is the architect of to-morrow, and all of us who have the least experience are more than anxious for his dignity, well-being and progress in the profession he has elected to follow, and which we all love. To him I would say that, in these days of accumulation of material things, men of high ideals are apt to forget, and are, indeed, in very great danger of losing altogether that magnetic quality or force which makes for the highest artistic work. It requires the very firmest effort to retain this quality—I refer to the vivifying and sustaining power, which for want of a better expression I would like to convey in the word enthusiasm. If in the course of anything one could say to-night all else were forgotten as one's words were spent, I should count myself fortunate if the humblest of us should carry away this word as his watchword for the year. "Enthusiasm"—in the possession of that the genius is spurred and sustained to his highest, and the man of less ability becomes more capable of receiving power from within and without, life is brightened and effort made possible to us all.

It becomes us individually, and as a Society, to sustain our art in the highest and best degree, and with each member filled with enthusiastic ardour there can be no doubt our Society will make more and more progress towards beautifying our cities and elevating the tastes of our fellows. To the student, enthusiasm must be accompanied with every searching into the details of our art, and all appertaining thereunto. The means of education of to-day open out a path by which you may follow in the footsteps of the authors of the greatest architectural achievements in the world.

This Society is, as you are aware, allied with the Royal Institute of British Architects. The Royal Institute has over 1,740 members, who are spread over, not only Great Britain, but His Majesty's dominions beyond the seas. Your President has a seat on its Council, where he is enabled to watch the interests and voice the opinions of your Society. London, the metropolis of the Empire, is only some 3½ hours' journey from this city, and membership of this allied Society will keep you in touch with the trend and development of the architectural thought which finds its base of operations at the Royal Institute.

There can be no better foundation on which to build the temple of your education than the working for the qualifying examination of the Royal Institute of British Architects. There are three examinations, the preliminary, intermediate and final. If you have not already done so, make it your business to pass the first as soon as may be, and if there is any student here who has not entered for it I earnestly urge him to do so, and at once. The hon. secretary is at my side to-night, and he will, I am sure, be only too glad to give you every information and help to remove any difficulties that beset your path in attaining to this, the first rung of the ladder.

I may say at this point that any number of qualifying medals and certificates do not necessarily imply ability of the highest order, but they are a strong guarantee that the possessor has at least satisfied his peers of his capability of ability, and to take a lower ground, "they confound the ignorant" and are useful in the possession of an otherwise able man. One could sum up all one had to say to the student in:—Equip yourself with all the knowledge and experience which your opportunities offer. Cultivate and maintain a large heart; have unshakable and abiding faith in yourself; keep an open mind, and keep on keeping it open; the world is yours.

To practising architects, engaged in successful enterprise and profitable work, I presume to offer the suggestion that unselfishness should be the keynote of our work. We owe a duty to the professional brethren of our day and generation. To the man of genius it is unnecessary to suggest sympathy with the young; it occurs. It springs naturally from the heart of a good and right-thinking man. We all of us, perforce, have every sympathy with struggling ability—it must be struggling and it must be doing. There is none for the shirker.

This Society was fortunate in having good men and true to help in its formation some twenty-five years ago, and the Society will continue to rely on the older, more experienced and successful of its members for internal support and sympathy.

We would impress upon senior members the necessity of them and their sympathy. We need them as a standby, useful should they fill but a listening part, which is by no means the least of good offices, thus giving younger members the advantage of the great help occurring through their presence and companionship alone. We must never forget our "Alma Mater," and I earnestly commend the well-being of our Society to you all, as your object of personal solicitude and care.

On this, the opening of our session, you will doubtless expect from me some statement with regard to the progress and outlook of our profession, and I venture to express the hope that in whatever I shall say to-night, I shall at least have attempted to follow the good example of those who have occupied this chair in previous years.

Any man who left this country twenty or even ten years ago is amazed on his return at the changes which have taken place in our towns and cities. There has been a vast increase in population and education, and, it follows, a greater amount of accommodation has been required for intelligent persons, so our great towns and cities have turned in their sleep, awakened, and are now in the process of rehabilitation. Re-building has been going on by leaps and bounds, and it will do so yet more rapidly.

Already the principal streets of our cities are overcrowded and almost impassable, and the necessity for subways is suggested on all hands.

In this wholesale reconstruction we see the danger of uncontrolled action and we, as being principally concerned in the responsibility, will have to take strong measures in dealing with this danger.

Our cities are of themselves undergoing great transformations—they are in closest touch with each other by railway, and also in many cases electric traction is establishing the greatest intimacy between them and their neighbouring villages. Most of the reconstruction seems to have been carried out without plan or system or any consideration for the ultimate development. No thought is given for providing great arteries of communication from centres to outlying districts; architectural treatment is uncontrolled; owners and builders seem to have had carte blanche for ugliness. I would suggest that these conditions ought to be effectively dealt with, and that schemes be prepared for the probable and ultimate development of our cities and towns consequent on their rebuilding, proper sites for future public buildings being carefully selected; that provision be made for subways, and that the insanitary areas be cleared in accordance with such schemes, so that the whole may be homogeneous as well as conglomerate.

That there would be difficulties arising from questions of compensation is apparent. These considerations and conditions are in the very slightest manner alluded to as probably composing the great problem which we as architects have to face.

Further, the formation of county councils in place of rural and urban authorities is resulting in the erection of public institutions, county halls, hospitals and asylums. These designs are often inadvisably obtained by competition—I do not now propose to consider the advisability of competitions. It is a question, and a much discussed one, whether it is not a clumsy and costly means of obtaining the best results; it is certainly very costly so far as our profession is concerned. The conditions of competition are usually unfair and unreasonable. The Royal Institute of British Architects have given great and prolonged consideration to this question and the best method of dealing with it, and we propose, in accordance with their wishes, to appoint a standing competitions committee, which shall communicate with all persons instituting them within our area, with the object of inducing such persons to proceed upon proper lines, both in their own interests and those of the profession.

Even in event of an architect winning a competition it does not always follow that the execution of the work is entrusted to him. The competition for the Liverpool Cathedral which took place some fifteen years ago, in which the prize was unquestionably won by Mr. William Emerson, an architect of great ability, immense experience and possessing the honour and confidence of the profession, is an example; he now occupies the presidential chair of the Royal Institute of British Architects for the third consecutive year.

The people of Liverpool were unable at that time to raise the money to prosecute his scheme, a scheme the profession had every reason to believe then inaugurated in good faith. Fifteen years have elapsed, and the present committee in this case say they are not responsible for the action of their predecessors, and have advertised for new designs. In their opinion, apparently, a man cannot wear the laurels he so justly won. I submit, gentlemen, that in common fairness and justice the commission for the Liverpool Cathedral should be placed with the architect who won it, and that the delay, for which he is not responsible, is no mitigation of the present position.

It will be within your recollection that the committee, who are now asking for new designs, in the first instance stipulated that the building should be in the Gothic style, with the result that a perfect storm of letters was received from men of position in the world of art, such a storm as culminated in the committee abandoning the original condition that the designs should be in the Gothic style.

It is a lamentable thing that in the construction of two large and important blocks of Government buildings in London designed by two eminent architects—who before a stone was laid were removed by the hand of death—I refer to the late William Young and John McKean Brydon, it is lamentable, I say, that the work should be handed over to H.M. Office of Works, who are to be responsible for the details which necessarily make or mar a building; it is regrettable that the emoluments due to the profession should

be diverted by Government officials. The seriousness of this was felt by the Royal Institute of British Architects, and they entered their protest against it. They also supported Lord Wemyss in his appeal to the House of Lords to move for the preparation of models for these buildings, and it will be within your recollection that his lordship carried his motion in the defeat of the Government, but we have yet to hear that any steps have been taken to have these models constructed, or to appoint a competent architect to carry the work to a successful conclusion. Our Society heartily supported and will continue to support the Royal Institute of British Architects in their action.

We are not so far removed from the centre of civilisation and examples of modern construction following on modern and untrammelled ideas, but that it becomes us to take advantage of other arts than that which we particularly claim as our own. Societies have sprung into existence which have for their object the study and design of ornament in nearly all materials. I allude more particularly to arts and crafts societies; it behoves us to keep in touch with them. We must guard against a tendency to stifle new and crude ideas, and give the "art nouveau" our earnest and helpful consideration when the exigencies of the case demand. The exhibitions of Paris and Glasgow, for example, were sources from which much could be learnt with advantage.

A cultivation of and a co-operation with the allied arts, and notably that of sculpture, is now a *sine quâ non*. Painters and sculptors have complained, and I am bound to say with some reason, that we do not always display a sufficient consideration for their work. As an indication of this feeling I may mention that a Royal Academician recently stated to me that the modern house is quite unfitted to contain a bronze.

But, gentlemen, there comes an end to all things. To quote a well-worn phrase, "*Ars longa, vita brevis est*." The fascinations of our art are enthralling, and it becomes an effort approaching a wrench to leave the considerations affecting her.

Gentlemen, we more and more realise the growing demands of our profession; we indeed serve a mistress who jealously insists that our effort, all our strength and all our energies and abilities shall be unreservedly laid at her feet, and that then, and certainly not till then, can we take from her hand the great rewards she has in store for them who are faithful.

Mr. H. Perkin proposed a vote of thanks to Mr. Wilson for his instructive address.

Mr. W. H. Thorp, in seconding, said that within a few weeks the Society would reach the twenty-fifth anniversary of its foundation. The presence of so many young members of the profession that evening augured well for the Society's future.

The President having acknowledged the compliment, the remainder of the evening was devoted to a smoking concert.

GLASGOW ARCHITECTURAL ASSOCIATION.

THE second monthly meeting of the session was held on the 20th inst., the president, Mr. Chas E. Whitelaw, in the chair. Mr. Isaac Low delivered a lecture on "Old and New." Sanitation, he said, was the subject he had chosen to speak on, but before doing so he had a few remarks to make on lighting, past and present. He alluded chiefly to the Glasgow systems. In the course of his remarks on sanitation he described the various closets, from Bramah's to those of the present day. He next took up drains, and described the various methods that had been adopted in ventilating both closets and drains. In his closing remarks he dealt with sinks in use, and went back to the time when they were made of stone. At the close of the lecture Mr. Alex. McGibbon, after remarking on the able manner in which Mr. Low had treated his subject, moved a vote of thanks, which was heartily accorded the lecturer for his much appreciated lecture.

MODERN ARCHITECTURE.

THE opening meeting of the winter session of the Northern Architectural Association was held at 36 Northumberland Street, Newcastle, on the 13th inst., Mr. Frank Caws presiding.

In the course of his inaugural address he said:—

The nineteenth century will be distinguished by the future architectural historian as the most fickle century of all, in regard to the number, variety and incompatibility of the styles and fashions of buildings which it has so restlessly and inconstantly first embraced and then spurned. During this fickle century the battle of styles has been fought to a finish, not of the "final issue," which never can be finished, but to a finish of the two contestants, the old Classic and the resurrected Gothic, which entered both on the fray, and neither of which has survived. "As dead as Queen Anne" is an expression

which has passed into a common byword; yet it is remarkable that if there is any distinguishable survivor of the architectural fights of the great Victorian age it is the Queen Anne type, which still possesses much vitality, and seems to enjoy a fair prospect of extending its influence far into the twentieth century. Regarding the future of British architecture we need not ask "What will the end be?" For there will be and can be no end to the mutable fashions affected by restless humanity. Signs are not wanting that the rising generation of architects, to whom the twentieth century belongs, are coming to regard an intimate acquaintance with structural principles as a *sine qua non* of professional proficiency; for not merely statics, but also dynamics, are now included in the curriculum of the preliminary examinations which even novices must pass ere they can take rank merely as students of the Royal Institute of British Architects. The truly successful modern architect must of necessity be an artist, scientist and commercialist, and withal an excellent society man, all rolled into one. The popular measure of success is not supreme technical skill, is not even genius itself—that gift from the Highest to the highest—but is gold. This debasing influence reveals its presence amongst us by an increasing disposition to bribe clients to employ us by offering our services at rates of remuneration below the rates fixed by usage, and by which every member of the Northern Architectural Association and of the Royal Institute of British Architects, to which it is affiliated, is bound, in honour and fairness to his professional brethren, to firmly adhere. To what extent these nefarious practices obtain amongst architects it is not easy for the clean-handed to discover, even if wishful to probe foul waters. Too many modern attempts at originality in architecture issue in mere oddities and vulgar sensationalism. Cruel contortions of gable copings and pediments, coupled with rustication carried to absurd excesses, are having a run just now. But the public taste, though strong enough to enjoy almost any architectural novelty, however vulgar, will become soon nauseated with such wretched fare. Nature's method of originality is worthy of our highest emulation. She knows how to be unfailingly interesting and perpetually original within the limitations of type. For example, in her reproductions of the human face divine she never makes two alike. Every human face possesses individuality, *i.e.* originality. Yet the number and arrangement of the features are the same in all cases, the greatest differences of individuality being due to the smallest and most subtle variations. Nature's originalities are produced not by such horrible expedients as putting eyes in foreheads, or by other monstrous transpositions of features, but by the most exquisite touches of ineffable art.

ORGAN CHAMBERS AND ORGAN CASES.

AT the last ordinary meeting of the Sheffield Society of Architects and Surveyors, Mr. Charles F. Brindley (of the firm of Brindley & Foster) gave a lecture on "Organ Chambers and Organ Cases." He said the placing of an organ in either a concert-room, place of worship or a private house so as to combine to the fullest possible extent musical, artistic and utilitarian principles presents many difficulties. The organ might well be described as the most complex of complicated machines, the building of it necessitating an intimate knowledge of mechanics and science, and musical taste and culture must be present in a marked degree. He intended, however, only to deal with the considerations of placing and encasing instruments, which vitally concerned the work of architects. Dealing, first, with the placing of organs in concert-halls, the best position for the organ was the far end of the orchestra, and as an instance of good arrangement Mr. Brindley gave the case of the instrument built by his firm in the Town Hall, Pietermaritzburg, South Africa. Special attention should be given to allowing ample space, so that the organ may be built on one level, in order that it may not be affected by changes of temperature and so thrown out of tune by the consequent expanding of metal pipes when instruments are constructed at different altitudes. In providing for machinery for blowing, care must be taken that (a) the room be dry, (b) within reasonable distance of the organ proper, (c) the temperature be the same as that of the hall. Dealing next with the placing of organs in places of worship, the lecturer stated that not the least difficulty in this respect was the unreasonableness in some cases of the architect's client, who, although having no acquaintance with architecture or acoustical or musical knowledge, ruthlessly ignores the best suggestions, and cuts out those refinements and beauties upon the achievement of which the enhancement of reputation and growth of art have depended. Lack of space allowed and disregard to all proportion were the greatest evils. It was idle to point these defects out, as you were told if you couldn't do it others could. Mr. Brindley then gave the opinions of experts with regard to position. The placing of the organ on a screen dividing the

nave from the choir is undoubtedly the best, but is unfortunately seldom adopted and favoured by modern architects. Putting an organ in the west gallery is highly recommended by many experts. An organ chamber is not a good place for an organ. If this latter method be a necessity, the lecturer pointed out that it devolved upon the architect to design such chamber so as to mitigate the evil as much as possible by providing plenty of space, making it of sufficient height, and having ample opening into the church for the ingress of sound. Instances were cited of the organs built by his firm at St. Agnes Church, Kennington; St. Andrew's, Willesden Green; Wesley chapel, Fulwood Road, Sheffield; Congregational church, Bromley, Kent; Weigh House chapel, London. As exceptional positions for organs Mr. Brindley cited the instances of Christ Church, Sutton; Govan parish church, Glasgow; South Leith parish church, Edinburgh; parish church, Arbroath, where unquestionably successful results have been obtained by his firm owing to the care taken in designing and carrying out the work. Private houses present the greatest difficulties, owing to the invariable upset to the arrangements the introduction of an organ causes. Instances were given of the instruments built by Brindley & Foster for the late Duke of Sutherland in Stafford House, London, and for the well-known amateur, Mr. S. W. Pilling. In the latter case, no room being acoustically suitable for an organ, Mr. Pilling had one built; and his complete four-manual organ shows off to the greatest advantage. Mr. Brindley then dealt with the casing of organs, and dealt with technicalities in connection therewith of great interest to architects, in order that in their designs everything might be arranged to the enhancement of the effectiveness and appearance of an instrument. With regard to decoration, Mr. Brindley stated that the silvering adopted by his firm was well received by architects. The great thing was not to decorate pipes so as to spoil their appearance as metal pipes. The lecturer considered that inasmuch as front pipes were never made of gold, gilding might be considered somewhat out of place. Spotted metal was subject to rapid tarnishing. The number of stops depends on the price paid and the quality of the builder's work. A first-class built organ has pipes of full size, the pipes have each ample speaking room and of good calibre. In short, a properly-built organ may be from 50 to 60 per cent heavier in weight than that of an organ of the cheap class. Consequently a first-class builder requires more room for a given specification than the inferior builder would know what to do with. Mr. Brindley pointed out that it was possible for an organ-builder to supply an organ to a given specification for perhaps 20 per cent. less cost than it would cost his firm in materials and workmanship. He therefore urged architects to not unduly limit the organ space if they desired to safeguard their clients' interests. An organ-builder can be of great assistance in the initial stage to an architect by giving him help and placing before him those essentials with regard to shapes and measurements without which the most artistically designed cases cannot be perfect.

CROSBY CHAPEL.

THE eighth sessional meeting of the Historical Society of Lancashire and Cheshire was held on the 21st inst. Mr. William E. Gregson read a paper on "Crosby Chapel, Great Crosby. Mr. Gregson offered the suggestion that although the church is now known as St. Luke's, the probability is that the ancient chapel was dedicated to St. Michael the Archangel, patron saint of the township and manor, to whom the ancient village well on the Green is dedicated, and in whose honour the cross on the Green seems to have been erected. After reading translations of a couple of ancient charters, one granting a certain stipend to the priest at "Croseby," from Savaric, Abbot of St. Mary's at York, and the other being a grant by Walter, son of Earl Gospatric and Cecilia his wife, of the church of Crosby and St. Nicholas by the Sea, to the Abbot of St. Mary's at Carlisle, Mr. Gregson threw some doubt as to whether these documents really referred to Crosby in Lancashire. In the subsequent discussion Mr. Alfred Patchett confirmed to some extent the conclusion that the deeds referred to one of the Crosbys in Westmorland. The site of the ancient chapel was located as far back as the reign of Edward VI. as being built where the National school now stands, and the fabric was valued at that time at 30s., and the armaments of the chapel included a little bell, a silver chalice partly gilt, gold altar "clothes" and sundry vestments. This old building was altered at various times and a brick building with a tower seems to have been erected in 1767 or thereabouts. This building (except the tower) disappeared about 1840, when the new church was built, and the tower was finally demolished in 1880. Mr. Gregson gave a fairly complete list of the curates or incumbents of the chapel, commencing with the Rev. John Kidd, M.A., who had the chapelry in the reign

of Elizabeth. Probably the chapel was served by one of the numerous priests attached to the Sefton Church before that reign. The only known sketch of the old chapel is one in the Binn's collection at the Picton Reading-room. Most, if not all, of the incumbents previously to the present vicar, the Rev. Robert Love, M.A., have been masters of the Merchant Taylors' School, Crosby.

A discussion followed, in which Mr. W. Fred. Price, Mr. Alfred Patchett and others took part, and the meeting closed with a vote of thanks to the reader of the paper.

THE HALL-I'-TH'-WOOD, BOLTON.

AT intervals during the past twelve months reference has been made to the work of restoration which is being carried out at Samuel Crompton's old home, the Hall-i'-th'-Wood, which is now the property of the Bolton Corporation, and is being entrusted to the parks committee for equipment and management. One of the representatives of the *Bolton Chronicle* visited the picturesque old mansion and found that a vast amount of labour had been expended on the building in the work of preserving it both internally and externally. This has happily been effected without affecting the structural arrangements of the Hall. Its ponderous oak beams, post and plaster walls, mullioned windows, great open fireplaces, and its quaint elaborately carved staircases are there just as prior to his death in 1827 Samuel Crompton used them in his daily life. There are eighteen rooms in the building, and all have been dealt with, and are now virtually ready for their future use as an industrial museum and a repository of the great inventor's relics. The only articles at present in the Hall are three old oak chests from Cocker's Farm, Rivington, an ancient oak cabinet, a primitive stone cheese-press and several remnants of textile machinery under the rafters where Crompton secreted his inventions. The coats-of-arms and initials over the fireplaces are undisturbed. The latter include the letters "A N A" (Nathaniel and Ann Archer) and "B L B 1591" (Lawrence and Betty Brownlow, the family identified with Brownlow's charity. In the yard in front of the building a relic of ancient days and customs is to be seen in an arrangement of stones reared for the purpose of enabling ladies to mount their horses. It is proposed to surround the Hall by a garden, and there is no doubt when completely equipped the Hall and its surroundings will be a very interesting resort for both antiquarians and the ordinary visitor. The last occupants of the Hall were Thomas Jackson, who was in the building six or seven years, and Arthur Bromiley, who was a previous resident in it for over seventy years. The present caretaker is William Platt.

TESSERÆ.

The Art of the Germans.

IN considering the subject of art in Germany we find ourselves confronted with a strangely perplexing phenomenon, for we are brought face to face with a people possessed during many centuries with a strong craving for artistic expression, and reaching on occasions to achievement of a very high order, and yet as a whole much wanting in qualities we connect with the artistic temper, and which are no doubt indispensable for the attainment of supreme excellence—a people which, through the exceptional fruitfulness of its æsthetic impulses, or more accurately perhaps of its desire for expression through form and colour, and in virtue of the power, the thoroughness and the masculine sincerity which stamp its handiwork, establishes a just claim to a prominent place in the wide republic of the arts, and has nevertheless put upon the world by the side of many and noble masterpieces a quite curious amount of ungainly and at times all but repellent work. Certain qualities seem to be wanting in the æsthetic constitution of the race, and these are the instinct—meaning, of course, in the graphic arts—of congruity and fitness, the sense of rhythm and a perception of the value of restraint and of repose, attributes in the presence of which the highest sense of beauty would be sought in vain. It is impossible, indeed, to survey, however cursorily, the immense field of German activity in art without being powerfully impressed by the high qualities revealed in every part of it; nevertheless the final impression left by such a survey is of a people amongst whom the ethic sense is constantly predominant over the æsthetic impulse, and we are made conscious that if we have been frequently moved to respectful appreciation and admiring wonder, it is but seldom that we have been conscious of that sweet, that enveloping, that sufficing sense which has its springs only in the æsthetically beautiful.

Non-Isolation of Gothic Cathedrals.

It is a great mistake to think, as has often been maintained, that Gothic cathedrals need to be completely isolated to produce all the effect which their architecture is capable of;

the constructors of those cathedrals do not, and nowhere have they been seen. There does not exist in Europe a cathedral originally flanked at the north or at the south by the palace of the sovereign, the canons, their chapter-house and their cloister, as in the case of the cathedrals of the Middle Ages, where they were necessary to lodge the chapters, and where they were numerous and very rich. In England, where the cathedrals have preserved these dependencies but the body of the church, and although they are for the most part very much inferior to those of the Middle Ages, Montalembert says they often strike us as being precisely owing to this encircling, whose intimacy with those of the central monument tell more of the grandeur of the admirable edifices than of all terrene grandeur, has need of points of comparison to make them to be appreciated and stand out from the surrounding edifices so as to hide not only from the eye which contemplates them, but also from the mind which permits, as at Rouen and elsewhere, the like a crust between the buttresses. But the cathedrals make a void around our cathedrals, so as to make the magnificent dimensions which they give to their authors. They were not at all the Pyramids of Egypt; but, otherwise, crowded dwellings and the narrow streets of the Middle Ages to domineer and raise our imagination of the truth and of the authority of that which the cathedral was the image in stone.

Proportions of Rooms.

If there were any absolute and fixed proportions of objects, it seems reasonable to suppose that every violation of them would be equally objectionable. Every deviation from them would be attended with a certain degree of discontent. Take the proportions of a room. The height, the length or the breadth of a room must have observed that it is with regard to the want of proportion in these things that we feel a great height in a room is not nearly so objectionable as a height, and too great a length produces a feeling of discontent, compared with that which is produced by a breadth. Whether a room is a few feet too high or a few feet too broad, few people observe; but every one observes a disproportion either in the diminution of its height or in its breadth. The most general fault in the proportions of a room is that the common people find with apartments too low or too broad. The proportions of a room they seldom attend to if they are not very objectionable. The facts are not easily reconcilable with the absolute beauty of these proportions. The disproportion from the expression of fitness, the proportion of a room should affect us the most ought to be the most necessary for the production of the effect. However, very obviously are either too low or too high, the first immediately indicating the disproportion, the roof, and the other expressing the disproportion of the sufficiency for the support of this weight. The form of an apartment, accordingly, that is that of being at the same time very broad and very high. Too great height and too great length have not so disagreeable expressions as too great breadth. Fitness is in no material degree violated by a disproportion of height or length; it is chiefly a slight emotion of dissatisfaction, unsuited to the general character of the room. Our indifference to the second disproportion, length, arises from a different cause, viz. that the beams which support the roof are not so numerous and our consequent belief that the difference makes no difference with regard to the effect. Change accordingly in any apartment the proportions of the beams, let the spectator perceive that the height is too great, or the length too great, or the breadth too great, and the room, however great length these dimensions are, the greater length will be permitted without any feeling of disproportion. It is expressive of perfect sufficiency in the proportions of the roof. As there is thus no uniformity in the perception of these proportions, the case if their beauty were perceived, and as the emotion which we in fact feel is different according to their different proportions, it seems reasonable to ascribe their beauty to the proportions, and not to any original beauty in the proportions. If there were any original beauty in the proportions, it would necessarily be as certain as the fact that the sense, and there would be one precise proportion of length, breadth and

manently beautiful. Everyone knows, however, that this is not the case; no artist has ever presumed to fix on such proportions, and so far is there from being any permanent beauty in any one relation of these dimensions, that the same proportions which are beautiful in one apartment are not beautiful in others.



Kew Cowl Tests.

SIR,—As the Sanitary Institute have not answered the queries contained in my letter published in your issue of the 15th inst. it must be assumed that they prefer to allow the question of the cowl patents held by them to drop. Of the wisdom of this course in the face of the absolutely unanimous condemnation of the tests and of the report which has appeared in the Press, of which the following extracts are fair specimens, the responsible officials of the Institute are, of course, the best judges:—

(a) "It is a significant fact that this would-be scientific report awards the palm for efficiency to a cowl or terminal of which the Sanitary Institute themselves hold the patent—a result which was not very difficult to attain when the method of experimenting was exactly such as to favour the cowl in question or the open pipe principle."

(b) "It may, however, be said that they have done too much. Instead of simply laying down the lines upon which, as an outcome of their tests, it was advisable to construct these cowls and to show what should be avoided on the one hand and what should be provided on the other, in order to give the best possible results, they have given their *imprimatur* to three specified models, which they have patented."

(c) "The public do not like that kind of thing. They will say:—'In order to make themselves an authority on cowls, the Sanitary Institute conducted experiments on them, and then, having taken up the position of judges, and acquired all the authority, they now come into the market with a cowl of their own. These are the things which put one against hole-and-corner experiments . . . To private experiments nobody can take exception; public experiments everybody must welcome, but secret experiments, which are neither public nor private, but are sheltered under the ægis of a scientific society, must invariably create suspicion and distrust'."

(d) "A perusal of the report can only excite feelings of astonishment and commiseration in the minds of those acquainted with the facts, particularly after reading Professor Shaw's condemnation of the conclusions arrived at. . . They must have known, from Professor Shaw's investigations, that the tests, for all practical purposes, were valueless, and could only prove misleading and harmful. . . . The Institute has done much good work in the past, and may do still more in the future, but it must abstain from making such fatuous attempts to pose as an authority upon a subject which it is clear from the report it knows very little about."

(e) "It would have been well for the dignity of the Sanitary Institute had the tests remained unpublished."

As stated in my letter, I notified the Sanitary Institute on the 9th inst. that their alleged "Champion" cowl was an exact replica of an old chimney-cowl first made by me over thirty years ago, and that if they cared to send a responsible person to my office I would show him diagrams and models of this cowl, and also the identical cowl itself, besides several other modifications of cowls on the same lines and the later and more effective forms. Though the receipt of my letter was acknowledged no one has as yet (November 25) called to inspect the cowl and the diagrams, the latter appearing in old price-lists.

In large sizes, for several reasons arrived at from actual practical experience (which reasons the Institute appear to have either ignored or to be ignorant of in their application to their cowl), I never considered this chimney-cowl good enough to make a ventilator of, and I think that the Sanitary Institute would have arrived at the same conclusion if they had made the tests with full-sized specimens, such as are used for the ventilation of buildings, instead of with models, as was done.

What surprises me most is that the Institute, and particularly the cowl-testers, should have been ignorant of the existence of this cowl, which for many years past has appeared as a standard pattern in the catalogues of the principal chimney-cowl makers, and is to be seen on the tops of thousands of chimneys in London and elsewhere, though it is rarely or ever used as a ventilator, cowl-makers being aware of its weak points when employed for that purpose. If the Sanitary Institute had responded to my invitation to inspect this cowl, I think I would have had no difficulty in convincing them of the fact that it was by no means infallible by one or

two very simple experiments, and which, I observe, were omitted to be made at Kew.

At my testing-rooms, where experiments with innumerable modifications of every conceivable form of cowl and other ventilating appliances have been continuously carried on for at least a decade before the birth of the Sanitary Institute—improvements being strenuously and unremittingly sought for—a further revelation might also have been made as to how cowls should really be tested, to arrive at an approximate knowledge—which at the most is all that can be attained—of their values. I need hardly say that the methods of testing employed are not as were adopted at Kew. The tests are also made with full-size ventilators and not with models as at Kew, and which prove nothing.

It is now well over fifty years ago since my late father as a co-worker with Professor Faraday first practically devoted his attention to the subject of ventilation, and the natural system of ventilation which is now so generally employed in all parts of the world was the outcome of their joint labours. I merely mention all this to show that such things as ventilators and testing ventilators were known before the Sanitary Institute commenced their investigations, and that therefore they (the Sanitary Institute) cannot rightly claim to be the first inventors of the one nor the originators of the other.

I myself may also claim to having contributed towards the elucidation of the problem of ventilation, having made the subject the exclusive study of my life and visited almost every known country preaching the gospel of pure air, having, indeed, when so engaged travelled seven times round the world, whilst probably about three-quarters of a million sterling has been expended in the practical development of the subject.

I notice that the Institute's second best cowl, which they have patented and which is described in the report as a "Twirler" (a good scientific name, by the way), is also of hoary antiquity. In my childhood's days it used to be known as an "Old Wife," and many a weary night have I been kept awake listening with awesome dread to the weird "voices of the night" as that very querulous old lady squeaked and groaned on her rusty spindle.

With regard to the Institute's third best "terminal," though it is well known that the Patent Office, with the true British commercial instinct, never refuses money and will grant a patent for almost anything, I thought it would have drawn the line at an open pipe; but it seems that this supposition was a mistaken one, though it really does not matter seeing that everything connected with these "prehistoric" tests—including, I regret to say, the testers themselves—has long since passed away and ceased to exist as a practical entity. In connection with this the following extracts from the Press are instructive:—

(a) "The lapse of time has rendered most of the cowls and terminals obsolete, and beyond this the improvements and modifications that have been made in ventilators have been ignored, and a corresponding degree of scientific data are necessary for accurately determining their action, which the present report does not supply, as it does not deal with these improved ventilators."

(b) "They must relate to things which are no longer to be found in the same form. There are improvements in ventilators as in other appliances, but in the experiments it might be supposed that invention was to remain inactive until the report was published."

(c) "The science of ventilation by means of cowls has progressed so much since the tests now described were made, that the varieties of cowls used in the experiments have become obsolete. . . . We cannot help feeling that a report dealing with cowls and ventilators long since consigned to the scrap-heap and the spelter-pot should not be taken seriously, although, of course, its antiquarian value need not be disputed."

(d) "The prehistoric character of those particular experiments becomes more and more evident. 'Months were passing into years, and years into decades,' it tells us, 'with the work still unfinished.' . . . The date, in fact, runs back so far as August 1877, which seems now quite a prehistoric period. We feel almost as though we were opening a book of Herodotus, or glancing at the clever cuts in certain recent American journals illustrating the manners and customs of our ancestors in the Flint Age and other palæozoic periods."

(e) "An egregious blunder. . . . That it has no practical value may safely be asserted, if only for the simple reason that it does not cover the up-to-date ventilating appliances now on the market."

With regard to the actual practical value of the tests, the correctness of the methods of testing and of the conditions governing the tests, Professor Shaw, the eminent scientist who compiled the report, and who was called upon by the Sanitary Institute to decide upon these all-important points expresses himself as follows:—

"In an introductory note to Part V. of the report I have given my reasons for thinking that the ratios obtained by the cowl committee depend upon the other part of the experimental

arrangement, and not upon the terminal portion only, and that in consequence the word [efficiency] is not applicable . . . It would appear that the want of agreement of the readings of the different instruments caused some hesitation about accepting a final value. All the evidence seems to have been set out, but the verdict was not given, and I have had to take up the difficult task of a jury and pronounce 'Yes' or 'No' upon the questions which were to be answered for the committee upon the facts they had collected." (P. 205.)

"It will be well to consider briefly the conditions governing the flow of air up a pipe under circumstances similar to those prevailing at the Hut, and it will be seen that the effect of a cowl or terminal cannot usually be regarded as being completely dealt with by a single factor, or series of factors, representing efficiency, even for a single set of conditions, as to the direction and force of the wind under which the flow takes place." (P. 340.)

"The numbers so obtained for ratios of flow will accordingly not give anything which can be regarded as a 'constant' for the cowl, or which will serve to identify the effect which the cowl would produce in the way of alteration of aeromotive force or alteration of resistance in circumstances slightly different. The numerical result is, in fact, due to the special combination of circumstances, and could not be reproduced unless the circumstances were themselves approximately reproduced." (P. 344.)

"The numbers obtained for the ratio of the flow along the pipe carrying the cowl to the flow without the cowl give us nothing that can be regarded as a constant for the cowls, and consequently the use of the term 'efficiency' to denote the ratios obtained is inappropriate." (P. 344.)

This clearly endorses the verdict of the *Times* on the first instalment of the report (described as "the greatest blunder in the history of sanitary science"), which was that:—

"The method of testing was incorrect, and therefore the tests are valueless. Neither in the case of either of the cowls or the tubes was their true value as extractors ascertained."—I am, yours faithfully,

ROBERT BOYLE.

64 Holborn Viaduct, E.C. : November 25.

GENERAL.

The Exhibition of plans and drawings of the Queen Victoria Memorial at St. James's Palace will be closed after Saturday, December 7.

The Winter Exhibition of the Royal Society of Painters in Water-Colours will be opened on Monday next.

Mr. Walter R. Knappe, M.I.C.E., died last Monday in his sixty-ninth year. He was largely employed in harbour work and other important undertakings.

Dr. Henry Woodward, under the age limit, has retired from the Keepership of the Geological Department of the British Museum of Natural History.

Professor Corfield, of University College, London, the consulting sanitary adviser to His Majesty's Office of Works, has received from the Royal Society of Public Medicine of Belgium its bronze medal in recognition of his devotion to public health.

Application is to be made by the Guardians of the North Dublin Union to the Local Government Board for sanction to a loan of 35,350*l* for the completion of Portrane asylum. The Board of Control had entered into contracts to the amount of 200,000*l*., but had provided 46,000*l*. less than that sum.

An Application has been made to M. Pacully, of Paris, the French amateur, by the Royal Academy, asking him to contribute some works from his valuable collection for the forthcoming Winter Exhibition.

Hogarth House, Chiswick, for many years occupied by William Hogarth, was sold by auction on Monday last for 1,500*l*. The property, including half an acre of garden, is copyhold of the prebend manor of Chiswick; it was sold with possession. The identity of the purchaser was not disclosed.

Mr. E. Alfred Rouchling will read a paper on "The Sewage Question during the last Century" before the Society of Engineers on Monday.

An Exhibition of Paintings will be held in the spring in the gallery of the Automobile Club in Paris. Among the painters who will contribute are MM. Carolus-Duran, Cormon, Roybet, Aimé-Morot, Friant, Demont-Breton, Gabriel Ferrier, Wincker, Jean Béraud, Boldini and Zwiler.

The Offices in Princes Street designed by Sir John Soane are to be taken down in order to use the site for new offices in connection with the Bank of England. A subway will be also constructed.

The French Government have formally accepted the bequest of gold and silver plate, valued at 135,000*l*., left by Baron Alfred de Rothschild to the Louvre.

Mr. W. A. Paley has been appointed to succeed the late Mr. Palfreyman as engineer at the House of Commons. There were upwards of 150 applicants for the post.

The Cowes Council have decided that a new hall and offices are to be provided if a suitable site can be found, and the work carried out at a sum not exceeding 4,000*l*.

The Edinburgh International Exhibition is to be held in the year 1907. An application is to be made forthwith to the Town Council to grant the use of the West Meadows and the lower part of Bruntsfield Links as a site for the exhibition.

The Emperor of Germany is having prepared for presentation to the Senate of Harvard University a unique collection of plaster casts representing some of the finest German Mediaeval stonework, such as the tracery in the choir of Halberstadt Cathedral, to be placed in the Germanic Museum of the University.

Sir Edward Antrobus, it appears, is within his rights in enclosing Stonehenge. It was announced at a meeting of the Wiltshire County Council that he might be willing to sell, and the hope was expressed that the nation would buy the place.

A Public Meeting was held at Freshwater to consider the alternative drainage scheme and outfall works as suggested by Messrs Bennett & Masters, when it was unanimously decided to ask the Local Government Board to adopt this scheme in preference to that of Mr. George Chatterton, who had practically the support of that body in the drawing of his plans.

Mr. Ernest Newton was the architect for the new buildings, consisting of vestries and vicarage, in connection with St. Mary's Church, Hoxton, which were dedicated on Saturday. The cost, including the site, was about 5,000*l*.

Sir William Roberts-Austen will deliver the tenth "James Forrest" lecture at the Institution of Civil Engineers on April 17, the subject being "Metallurgy in Relation to Engineering."

The "London Gazette" announces the dissolution of the following partnerships, viz Sir J. Wolfe Barry, H. M. Brunel, C. A. Brereton, A. J. Barry, K. Wolfe Barry and B. Leslie, civil engineers, under the style of Sir John Wolfe Barry & partners, Delahay Street, Westminster, S.W.; and F. S. Waller and F. W. Waller, architects, Gloucester, under the style of Waller & Son.

A Paper will be read by Mr. E. E. Bateman on Monday before the Liverpool Architectural Society on Castle Bromwich Church.

The Bath Council are about to make application for a loan of 16,000*l* for the purposes of a housing of the working classes scheme for Lampard's Buildings. The street improvement would cost 9,000*l* and the erection of the houses 6,965*l*. The thirty-six houses would be let at rentals varying from 3*l*. to 5*l*. 6*d*., as against a rent paid for the old hovels of 2*l*. 6*d*. to 3*l*. 6*d*. The gross rents would be 500*l*., and after making allowances for repairs the net receipts would be 334*l*.

The New Dock Offices for Liverpool will shortly be commenced from the design of Messrs Briggs & Wolstenholme and Messrs. F. B. Hobbs & A. Thornely. The cost is estimated at 257,246*l*.

A Marble Statue by the Viennese sculptor Herr Hasselrus of Heinrich Heine, the poet, was unveiled last Sunday at his grave in the Montmartre Cemetery. It was the gift of Austrian admirers.

The Municipal Council of Paris have considered scheme of various works which it is proposed to undertake in 1902. The estimated amount exceeds 7,000,000*l* sterling.

The Carpenters' Company's annual examination in sanitary building construction was held in their hall during last week and the following awards were made:—To Mr. F. Hartnoll, special prize of books, he having already obtained the silver medal; to Mr. H. Barnsley and Mr. H. Gerner silver medals; and to Mr. G. H. Lovegrove, Mr. E. W. I. Martin and Mr. A. Norton, bronze medals.

A Foreign Company, it is said, is about to erect building on the principal boulevard of Paris, and the price paid for the site is said to be 90*l* a square foot. The company had negotiated for another corner in the same locality, but had to abandon the idea because the proprietor asked 180*l* a square foot.

Mr. Joseph Berry, architect, of Huddersfield, has removed his offices to No. 3 Market Place.

Mr. C. J. Innocent, architect, of 22 High Street, Sheffield, announces that he has taken into partnership his son, Mr. Charles Frederick Innocent, who has been associated with him for several years.

The Civil Service Commissioners announce that an open competitive examination for three appointments of assistant civil engineer in the Admiralty Works Department will be held shortly. Copies of the regulations and forms of application for admission to the examination may be obtained on application, by letter, to the Secretary, Civil Service Commission, Westminster, S.W.

The Architect, Nov 29th 1901.



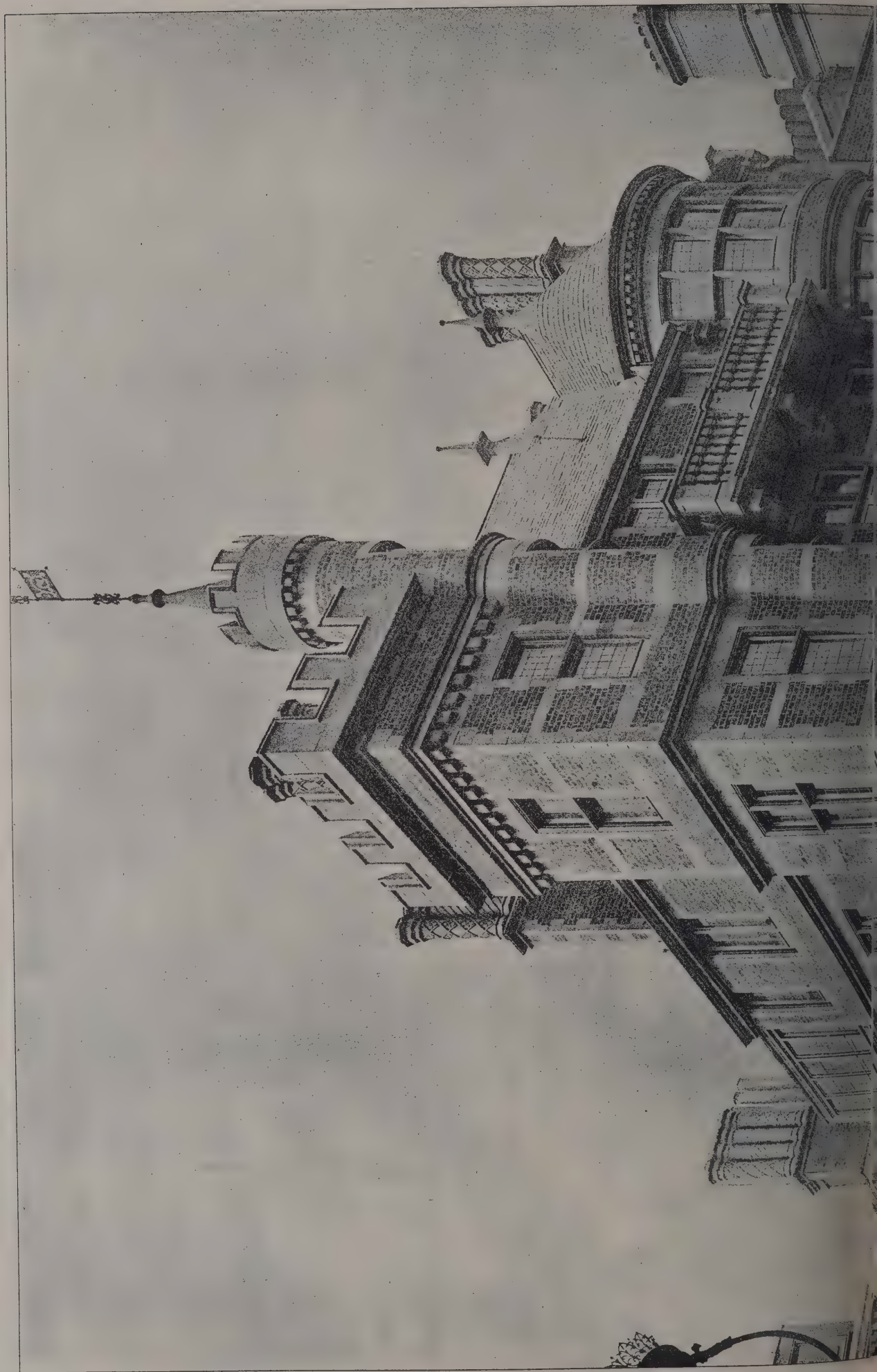
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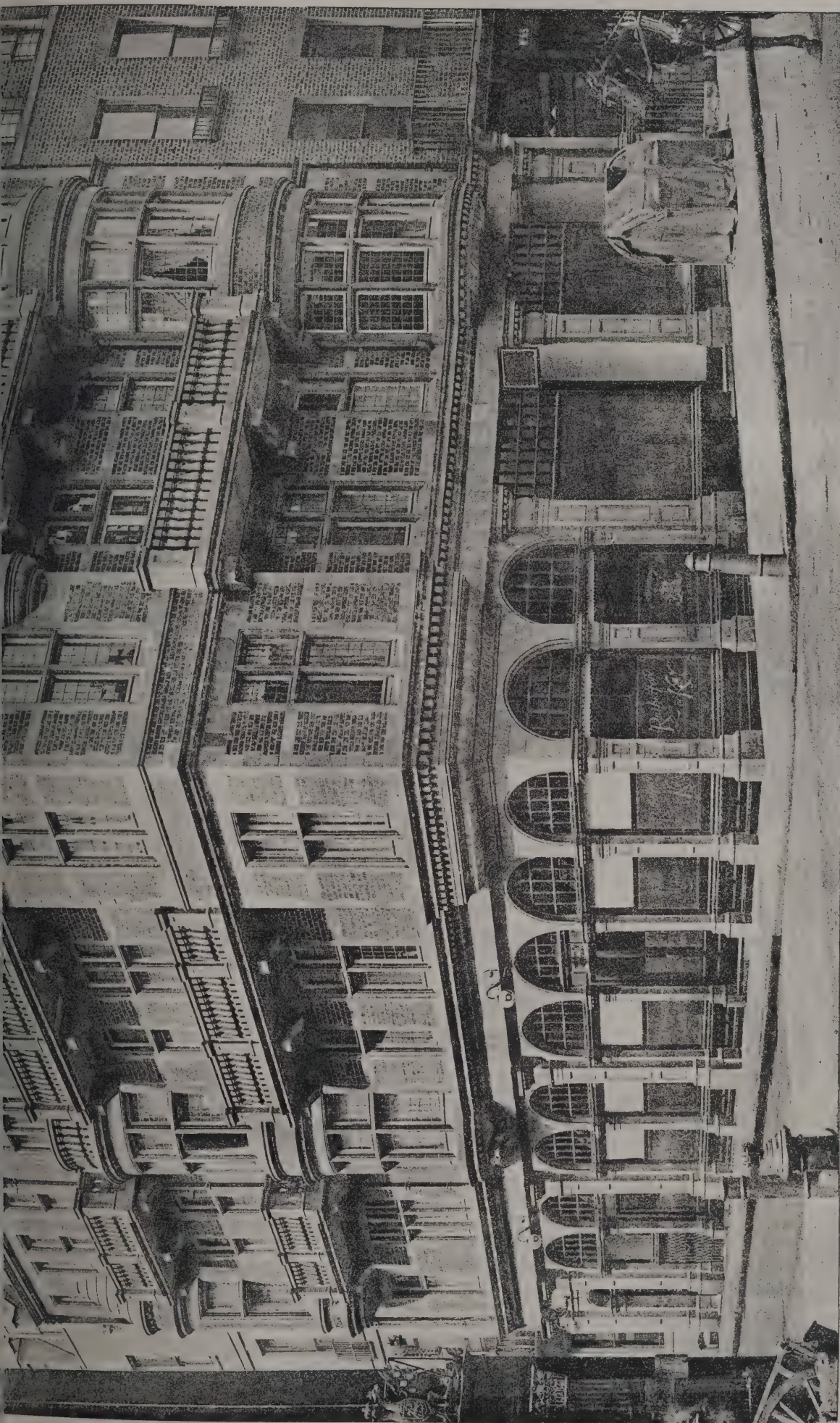
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THE GREAT CENTRAL HOTEL: THE DINING ROOM.

R. W. EDIS, F.S.A., Architect.

The Architect, Nov 29th 1901





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The Architect, Nov 29th 1901.



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THE GREAT CENTRAL HOTEL; THE STAIRCASE.

R. W. EDIS, F.S.A., Architect

The Architect, Nov 29th 1901



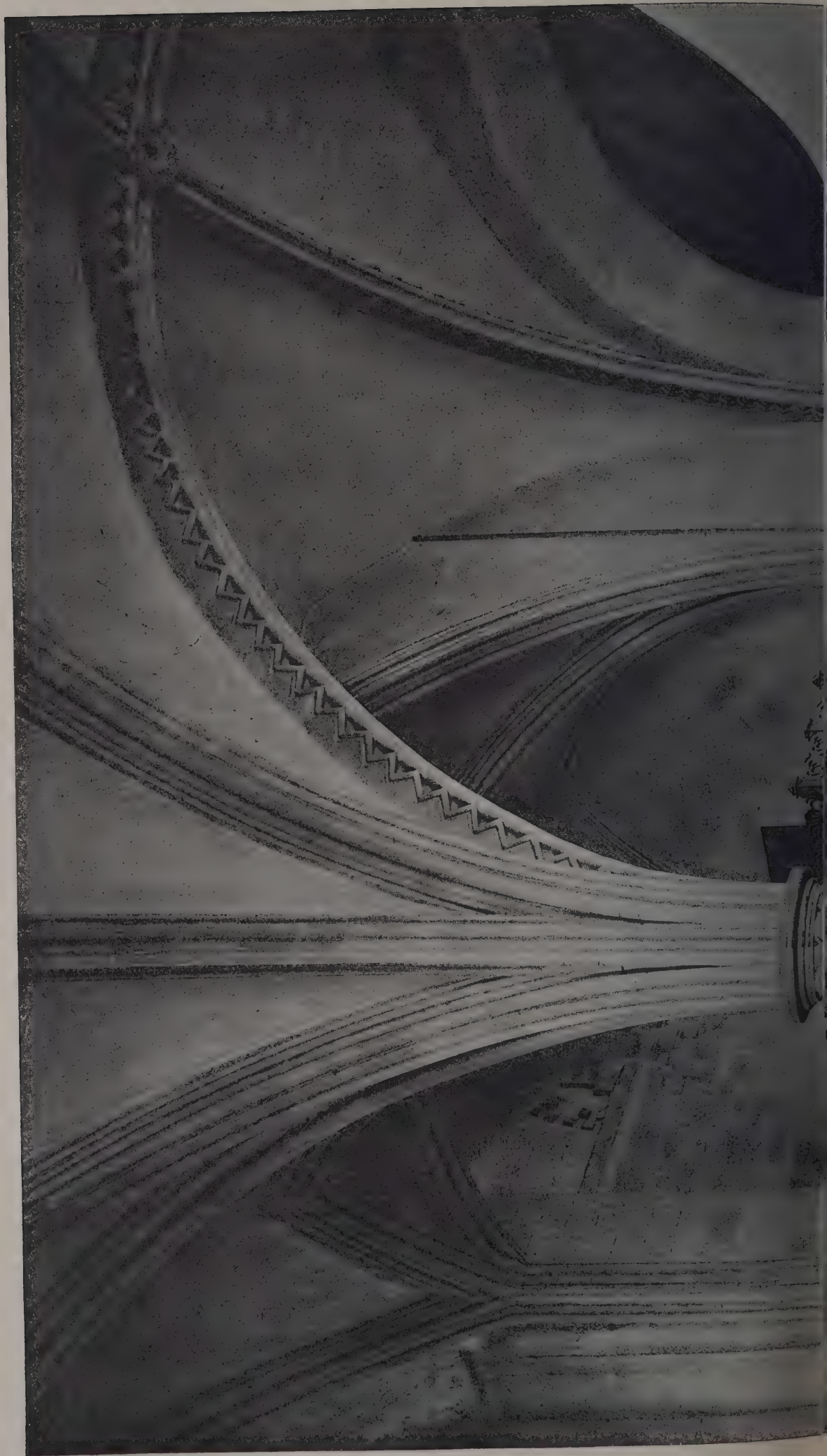


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CATHEDRAL SERIES, No. 371.—CHICHESTER: THE REREDOS.

The Architect, Nov 29th 1901





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CATHEDRAL SERIES, No. 372.—CHICHESTER: THE LIBRARY.

THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

AUSTRALIA.—May 1.—Designs are invited from sculptors for a memorial statue of Her late Majesty in marble or bronze. All information can be obtained at the office of the Agent-General for the State of Victoria, 15 Victoria Street, Westminster.

BURSLEM.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded to the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs

placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

KENT.—Jan. 1.—Competitive designs are invited for laying out about 16 acres of land, near Canterbury Road, Gillingham, as a recreation-ground. Premiums are offered of £20, £10 and £5. Mr. F. C. Boucher, clerk, Gardiner Street, New Brompton, Kent.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

SCOTLAND.—Jan. 15.—The Kirkcaldy Burgh School Board invite competitive plans for a technical and science and art school to accommodate from 400 to 500 pupils, and an elementary school to accommodate about 400 pupils. Mr. Alexander Beveridge, clerk to the Board.

WITHINGTON.—Dec. 5.—Schemes and tenders are invited for kitchen equipment (cooking appliances) at Baguley Lodge Sanatorium. Mr. James B. Broadbent, architect, 15 Cooper Street, Manchester.

CONTRACTS OPEN.

ALNWICK.—Dec. 14.—For erection of proposed Duke's school, Alnwick. Mr. T. Pickard, Estates Office, Alnwick Castle.

ANNFIELD PLAIN.—Dec. 7.—For additions to mixed school, Annfield Plain, Durham. Mr. Geo. Thos. Wilson, architect, 121 Durham Road, Blackhill.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., on personal application.

AYLESBURY.—Dec. 2.—For installation of a heating apparatus, with hot-water pipes, radiators, valves and fittings, at the town hall and public offices. Mr. J. H. Bradford, surveyor, Town Hall, Aylesbury.

AYLSHAM.—Dec. 2.—For conversion of dormitories into sick wards at the workhouse at Aylsham, Norfolk, installation of a hot and cold-water supply, heating by hot water, construction of invalids' lift and iron emergency staircase. Mr. John B. Pearce, architect, 15 Upper King Street, Norwich.

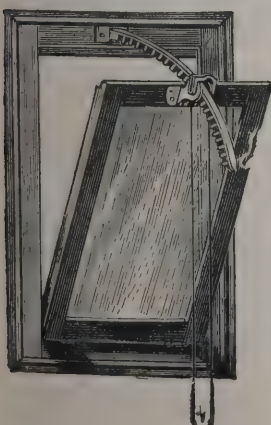
BAKEWELL.—Dec. 13.—For supply of turned and bored spigot and socket cast-iron pipes. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

BARKING.—Dec. 10.—For construction of a portable floor to the swimming pond at the public baths, East Street. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BARNSELY.—Dec. 5.—For erection of three dwelling-houses, stables, harness-room, &c., in Cope Street. Messrs. Senior & Clegg, architects, 15 Regent Street, Barnsley.

BETHNAL GREEN.—Dec. 10.—For water-supply works at the workhouse and for the infirmary, comprising—(1) Enlarging the existing well and lining with iron cylinders; (2) supply and fixing of two gas-engines and pumping machinery; (3) erection of water-tower; (4) supply and fixing of cast-iron tank, about 70,000 gallons capacity; (5) supply and laying of 6-inch mains, &c. Mr. G. H. Hughes, engineer, 97 Queen Victoria Street, E.C.

BIDEFORD.—Dec. 9.—For erection of infirmary buildings at the workhouse. Messrs. R. T. Hookway & Son, architects, Bridgeland Street, Bideford.



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Medals Awarded at the Building Trades Exhibition, London, 1887; International Inventions Exhibition, 1885; Adelaide Jubilee International Exhibition, 1887. [4]

BERWICK-UPON-TWEED.—Dec. 4.—For erection of a dwelling-house and shop at Reston. Mr. J. Lorimer Miller, architect, 39 Hide Hill, Berwick-upon-Tweed.

BIGGLESWADE.—Dec. 5.—For supply of one hand-pump for forcing and lifting liquid from cesspools to sewage van, with 2½-inch suction and delivery hose. Mr. J. Owen-Jones, surveyor, Biggleswade.

BIRKENHEAD.—Dec. 5.—For one or two new mild-steel Lancashire steam-boilers, 30 feet long by 7 feet diameter, to work at a pressure of 120 lbs. per square inch. Mr. J. W. M. Richardson, water engineer, Town Hall, Birkenhead.

BIRKENHEAD.—Dec. 11.—For laying a 14-inch pumping main, spigot and socket, lead joints, from Station Road, Hooton, to the reservoirs on Prenton Hill, Birkenhead, a distance of 6½ miles. Mr. W. Martin Jones, secretary, Cheshire Water Co., 9 Hamilton Square, Birkenhead.

BIRMINGHAM.—Dec. 5.—For reconstruction of Pershore Road Bridge. Mr. John Price, city surveyor, Council House, Birmingham.

BISHOP AUCKLAND.—Dec. 6.—For alterations to the Eden Theatre. Mr. F. H. Livesay, architect, Bishop Auckland.

BRADFORD.—For additions and alterations to warehouse, Church Bank Buildings, Vicar Lane. Mr. H. Hardaker, architect, Ivegate Chambers, New Ivegate, Bradford.

BRADFORD-ON-AVON.—Dec. 10.—For construction of new filter-bed, enlarging receiver, and consequent works at the waterworks, Winsley Road, near Bradford-on-Avon, Wilts. Mr. Sydney Howard, waterworks engineer, Town Hall, Bradford-on-Avon.

BRIDLINGTON.—Dec. 3.—For alterations and additions to Wellington House. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

BROADSTAIRS.—For erection of a house on the North Foreland Estate, Broadstairs. Mr. W. H. Woodroffe, architect, 32 High Street, Southwark.

BROMLEY.—Dec. 3.—For certain alterations and additions to the laundry buildings at the sick asylum, Devons Road, Bromley, Middlesex. Messrs J. & S. F. Clarkson, architects, 136 High Street, Poplar, E.

BROWNHILLS.—Dec. 2.—For alterations and additions at the Ogle Hay schools, Church Hill, Brownhills, Staffs. Mr. T. H. Fleming, architect, 102 Darlington Street, Wolverhampton.

BURNLEY.—Dec. 7.—For supply of electric-lighting plant, storage cells and switchboard; complete system of wiring and underground mains for the electric lighting of the work-house premises; steam, exhaust and water-pipe work, pumps, injector feed-water heater, valves, &c. Messrs. Shepherd & Watney, consulting engineers, Greek Street Chambers, Leeds.

BURY.—Dec. 17.—For construction of sewage-disposal works, comprising circular precipitation tanks, bacteria beds, channels, sludge tank and roads at Livsey Fields. Mr. John Haslam, town clerk, Corporation Offices, Bury.

CAMBERWELL.—Dec. 2.—For providing and fixing steam boilers, economiser, feed-water apparatus, steam and condense mains, cold-water storage tank, mains and branches, hot-water storage heater, mains and branches, waste-pipes and branches to slipper-baths, slipper-bath valves and all connections, laundry apparatus and machinery to public and establishment laundry, and heating apparatus, &c., complete, to the new public baths, laundry and library now being erected in Wells Street. Mr. Maurice B. Adams, architect, Clement's House, Clement's Inn Passage, W.C.

CANTERBURY.—For erection of three houses in Burgate Street, Canterbury, and other works in connection therewith, for the Dean and Chapter of Canterbury Cathedral. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CHISWICK.—Dec. 10.—For erection of certain additions at the polytechnic, Bedford Park. Mr. H. T. Wakelam, C.E., county architect, The Guildhall, Westminster, S.W.

CHESTERFIELD.—Dec. 13.—For construction of a storage reservoir upon the Bar Brook, between Totley and Baslow. Mr. R. F. Hartwright, clerk to Rural District Council, Chesterfield.

CLEETHORPES.—Dec. 3.—For drainage works and about 2,300 cube yards of excavation in connection with the lake. Mr. Egbert Rushton, engineer, Poplar Road, Cleethorpes.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

CROYDON.—Dec. 6.—For erection of extensions to the central polytechnic, Scarbrook Road, Croydon, and to the branch polytechnic, Selhurst Road, South Norwood. Mr. E. Mawdesley, town clerk, Town Hall, Croydon.

DARTFORD.—Dec. 3.—For erection of refuse destructor. Mr. W. Harston, surveyor, High Street, Dartford.

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DERBY.—For erection of brick and stone church in Shaftesbury Crescent. Mr. E. R. Ridgway, architect, Long Eaton.

DEWSBURY.—Dec. 2.—For supply of two 100-kw. dynamos. Mr. R. H. Campion, borough electrical engineer, Dewsbury.

DUNGENESS.—Dec. 2.—For erection of a new lighthouse, 08-signal house, &c., at Dungeness. Mr. E. G. Verity, 7 Great Marlborough Street, W.

ERITH.—Dec. 9.—For erection of an engine and boiler-house and a chimney-shaft; construction of sanitary work, water and fire services; rain and surface water drains, and approach roads. Mr. Chas. H. Fry, clerk to Urban District Council, High Street, Erith.

ESSEX.—Dec. 3.—For fitting-up new laundry now in course of erection, Lexden and Wintree union. Mr. G. H. Page, architect, Trinity Chambers, Colchester.

EXETER.—Dec. 2.—For erection of a crane at the Basin. Mr. G. R. Shorto, town clerk, 8 Southernhay.

FILTON.—Dec. 3.—For erection of station buildings, &c., at Filton, Gloucestershire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

GREAT STANMORE.—Dec. 4.—For fixing an oak park fence on the site of the proposed new isolation hospital in Honey Pot Lane, Great Stanmore, Middlesex. Mr. F. J. Seabrook, clerk, Council Offices, Edgware.

HACKNEY.—Dec. 5.—For erection of office buildings and coal stores at the municipal electricity works. Messrs. Gordon & Gunton, architects, Finsbury House, E.C.

HALIFAX.—Dec. 6.—For alterations and additions to bakery in Queen's Road. Mr. Medley Hall, architect, 29 Northgate, Halifax.

HERNE BAY.—Dec. 2.—For erection of twenty-five cottages in Minster Drive, Herne Bay. Mr. Ernest J. Hammond, architect, 3 Marlborough Buildings, High Street, Herne Bay.

HOLBORN.—Dec. 10.—For erection of the superstructure of three blocks of dwellings for the working classes on the Reid's Brewery estate, Clerkenwell Road. Particulars at the Architect's Department, Housing Branch, L.C.C.

HORNSEY.—Dec. 16.—For construction of about 1,200 feet run of 4-feet 6-inch by 3-feet egg-shaped brick outfall sewer, with side entrances, &c., and for supplying and laying of

about 480 feet run of 12-inch and 18-inch stoneware pipe surface-water sewers, with manholes, &c., in Harringay Passage, between Effingham Road and Hampden Road. Mr. F. D. Askey, clerk, Southwood Lane, Highgate, N.

HUDDERSFIELD.—Dec. 4.—For erection of a villa residence at Mount, Outlane. Mr. J. Berry, architect, 9 Queen Street, Huddersfield.

HUDDERSFIELD.—Dec. 5.—For pulling-down and removal of the existing bridge, and erection of a new steel girder bridge over the canal in Gasworks Street. Town Clerk, Town Hall, Huddersfield.

HUDDERSFIELD.—Dec. 7.—For additions to the tramway power station, Longroyd Bridge. The Town Clerk, Town Hall, Huddersfield.

HUDDERSFIELD.—Dec. 9.—For supply and erection of the following plant and materials in connection with their electric traction scheme for the Corporation:—Contract No. 1—Section 1, one vertical cross compound condensing engine; Section 2, 750 kw. traction generator; Section 3, boosters. Contract No. 2—Section 1, one Lancashire boiler and fittings; Section 2, steam and boiler feed pipes. Contract No. 3—Mechanical stoker and conveyor. Contract No. 4—Economiser. Contract No. 5—Switchboard. Contract No. 6—Overhead line equipment and car-sheds, wiring. Contract No. 7—Section 1, cables, &c.; Section 2, cable conduits. Contract No. 8—Section 1, car bodies; Section 2, trucks; Section 3, electrical car equipment. Mr. K. F. Campbell, borough engineer, Town Hall.

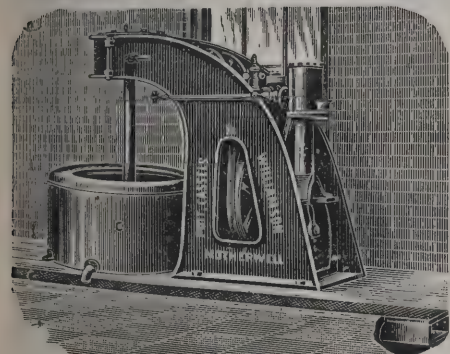
HULL.—Dec. 4.—For erection of premises, King Edward Street and Jameson Street, Hull. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowllalley Lane, Hull.

HULL.—Dec. 6.—For construction of a dock having a water area of about 50 acres, with lock and entrance from the river Humber, river embankments, drains, outfalls, &c. Sir John Wolfe Barry & Partners, 21 Delahay Street, Westminster.

HULL.—Dec. 9.—For erection in Great Passage Street of the Victoria Mansions for working men, containing 400 beds. Messrs. Gelder & Kitchen, architects, 76 Lowgate, Hull.

HULL.—Dec. 10.—For erection of a junior department at the Somerset Street Board school in Edinburgh Street. Mr. B. S. Jacobs, architect, Lincoln's Inn Buildings, Bowllalley Lane, Hull.

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IRELAND.—For erection of two houses at Sutton, co. Dublin. Mr. George F. Beckett, architect, 97 Stephen's Green, South Dublin.

IRELAND.—Dec. 2.—For erection of a villa residence at Fermoy. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—Dec. 2.—For erection of assembly buildings at Fisherwick Place, Belfast. Messrs. Young & Mackenzie, Belfast.

IRELAND.—Dec. 2.—For erection of a pair of semi-detached villas at Bandon. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—Dec. 2.—For erection of the new Gothenburg inn, at Ballywalter, co. Down. Mr. William J. Fennell, architect, Scottish Provident Buildings, 2 Wellington Place, Belfast.

IRELAND.—Dec. 4.—For erection of labourers' cottages, out-offices, piers and gates in various electoral divisions of the Mallow district. Full particulars can be obtained at the office of the Mallow Rural District Council.

IRELAND.—Dec. 5.—For extension of the main sewerage system to the Strand Villas at Youghal. Mr. W. H. Hill, jun., engineer, 28 South Mall, Cork.

IRELAND.—Dec. 9.—For erection of a villa at Myrtlefield, Malone, Belfast. Mr. William J. Fennell, architect, Scottish Provident Buildings, 2 Wellington Place, Belfast.

IRELAND.—Dec. 16.—For erection of a viaduct for a single line of railway over the river Barrow in the south of Ireland, for the Fishguard and Rosslare Railways and Harbours Company. Mr. G. Whitelaw, Secretary of the Fishguard and Rosslare Railways and Harbours Company, Paddington Station, London.

IRONBRIDGE.—For erection of a new shop-front and extensive alterations at wharfage premises, Ironbridge, Salop. Messrs. A. B. & W. Scott Deakin, architects, 12A Pride Hill, Shrewsbury.

KING'S LANGLEY.—Dec. 9.—For cleaning, painting and alterations and additions at the convalescent home, Leavesden Asylum, King's Langley, Herts. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment, E.C.

KING'S NORTON.—Jan. 6.—For erection of a refuse destructor at Lifford, near King's Norton, Worcestershire. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath, near Birmingham.

KENDAL.—Dec. 5.—For erection of farm buildings at Loft-house, Sedburgh. Mr. Stephen Shaw, architect, Kendal.

LANCASTER.—Dec. 3.—For erection of an infant school and additions to mixed schools, Skerton. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

LEAMINGTON.—Dec. 4.—For additions and alterations to the Pump Room baths. Mr. Leo. Rawlinson, town clerk, Town Hall, Leamington.

LEEDS.—Dec. 2.—For erection of a boundary wall, with wrought-iron palisading, at the new imbecile wards, Beckett Street. Mr. J. Mitchell Bottomley, architect, 13 Bond Street, Leeds.

LEYTONSTONE.—Dec. 3.—For extending the buildings at the electric-lighting works, Cathall Road, Leytonstone. Mr. William Dawson, engineer, Town Hall, Leyton.

LITTLETON.—Dec. 31.—For erection of a bridge in stone, brick and iron across the river Ash at Littleton, Middlesex. Mr. H. T. Wakelam, county engineer, the Guildhall, Westminster.

MACCLESFIELD.—Dec. 16.—For additions and alterations to the public baths, Davenport Street. The Borough Engineer, Town Hall, Macclesfield.

MANCHESTER.—Dec. 4.—For supply of electric plant at the Stuart Street generating station. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MAIDENHEAD.—Dec. 13.—For supply of electric-lighting plant as follows:—(Contract No. 4) steam, exhaust and other pipes, pumps, condensing plant, &c.; (5) balancing transformers and motor-generators; (6) storage batteries; (7) switchboard; (8) arc lamps and fittings; (9) cable work; (11) travelling crane. Messrs. Burstall & Monkhouse, engineers, 14 Old Queen Street, Westminster, S.W.

MIDDLESBROUGH.—Dec. 9.—For erection of a county court at Middlesbrough. The Secretary, H.M. Office of Works, &c., Storey's Gate, S.W.

NANTWICH.—Jan. 6.—For supply and erection of the following plant:—(Section A) boiler-house plant—one water-tube and one Lancashire boiler, fittings, steam and exhaust pipes, &c.; (B) engine-house plant—continuous-current steam dynamos, pumps, &c.; (C) switchboard, &c.; (D) underground mains, lamp-posts, &c.; (E) accumulators; (F) meters; (G) crane, &c.; (H) dust destructor. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

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- 163 STRAND -

VOLUME LXV. OF THE ARCHITECT.

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OSWESTRY.—Dec. 5.—For erection of business premises, Leg Street and Albion Hill, Oswestry. Mr. W. H. Spaul, The Gables, Oswestry.

PENGE.—Dec. 2.—For erection of a temporary iron fire station on site adjoining 130 Beckenham Road, Penge. Mr. Herbert W. Longdin, surveyor, Town Hall, Anerley, S.E.

PLUMSTEAD.—Dec. 2.—For the construction and erection of a steel lighthouse at Tripcock Point, near Plumstead, Kent. Mr. Charles A. Kent, secretary, Trinity House, E.C.

PRESTON.—Dec. 9.—For supplying and fixing plant connected with a steam blower and heater, electrically driven, at the laundry at the Fulwood workhouse, Preston, Lancs. Mr. Whitwell, engineer, Fulwood Workhouse, Preston.

RODLEY.—Dec. 5.—For construction of filtration tanks at Airedale Mills, Rodley, Leeds. Mr. Walter D. Gill, architect, 2 Summerville Terrace, Stanningley.

ROTHERHAM.—For erection of a new temporary school (to accommodate 200 school places), with fencing and yard paving, at Templeborough. Mr. James E. Knight, architect, College Street, Rotherham.

ROYSTON.—Dec. 3.—For erection of new classrooms, marching hall and other works, Royston, Yorks. Mr. Joseph Oldroyd, architect and surveyor, 16 Infirmary Street, Leeds.

SCOTLAND.—Dec. 2.—For works and materials required at the Corporation's new property at the junction of Woodlands Road and St. George's Road. Mr. Frank Burnet, architect, 180 Hope Street.

SCOTLAND.—Dec. 2.—For erection of eastern district hospital in Duke Street, Glasgow. Mr. John Baxter, architect, 243 St. Vincent Street, Glasgow.

SCOTLAND.—Dec. 14.—For erection of an electric generating station off Dunnikier Road, Kirkcaldy. Mr. William Williamson, architect, 220 High Street, Kirkcaldy.

SEVENOAKS.—Dec. 16.—For erection of an isolation hospital at Roundabout Wood, Sevenoaks. Mr. W. H. Ansell, architect, 11 Great James Street, Bedford Row, W.C.

SHOREDITCH.—Dec. 3.—For boring an artesian well at the public baths, Pitfield Street, N., and providing a pump for same. Mr. H. Mansfield Robinson, town clerk, Town Hall, Old Street, E.C.

SOUTHAMPTON.—Dec. 4.—For alterations and additions at the Ordnance Survey Offices at Southampton (second portion). Bills of quantities, with forms of tender, may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

SOUTHAMPTON.—Dec. 5.—For reconstruction of landing steps, No. 2, Town Quay, in ferro-concrete, and for the taking-down, providing new foundations, and re-erecting the 12-ton hand crane. Particulars may be obtained at the Harbour Office, Town Quay, Southampton.

STOURBRIDGE.—Dec. 17.—For erection of three additional purifiers, with elevator and conveyor, valves and connections on the gasworks. Mr. Wm. North, engineer, Gasworks, Stourbridge.

SUNDERLAND.—Dec. 4.—For construction of a cement retaining wall at South Back Bonners Field and the reinstating of the sewer and paving. Particulars may be obtained at the Borough Engineer's Office, Town Hall.

TOWCESTER.—Dec. 16.—For making a well and tank at the spring, supplying and erecting wind motor and pump, for the construction of a reservoir of 40,000 gallons capacity, and for providing and laying about 3,000 yards of mains. Mr. J. B. Williams, the Moot Hall, Daventry.

TYWARDREATH.—Dec. 17.—For erection of new schools at Tywardreath, Cornwall. Mr. J. Cook, clerk to School Board, Tywardreath, Par Station, Cornwall.

WALES.—For erection of three houses on Cemetery Road, Perth. Mrs. S. A. Edmunds, New Houses, Cornwall Road, Williamstown, Rhondda.

WALES.—Dec. 2.—For erection of a mixed and infant Board school at Lower Garndiffaith, near Pontypool. Messrs. Lansdowne & Griggs, architects, Newport, Mon.

WALES.—Dec. 2.—For erection of nineteen cottages at Quaker's Yard Junction, Glamorgan. Mr. Wm. Dowdeswell, architect, John Street, Treharris.

WALES.—Dec. 7.—For erection of sliding glazed partitions, new desks and sundry other works at the Park Street Board school, Blaenavon. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Dec. 9.—For erection of new departments for girls and infants at Bodringallt, Ystradyfodwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Jan. 10.—For re-erecting the Crown Bridge, which carries the road over the canal at Sebastopol, near Griffithstown. Mr. D. J. Lougher, engineer, Pontypool.

WALES.—Dec. 14.—For supply of plant to the electric-power station, Pontypridd:—(Section A) water-tube boilers, stokers and economiser; (B) (part 1) three steam-engines,

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WANDSWORTH.—Dec. 10.—For erection of four maisonette houses, Wandsworth Bridge Road Messrs. F. & W. Stocker, 99 and 91 Queen Street, Cheapside, E.C.

WARWICK.—Dec. 5.—For erection of a union infirmary and appurtenant buildings to accommodate 151 inmates and staff at Warwick, and the supply of steam, hot-water, cooking and other apparatus and fittings for the infirmary. Mr. F. P. Trepass, architect, 8 Jury Street, Warwick.

WESTBOURNE PARK.—Dec. 5.—For erection of block of offices, stabling and tenements at Kensal Road. Messrs. Pilditch, Chadwick & Co., architects, 2 Pall Mall East, Charing Cross, S.W.

WINCHFIELD.—Dec. 13.—For alterations and additions at the workhouse infirmary, Winchfield, Hants. Mr. H. Townley Sugden, architect, Eversley, Winchfield.

WOLVERHAMPTON.—Dec. 9.—For erection of ice factory and cold stores in Wulfruna Street. Mr. George Green, borough engineer, Town Hall, Wolverhampton.

WOLVERHAMPTON.—Dec. 9.—For alterations and additions at the town hall. Mr. F. T. Book, architect, Wulfrun Chambers, Darlington Street, Wolverhampton.

WOMBWELL.—For erection of a dwelling-house near Wombwell station, Yorks. Mr. John Robinson, architect, Wombwell.

WOMBWELL.—For erection of eight dwelling-houses near Wombwell Main, Yorks. Mr. John Robinson, architect, Wombwell.

YORK.—Dec. 5.—For alterations and additions to Burton Lane working-men's club. Particulars on application to the club secretary, Bootham Crescent.

THE Lincolnshire Wesleyans propose to build new churches at Kirton, Kirton Holme and Boston West, in the Boston Circuit. About 5,500*l.* has been promised towards the new extension scheme, which will cost 10,000*l.*

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BURTON-ON-TRENT.

For erection of twenty closets and asphalted playground at York Road, Church Gresley. Mr. JAMES W. ROWLEY, architect, High Street, Woodville.

A Hair	£584	0	0
E. Clarke	419	0	0
W. Mansfield	416	0	0
Holloway	397	2	3
T. Peace	352	0	0
H. SABINE, Queen Street, Church Gresley (accepted)	347	15	0

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For erection of three cottages in the Martyrs' Field Road. Mr. A. H. STEELE, architect, 1 Effingham Lawn, Folkestone Road, Dover.

Mount	£1,200	0	0
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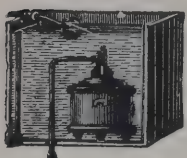
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CHALFORD.

For erection of an infants' school at Chalford Hill. Mr. V. A. LAWSON, architect, 17 Rowcroft, Stroud, Glos.

A. S. Cooke	£1,666 14 6
A King & Sons	1,645 0 0
Orchard & Peer	1,590 0 0
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DEVON.

For alterations at the baths and converting into a gentleman's club, Budleigh Salterton. Mr. ERNEST E. ELLIS, architect, Exmouth.

G. BENNETT, Salterton (accepted).

EASTBOURNE.

For construction of a passage between Queen's Gardens and Cavendish Place. Mr. R. M. GLOYNE, borough engineer.

A. HUDSON, Rossway, St. Leonard's Road (accepted) £92 0 0

EXMOUTH.

For alterations to premises, Rolle Street. Mr. ERNEST E. ELLIS, architect, Exmouth.

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J. W. Jessop, Huddersfield, painter.

IRELAND.

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W. Stone	461	18	0
A. Lewis	444	10	0
Smithdale	409	3	6
W. Bolton	399	4	0
R. Marriott	395	5	0
F. Barlow	379	0	0
W. Smart	336	15	0
A. Claypole	329	11	6
Lewin & Son	324	14	0
O. P. Drevor	284	19	11

Contract No. 2.

Mather & Son	1,667	9	0
R. Marriott	820	0	0
W. Stone	719	16	10
Smithdale	664	2	6
Jessop & Co.	662	0	0
Roberts & Son	652	4	6
F. Barlow	607	0	0
Salmon, Whitfield & Co.	593	2	6
W. Bolton	588	3	0
W. Smart	561	10	0
Lewin & Son	539	13	0
DIXON & FISH (accepted)	486	15	6

LYMPSTONE

For erection of stable and loft at Lymington, Devon. Mr.
ERNEST E. ELLIS, architect, Exmouth.
COOPER & SON, Exmouth (accepted).

LYMPSTONE—continued.

For erection of two cottages at Courtlands Cross, Lymington, Devon. Mr. ERNEST E. ELLIS, architect, Exmouth.			
G. Hooper	£650	0	0
W. H. Perry	635	0	0
W. H. Chown	620	0	0
Cooper & Son	620	0	0
H. Dart	555	0	0
E. G. Venman	550	0	0
N. Pratt	512	10	0
J. J. Lacey	500	0	0
R. B. PONSFORD, Exmouth (accepted).	490	0	0
A. Hayman (withdrawn)	449	0	0

LONDON SCHOOL BOARD.

For providing new classrooms, St. John's Road.

H. Wall & Co.	£3,414	0	0
Snewin Bros. & Co.	3,241	0	0
Treasure & Son	3,182	0	0
F. & F. J. Wood	2,966	0	0
C. Dearing & Son	2,932	0	0
J. Grover & Son	2,920	0	0
W. King & Son	2,879	0	0
J. Simpson & Son	2,840	0	0
Willmott & Sons	2,839	0	0
C. Cox	2,811	0	0
L. H. & R. Roberts	2,797	0	0
W. Shurmur	2,790	0	0
McCormick & Sons	2,780	0	0
Clarke & Bracey	2,752	0	0
G. S. S. Williams & Sons*	2,653	0	0

For providing three additional sixty classrooms for boys, girls and infants, &c., Basnett Road.

F. & H. F. Higgs	£3,190	0	0
Holloway Bros.	3,167	0	0
H. Wall & Co.	3,165	0	0
J. Garrett & Son	3,116	0	0
Lathey Bros.	3,087	0	0
General Builders, Ltd.	3,031	0	0
J. & C. Bowyer	2,954	0	0
E. P. Bulled & Co.	2,926	0	0
E. Triggs*	2,750	0	0

* Recommended for acceptance.

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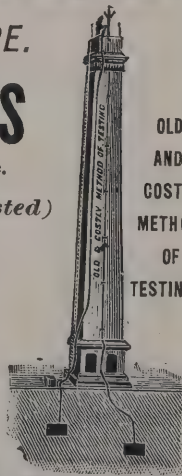
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W. G. Cannon & Sons	£320	0	0
Wippell Bros. & Row	320	0	0
G. Davis	278	10	0
J. Esson	262	10	0
Wenham & Waters, Ltd.	259	11	0
J. & F. May	259	0	0
H. C. Price Lea & Co.	256	0	0
M. Duffield & Sons	254	10	0
J. Wontner-Smith, Gray & Co.	250	0	0
Paragon Heating Co.	236	18	0
Vaughan & Brown, Ltd.*	227	0	0

For providing and fixing complete low-pressure hot-water apparatus to two halls, twelve classrooms, drawing classroom, cloakrooms, corridors and lavatories, Plum Lane (graded).

Wippell Bros. & Row	£699	0	0
W. G. Cannon & Sons	679	0	0
B. Harlow & Son	657	0	0
Paragon Heating Co.	575	0	0
Brightside Foundry & Engineering Co., Ltd.	567	0	0
Werner, Pfeleiderer & Perkins, Ltd.	483	10	0
Skinner, Board & Co.	462	0	0
Stevens & Sons*	460	0	0

For providing additional heating surface and providing and fixing auxiliary boiler, Gloucester Road (boys and girls).

Clark, Bunnett & Co., Ltd.	£695	0	0
Brightside Foundry & Engineering Co., Ltd.	517	0	0
W. G. Cannon & Sons	425	0	0
Stevens & Sons	360	0	0
Palowkar & Sons	339	0	0
J. Defries & Sons, Ltd.	324	0	0
Turner & Co	299	10	0
E. Oldroyd & Co., Ltd.	285	0	0
C. Seward & Co.*	274	0	0

* Recommended for acceptance.

TOTTENHAM.

For street works in Harold Road. Mr. W. H. PRESCOTT, engineer.

C. BLOOMFIELD, Tottenham (accepted)	£432	16	8
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MUSWELL HILL.

For sewerage works on the Rookfield estate. Mr. E. J. LOVE-GROVE, surveyor.

R. Jackson	£7,127	6	6
Myers, Gilson & Rose, Ltd.	6,961	10	7
J. A. Dunmore	6,948	1	1
Wilkinson Bros.	6,800	0	0
C. Ford	6,489	0	0
E. Rogers & Co.	6,427	0	0
T. Adams	6,356	18	10
E. T. Bloomfield	6,084	0	0
F. J. Coxhead	5,989	0	0
Johnson & Langley	5,960	0	0
D. R. Paterson	5,656	10	0
C. W. KILLINGBACK & Co., Camden Town, N.W. (accepted)	5,177	18	8

RADCLIFFE-ON-TRENT.

For construction of sewerage and sewage-disposal works at Radcliffe-on-Trent. Mr. W. H. RADFORD, engineer, Albion Chambers, King Street, Nottingham.

J. F. Price	£10,214	0	0
W. Pattinson & Sons	9,952	0	0
T. Smart	8,966	5	6
G. Bell	8,789	0	0
Lock & Andrews	8,694	11	10
S. E. Lucas	8,636	11	0
A. Jenkins	8,550	0	0
S. Richmond	8,442	0	0
Grisenthwaite & Newton	8,354	0	0
T. J. Hawkins & Co.	8,098	9	8
J. Ford	7,952	0	0
J. Holme	7,870	15	0
C. E. Carden	7,790	0	0
G. F. Tomlinson	7,775	0	0
H. H. Barry	7,770	0	0
Cope & Raynor	7,667	13	0
Johnson & Langley	7,291	18	11
BOWER BROS., Nottingham (accepted)	6,948	0	0

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For erection of twelve small houses on the Avenue estate.
Mr. FRAMPTON A. KNIGHT, surveyor, 2 Wetherby Terrace,
Earl's Court, S.W.

G Saint	£4,800	0	0
Holdstock & Mould	4,600	0	0
J. W. Jones	4,499	0	0
F. J. Trew	4,350	11	0
J. H. Matthews & Son	4,270	0	0
A. Ducat	4,080	0	0
H. & S. Kerry	3,809	8	2
T. Lawford	3,750	0	0
Howard & Ruffell	3,629	0	0
A. Woodiwiss	3,396	0	0

STAFFORDSHIRE.

For erection of junior mixed school, for the Hanley School
Board. Messrs. R. SCRIVENER & SONS, architects, Hanley.

Bennett Bros.	£2,720	0	0
J. Stringer	2,683	0	0
T. R. Yoxall	2,656	0	0
J. Bagnall	2,557	0	0
G. Ellis	2,500	0	0
Tomkinson & Betteley	2,497	0	0
Cornes	2,475	0	0
T. GODWIN (accepted)	2,415	0	0

UXBRIDGE.

For alterations and additions to the bacteria beds at the
sewage-disposal works at Cowley. Mr. J. FREEBAIRN
STOW, engineer.

A. HEWENS, Hayes, Middlesex (accepted).

WINDSOR.

For supply and laying of about 600 super yards of blue bricks
in South Place, Windsor. Mr. E. A. STICKLAND, borough
surveyor.

H. Burfoot	£281	6	0
Butcher & Hendry	264	10	0
A. H. Reavell	227	0	0
W. H. Wheeler	200	12	0
T. Slaughter	193	0	0
G. CHESSWAS, Isleworth (accepted)	175	6	2

TEDDINGTON.

For street works in Field Lane and York Road, and tar paving
of footpaths in Vicarage Road, Anlaby Road, Gomer Road
and Gomer Place. Mr. M. HAINSWORTH, surveyor.

Roadwork.

S. Atkins	£697	13	5
Mowlem & Co.	549	12	5
T. Free & Sons	505	19	0
S. Kavanagh	479	4	5
W. E. Constable	459	4	3
LAWRENCE & THACKER, Clapham (accepted)	440	13	10
W. Adamson	395	7	2

Tar-paving.

Mowlem & Co.	498	1	0
T. Free & Sons	460	15	3
W. E. Constable	379	15	8
J. Smart	367	1	3
North of England Asphalte Co.	366	6	6
Wainright & Co.	365	18	3
S. Kavanagh	361	0	10
East Acton Tar Paving Co.	359	16	0
Lawrence & Thacker	356	10	5
S. ATKINS (accepted)	307	0	3

A NEW ARTIFICIAL STONE.

WE hear that a new artificial stone, the invention of Mr. Wm. Owen, and essentially different from anything hitherto submitted to the public, will shortly be placed on the market. The ingredients of which it is composed are stated to be sand and lime solely, without admixture of chemicals of any description, and it is claimed that the product is a close-grained homogeneous material, hard, with true surfaces, which can be made to stand from 250 to 400 tons crushing strain per square foot—as may be desired for ordinary or special purposes. The finished stone can be masoned or carved. Cubes in the shape and sizes of ordinary bricks, blocks, sills, heads, ashlar, &c., in various tints can be made ready for use in six to ten hours, at a cost which has hitherto been unapproached. It is stated, moreover, that the apparatus requires very little manual labour. An artificial stone like this, if it fulfil all promises, should be of great value, and we shall probably be able shortly to furnish further particulars relating to it.

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THE FURNITURE TRADES MUSICAL SOCIETY.

ON Monday evening last the above Society held their first Bohemian concert of the season in St. James's Hall, Regent Street, W. The chair was occupied by Mr. James H. Faulds, who proved an excellent chairman. Mr. Marriner, the president, and the chairman both spoke very earnestly of the necessity of the trade combining together to protect their interests, and called attention to the fact that pleasant little meetings, like the present concert, helped to bring one and all together, giving them an opportunity of knowing and appreciating one another better. Mr. Marriner made an earnest appeal for the Trade Benevolent Fund, which was doing such good work, and which the Musical Society was endeavouring to assist. The objects of the association are as follows:—

To bring together the various members of the Furniture and Allied Trades (wholesale and retail) at certain musical entertainments during the winter months. The profits to be devoted to the charitable fund. The subscription is quite a nominal one, and all who are in any way interested in the Furniture and Allied Trades are eligible for election. The programme provided for the members and friends was a long one, and in every way excellent; the only drawback was that time passed much too quickly. Comprising as it did so many interesting or amusing items, it must not seem to be drawing invidious attention to mention specially two items—the singing of Miss Florence Machin and the performance of the Alexandra Mandolin, Banjo and Guitar Orchestra. The committee are to be congratulated warmly on their success, particularly the chairman of committee, Mr. Lampard, and Mr. Botwright (the proprietor, as Mr. Faulds put it, "of our bright little trade journal, the *Furniture Record*"). The next concert will be held in January 1902, and, judging by the enthusiastic reception accorded the announcement of the fact, it will be, if possible, even more popular than that which has passed.

SCHOOL OF ART WOOD-CARVING.

THE School of Art Wood-Carving, Imperial Institute, South Kensington, has been reopened after the usual vacation, and we are requested to state that some of the free studentships maintained by means of funds granted to the school by the Technical Education Board of the London County Council and by the Drapers' Company are vacant. The evening class is for the present closed, but to meet the requirements of those professionally engaged during the week a special Saturday afternoon class is held. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the manager.

TRADE NOTES.

WE understand that the fireproof quick setting adamantine plaster, manufactured by G. M. Restall & Son, of Birmingham, was used in the plastering of the new Hôtel Victoria, Nottingham. This hotel (one of the finest in the provinces) was formally opened some few days ago.

THE new gymnasium and institute, which is now in course of erection at Camelon, Falkirk, is being ventilated by means of Mackay's patent direct-acting ventilators, supplied by Messrs. Cousland & Mackay, ventilating engineers, Glasgow and Manchester. Mackay's air-inlet panels are being used for the admission of fresh air.

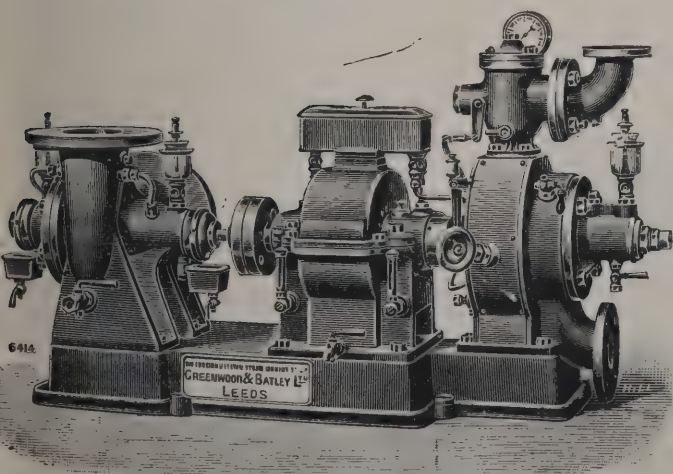
ALTHOUGH Messrs. Smith, Walker & Co., of 37 Old Queen Street, Westminster, S.W., only commenced business as a firm of constructional engineers in the early part of 1901, they have secured steel construction and concrete floor contracts to the value of over 10,000l., a sure proof of the confidence placed in them by the various well-known architects by whom their work has been specified. One reason for the success is the resolve of the firm to deliver steel and ironwork for buildings within the time guaranteed. To most architects this is an all-important point. Messrs. Smith, Walker & Co. are always prepared to give architects the benefit of their experience on all varieties of steel construction.

ELLISON'S "Hopper" Inlet Ventilator is already favourably known to many of our readers, a large number having been fixed in many parts of the country. As will be seen, it has an

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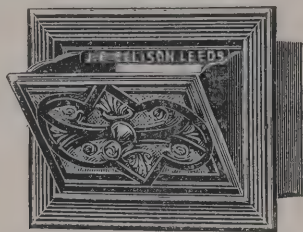
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ornamental appearance, and when closed is flush with the wall. It has, however, other merits to commend it. The movable part



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BUILDING AND BUILDERS.

PLANS have been passed for the proposed Port Glasgow post office, which is to be erected by Messrs. James M. Brodie & Co.

THE Folkestone Town Council is considering the erection of a dust destructor, suitable land having been offered at 1,500*l.* per acre.

WORK has just been started in George Street, Hull, in connection with the erection of a new theatre, which will be the third in the city. The existing theatres are the Grand and the Royal. The new theatre is in the same street as the Grand, and will be easily accessible to the dwellers in the growing eastern side of the city.

THE foundation-stone of the new Wesleyan chapel and schools at Pump Street, Worcester, was laid on the 21st inst. The new buildings will occupy the site of the old chapel, with a considerable added area, and, fronting the street, will have features of architectural beauty sadly lacking in the old plain brick structure. The total cost is estimated at 8,000*l.*

THE Guardians of St. George, Hanover Square, are about to apply to the Local Government Board for permission to expend 25,160*l.* on alterations and additions to the Fulham Road Workhouse. Within the past twelve months the

Guardians have expended nearly 100,000*l.* on extensions to the infirmary in Fulham Road. A large portion of the new expenditure will be for a new system of steam and hot-water supply and heating apparatus and for the provision of a steam disinfecter.

MR. J. VICKERS EDWARDS, C.E., West Riding County Council surveyor, has reported on the three schemes for widening the county bridge over the Calder at Kirkgate Wakefield. No. 1 scheme, for a steel girder bridge in a straight line from the bottom of Kirkgate to the south end of the existing county bridge, is "not within the range of practical politics." The cost would be 51,337*l.*, and the gradients would be awkward. No. 2 scheme, for widening the present bridge to 50 feet, would cost, say, 32,500*l.* No. 3 scheme, the widening of the bridge on the east or lower side to a similar width of 50 feet as in scheme No. 2, could be very easily effected and would undoubtedly be the cheapest scheme of the three (16,000*l.*). This would involve the rebuilding of the chantry.

VARIETIES.

THE Earl of Hardwicke will open the new Bethnal Green Conservative and Unionist Club, which is being erected at a cost of 4,000*l.*, early next month.

A NEW chapel and school buildings were opened on Saturday in Great Western Street, Moss Side, Manchester; they cost 2,400*l.* for erection.

THE new church of St. Thomas, which the Roman Catholics of Higher Broughton have built in Great Cheetham Street to replace the old building lower down the same road was opened on Sunday last.

THE bascules of the Tower Bridge will be raised for a week, commencing on Monday next from one to five o'clock in the morning, to permit the completion of the painting of the huge structure. The contract for the work is 4,600*l.* The Bridge House Estates committee have approved of the lighting of the Tower, Southwark and Blackfriars bridges by means of a system of high-pressure incandescent gas.

THE annual general meeting of the Glasgow Archaeological Society was held on the 21st inst. in the rooms of the Society, 207 Bath Street. Principal Story presided. The forty-fifth annual report, which was submitted, showed that the number of ordinary members admitted last session to the Society was 17.

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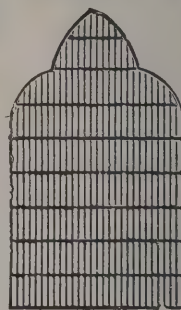
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The office-bearers were all re-elected, and thereafter a paper on "The Laws of Teinds, Oblations and Dues in the Mediaeval Church," was read by the Right Rev. Dr. Bishop Dowden.

THE Hull Queen's Memorial committee have had before them designs for the statue of Queen Victoria, to be placed in the Hull City Square. The joint production of Mr. H. C. Fehr, sculptor, and Mr. J. S. Gibson, architect, London, met with general acceptance, and was chosen. The cost of this statue, apart from the foundations, is estimated at 2,700*l.*, and 500*l.* is still required for the completion of the memorial. The total height of the monument from the street level will be 30 feet, and it will cover at its base 25 feet by 20 feet.

THE Thornton-Pickard Manufacturing Company, of Altrincham, announce that the judging of the photographs received for entry in their recent competition has been completed, and that cheques have been sent to the prize winners. That the popularity of the competition is increasing is proved by the greater number of entries, whilst the difficulty experienced in awarding the prizes shows that the general standard of work is more uniform than that sent in for previous competitions. The present competition was divided into three classes, in each of which five prizes were awarded, and the winner of the first prize in each class, respectively, was as follows:—For photographs taken with the Thornton-Pickard camera and shutter—First prize, 15*l.*, André Callier, 88 Chaussée de Courtrai, Ghent, Belgium. For photographs taken with the Thornton-Pickard focal plane shutter—First prize, 15*l.*, W. F. Brown, 180 Willis Street, Wellington, N.Z. For photographs taken with the Thornton-Pickard time and instantaneous and snap-shot shutters—First prize, 15*l.*, Misses Ella and Agnes Tomlinson, Fishbourne, Chichester. A new competition is being organised for 1902 under somewhat different conditions.

THE usual fortnightly meeting of the Glasgow Technical College Architectural Craftsmen's Society was held on Friday, 22nd inst., Mr. Jas. McKissack in the chair, when a paper entitled "Foreign Competition in the Building Trades" was read by Mr. Geo. Herbertson, measurer. The essayist held that the restrictions put by the combined action of workmen on the importation of foreign-made joinery, finishings and the like, was contrary to the spirit of free trade which is the policy of this country. He suggested that for rolled steel beams and Portland cement a certain standard should be specified, and let the material come from where it might. He deprecated the proposed boycotting by slate quarry masters in their attempt to keep out foreign slates. The paper proved to be of

exceptional interest, and was treated in a manner calculated to dispel any tendency to narrow views on the subject. A hearty discussion followed, opened by Mr. John Fairweather, and the thanks of the meeting were cordially conveyed to the lecturer.

ELECTRIC NOTES.

THE electric-lighting committee of Edinburgh Town Council have recommended that application be made to the Secretary for Scotland for power to borrow 90,000*l.* for the execution of capital works under the Electric Lighting Order, 1891. The same committee had intimated to them that from October 18 to November 21 application had been made for supply amounting in all to 6,495 eight candle-power lamps. There were 2,533 applications for lighting, 3,042 for motive power and 920 for heating.

AT a meeting of electrical contractors held in Leeds on the 23rd inst. it was decided to form a northern section of the National Association of Electrical Contractors, with the objects of the enlightenment of the general public on electrical matters, the raising the status of the skilled electrician, and the advancement of trade interests generally. Discussion ensued upon the best means to strengthen the hands of British manufacturers in their competition with foreign monopolies and trusts, and on the trading of municipalities with foreign firms. It was decided to hold a further meeting in Manchester in January.

THE AUCTIONEERS' INSTITUTE.

A LARGELY-ATTENDED meeting of the auctioneers of Hants, Wilts and Dorset was held at the Junction Hotel, Eastleigh, with the object of forming a branch of the Institute for the district. Amongst those present were Messrs. W. Bennett Rogers, the president (London); Mr. Roland Peck, past-president (London); A. W. Brackett, member of Council (Tunbridge Wells); A. A. Burnett, member of Council (Southampton); E. Bance, D.L. (Southampton); E. Hill (Portsmouth), G. A. Smith (Winchester), Wm. Harris (Winchester), E. H. Carper (Southsea), J. H. Drewitt (Fareham), A. G. Fox (Bournemouth), A. G. Pratt (Bournemouth), W. Burrough Hill (Southampton), P. Shenton (Winchester), A. E. Field (Southsea), T. Miell (Southampton), E. C. Gale (Lee-on-Solent), E. A. Scammell (Eastleigh), R. L. Badcock (Lymington), A. Osmond (Southampton), and Charles Harris, secretary

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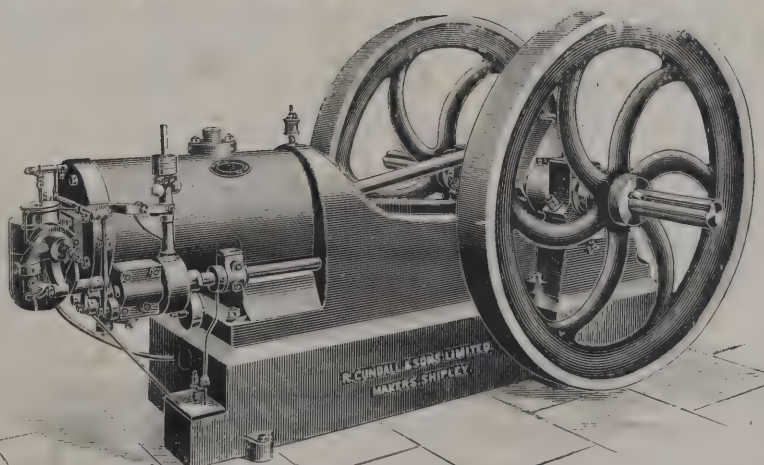
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(London). At lunch Mr. Burnett presided, and the loyal toasts were proposed and duly honoured.

The Chairman then proposed the health of the President, who, in reply, said it was a great pleasure to him to pay them a visit, as he held the highest opinion of these local branches, as he had proved their utility upon many occasions. The Institute was steadily growing in numbers and in the estimation of the public generally. In view of what had been said, he wished to reiterate that the greatest care was taken by the Council in the selection of members, and as regards the younger men, they all knew they had to undergo a searching examination. In that connection he would just say what pleasure it had given him a few days ago to present the first gold medal for merit at the final examination. The Council were engaged upon the application which they hoped shortly to make for a royal charter, and he felt sure the obtaining of this would add to their standing and position before the general public.

Mr. W. Roland Peck proposed the "Health of Mr. Burnett," who replied, and the business of the meeting was proceeded with under the presidency of Mr. Rogers.

The Secretary (Mr. Chas. Harris) having read the by-laws of provincial branches, Mr. Ernest Hall moved that a branch be formed and that it be called the Hants, Wilts and Dorset Branch. This was seconded by Mr. A. Field and unanimously agreed to.

Mr. Edward Bance said that as one of the original members of the Institute he must congratulate his fellow-auctioneers upon meeting together for the purpose of inaugurating this branch. The Institute was going in the right direction, and these branches would get it better recognised in various parts of the country.

Mr. A. W. Brackett gave an account of the formation of the Kent, Surrey and Sussex Branch, and said that, as a member of the Council, he could testify to the incalculable benefit these branches were to the parent Institute. The following provisional committee of the new branch was then elected:—For Southampton, Messrs. E. Bance, A. A. Burnett, W. Perkins; for Portsmouth, Messrs. Ernest Hall and G. E. Kent; for the Isle of Wight, Messrs. F. Pittis and H. J. Way; Salisbury, Mr. J. T. Woolley; Winchester, Mr. W. Harris; Bournemouth, Mr. A. G. Pratt; Dorchester, Mr. T. H. Enson; Basingstoke, Mr. W. A. Simmons.

The meeting terminated with a hearty vote of thanks to the President.

HOVE PARISH CHURCH.

ON All Saints Day the Bishop of Chichester consecrated the eastern portion of the new parish church of the borough of Hove. This marks the completion, says the *Guardian*, of the body of one of the largest and finest modern churches in the South, or indeed in any part of England. There still remain to be built the tower and the western narthex; but the interior, with the exception of the south-west corner where the tower will stand, is complete so far as the shell is concerned, though much is lacking in the way of furniture and decoration. To the student of modern architecture this church offers many points of interest. It was designed by the late Mr. J. L. Pearson, R.A., but does not present the features that we most commonly associate with his name. The series of great town churches which are the most characteristic productions of his genius have certain easily recognisable features which mark his style. They are generally groined throughout, and the groining is carried on a multiplicity of piers of light and elegant form, which afford to the spectator as he moves a series of ever-changing vistas. The proportions of the nave are narrow and lofty, and where width is desired the aisles are doubled. Tracery is sparingly used, and the details generally reflect the character of the early part of the thirteenth century. The choice of materials was necessarily governed by considerations of cost. These have generally led to the use of brick for the walls, with a sparing use of stone in dressings. But the inferior material has been so skilfully employed that what was in its essence a stone style has gained an added beauty by its use in connection with brick.

In the new church at Hove most of these characteristic features disappear. In the first place, the generosity of the founders of the church has made it possible to use stone throughout, and the adoption of a later style of architecture has led to the introduction of traceried windows on an extensive scale. Stone groining is sparingly used, being confined to the sanctuary, the baptistery and the south chapel dedicated to the Holy Ghost. In the place of groining, the nave and aisles are spanned by great stone arches, those over the nave rising to the height of 58 feet at the apex. The advantage of this arrangement is that, while much of the monumental effect of groining is preserved, great additional height is gained, no little advantage in a church with a nave 35 feet wide and an extreme width between the outer walls of 80 feet. Moreover,

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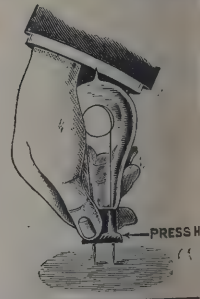
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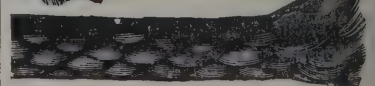
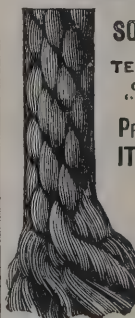


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oak roofs appearing between the arches give a pleasing variety of colouring, which is lacking in a church that is lined in stone throughout. The arcades, which are lofty and finely pointed, together with the windows and doorways, are elaborately moulded. We know of no modern church in England where the mouldings have been so elaborated. The design of the nave is continued in the chancel, except that the responds which carry the cross arches are advanced a little so as to reduce the apparent width, while in the sanctuary the width is further reduced and the apparent height greatly increased, there is greater richness in detail. The extreme length of the nave is 162 feet. The general effect is that of an unusually lofty and spacious church, with great solidity in the walls and piers, which produces in a spectator a sense of personal significance which is not often felt in a church under cathedral scale. The exterior appears less complete than the interior, the absence of a tower being keenly felt and the folding is not yet cleared from the east end. But the south transept presents a fine elevation, the five-light window in the north transept being particularly noticeable. In addition to the choir and priests' vestries, there is a large parish room contained within the building, and another room in the north transept, as well as lavatories and verger's room. The cost has been about 42,000*l.*, and the work is being carried out under the superintendence of Mr. F. L. Pearson, son of the original architect.

KING SOLOMON'S WELLS.

The following extract from a letter from Jerusalem, dated October 21, appears in the *Jewish Chronicle*:—"When I returned from Tiberias I found that the engineers had made great progress in laying the iron pipes to convey the water from Solomon's Pools to the city of Jerusalem. In one place near the north end of the Plain of Rephaim they found that the engineers in Solomon's day had resorted to the expedient of tunnelling the hill, in order to avoid a circuit round the shoulder of the hill of at least one and a half mile. This was a good idea, so the present engineers thought to make a kind of reservoir where during the night the water could accumulate, whence it would derive power to force itself into the city. The tunnel is very confined, measuring on an average 20 inches in height and in width about 20 inches, the bottom being cemented and forming a trough through

which the water used to flow. This bottom was to be cut down to a depth of 6 feet, and then the bottom and sides to be cemented and the ends closed up, except where the pipes were inserted to conduct the water into and out of this tunnel. As this tunnel was thus thrown open for the first time since it was vacated by Solomon's workmen, it created a good deal of interest and drew the people there to see it, and brought to light the very interesting fact that as the workmen of Solomon wrought they in some parts pierced the solid rock, and that they did not, therefore, need to provide a ceiling. Elsewhere, where it was not quite solid, they laid across the gap flat slabs sufficient to prevent anything falling into the water; again, in other places there was considerable pressure from above, and some means must be devised to resist this pressure, so the earliest idea of the arch had been resorted to; two slabs were reared on end, and on either parapet the tops were made to butt against each other thus, *Λ*, as was also the case between the sealed fountain and the pools. And lastly, the startling discovery was made that in one place where the pressure was the greatest because of the loose earth, the knowledge and use of a perfect arch, 12 feet long, was introduced. Probably this just-discovered arch is the oldest arch in the world, and possibly the use of the arch may have been discovered here, though the arch has generally been attributed to the Romans. There were small niches for the workmen's lamps, and the smoke therefrom was seen as clearly as though it had only been left yesterday."

THE INSTITUTE OF BUILDERS.

THERE was a large attendance of the members of the Institute of Builders in the drawing-room of St. James's Hall, Piccadilly, on Wednesday, the 20th inst. Representatives of the architectural, engineering and surveying professions were present. Mr. Charles Wall (president) occupied the chair.

Mr. Woodman Hill gave a lecture (illustrated), entitled "Submarine Construction by Diving and other Compressed Air Methods, Cylinder Sinking and Tunnelling under Compressed Air."

After briefly tracing the development of diving from the days of Aristotle to the time of the open helmet dress, first constructed in 1830, in the employment of which the lecturer subsequently had actual personal experience, he minutely described and illustrated the modern appliances used for

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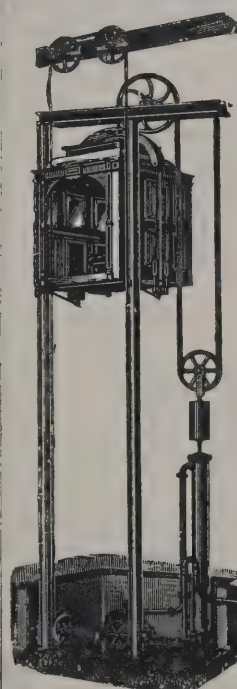
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diving, the various circumstances under which diving operations are undertaken, and gave valuable information as to the depths at which they are practically possible, and the type of men which is suitable for this class of work. He also referred to the attempts made to use artificial light under water, to the expedients used for establishing efficient communication between the diver and the surface, and to the great improvements made in this respect after the introduction and perfection of electrical appliances, improvements which would have been impossible without them. A complete modern diving-dress and helmet fitted with a telephone apparatus, and also a relic of former days in the shape of an original open helmet made by Deane, was to be seen in the lecture-room.

The advantages and disadvantages of bellwork were then next discussed and compared with the work of the individual diver, illustrations of actual works accomplished by both systems being given and explained. These were notably the building of the foundations for the Spithead forts, the construction of the foundations for the circular heads of the defensive harbour at Portland now in progress, and a typical example of a sea wall of concrete blocks founded on concrete in bags.

Works constructed of concrete blocks weighing 30 to 40 tons apiece, and the positions in which they are necessarily and successfully employed, were next dealt with, and the respective merits of staging with steam winches and of Titan travellers compared, illustrations being given of the staging, travellers, and bells employed in the construction of the various piers and breakwaters at Folkestone and Dover, and of a Titan traveller employed on a Russian breakwater, and the Titan setting the last block of the detached Mole at Gibraltar.

The chapter dealing with this branch of submarine work was concluded by referring to the construction of piers and breakwaters in the open sea by means of concrete in mass deposited in casings or large bags, almost all examples of which have proved unsatisfactory, Mr. Hill giving it as his opinion that, to construct submarine foundations in mass concrete successfully, would require it to contain so large a proportion of cement, that the work would be as expensive as building with concrete blocks in which the ordinary proportions of materials were used, and always more risky to execute.

Reference was then made to the rectification and deepening of the Channel at the entrance to the Hamoaze at Devonport, which was entrusted to and has been executed by the speaker's firm, and which necessitated the removal of portions of shoals

covering in the aggregate an area of more than 30 acres, depths of which varied from a few inches to 20 feet, and consisted almost entirely of limestone and shillet rock. drilling barges, boring appliances used in a bell worked compressed air, and dredgers which were specially designed and constructed for the work were illustrated, but only briefly described, as not coming within the scope of a paper on construction.

What may be described as land works requiring the employment of compressed air, on account of more or less elevation of water through the strata to be dealt with, were briefly entered into, and the methods of cylinder sinking, compressed air process, and the employment of these methods in dockwork and continuous quay wallwork abroad explained and illustrated. The instances mentioned were the construction of the foundations of the harbour of La Pallice at La Rochelle in France, the wharf walls in the Garonne at Bordeaux, and also dockwork on a large scale at Genoa. The author pressed his opinion that foreign engineers were much in advance of English ones in the employment of these methods.

Reference was then made to the dockworks at Keyhole where a portion of the main outer sea wall is being built of concrete columns sunk to the depth necessary to secure a foundation by novel and interesting methods. The lecturer concluded his paper by speaking generally but briefly of the methods he described as horizontal cylinder driving or tunnelling, compressed air methods, as found necessary in the gravel and sandy portions of the City and South London Railway, Waterloo and City Railway, the Tower Subway, and also in connection with the completed Blackwall Tunnel, which he described as the finest work of the kind in existence.

A vote of thanks, moved by Mr. T. F. Rider, seconded by Mr. John Greenwood, was passed to the reader of the paper.

THE WIDENING OF PICCADILLY.

The improvements committee of the London County Council presented on Tuesday a further report on the proposed widening of Piccadilly at the Green Park, and will recommend the Council to accept an amended scheme, under which the widening will take effect only from Hyde Park Corner to Grosvenor Street, instead of being carried on to Walsingham House, as first proposed.

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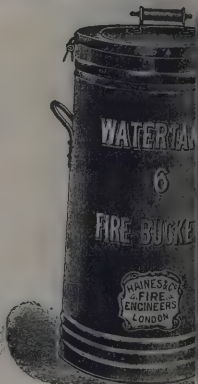
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The committee state that they have had a conference with Akers-Douglas and Viscount Esher, and have urged the First Commissioner to permit the Council to carry out the complete scheme, which was initiated by him, twice approved by the Council, and strongly supported by the City of Westminster Council and the Chief Commissioner of Police. The committee have since received the following letter from the Secretary of the Office of Works:—

"H.M. Office of Works, November 18, 1901.

Sir,—I am directed by the First Commissioner of Works to desire that you will express his thanks for the generous opinion which was accorded him by the improvement committee of the London County Council a few days ago. The First Commissioner is aware of the trouble and inconvenience caused to the London County Council by his inability, in face of the strong expression of opinion manifested after the scheme of widening Piccadilly had been laid before the public, to sanction the work, as originally agreed upon, to proceed. The First Commissioner does not think himself justified in recommending that a portion of a park over which the public have certain privileges should be thrown into the street, however desirable upon general grounds, without a consensus of opinion favourable to the scheme, unless a necessity is fully proved; but he is of opinion that, in view of the statement made by the Commissioner of Police in the letter of which a copy is enclosed, and of the concurrence of all those who have specially examined the subject, whose opinions are of great weight, he is fully justified in recommending, on his responsibility as a Minister of the Crown, the issue of a royal warrant to enable that portion of the scheme dealing with the widening of Piccadilly between Hyde Park Corner and a point opposite to or a little to the east of Down Street to be taken in hand. The First Commissioner therefore begs to forward an amended plan for the consideration of the London County Council, showing the limits of the scheme thus amended. It is substantially the same as that already sanctioned by the London County Council within the points mentioned; but he would suggest that the red line to the south be drawn as a line within which liberty of deviation be admissible, and that the ultimate width of the street should be settled between the engineer of the London County Council and the officers of this Department. The First Commissioner makes this suggestion in view of the probability that the exact limits of the plan originally proposed, when a full widening of the whole thoroughfare was contemplated, may not accord for

practical reasons with a curtailment of the plan. This can only be ascertained after a careful marking out of the ground, and the First Commissioner is anxious to interpose no further delay. Should the London County Council consent, in spite of the action which the First Commissioner has thought it his duty to take, to assist him in carrying out the scheme, no obstacles will arise to prevent the work, as soon as the London County Council are prepared to undertake it, from proceeding.—I am, Sir, your obedient servant, (signed) ESHER.—The Clerk to the London County Council." With his letter Lord Esher enclosed the following communication from the Commissioner of Police:—"Metropolitan Police, October 28, 1901. Dear Mr. Akers-Douglas,—I have carefully considered the point you mentioned to me on Friday in connection with the proposal to widen Piccadilly, and we are decidedly of opinion that it will be advantageous to vehicular traffic if Piccadilly could be widened from a point opposite to or a little to the east of Down Street to the end of the Park at the top of Constitution Hill. The block of traffic at the bottom of Hamilton Place has always been a great trouble, and now that it has been to some extent ameliorated by keeping the omnibuses going east in the centre of the road, the necessity for more space at that particular spot is very evident.

(Signed) E. R. C. BRADFORD."

After submitting the letters to the Council, the committee's report states that if the modified scheme now suggested be carried out, the arrangements contemplated in regard to the trees will remain unaltered. These arrangements were that seven trees should be transplanted, eight cut down, and forty-two left untouched, out of the fifty-seven trees affected by the improvement, while nearly twenty new trees were to be planted on the new footway near Hyde Park Corner. The estimated cost of the reduced scheme is £13,536, as compared with the £30,000 already voted by the Council for carrying out the original plan, which vote it is now proposed to cancel. Two months will be occupied in doing the work required by the reduced scheme. The recommendations were approved by the Council.

BUILDING WORKMEN.

AN interesting letter has been received by the *Times* from a working joiner in the North of England, who relates his experiences in the building trade. This is the brief account of his career which he asks thoughtful people carefully to consider.

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In the first place, I enter a shop as improver and am supposed to know nothing, or a little less, to start with, and after a few hours I am politely told that I must join the union or decamp. I object to certain clauses as to a standard rate of wages and other details, but, nevertheless, I am either to accept the situation or seek a "fresh shop." Circumstances are against me; I am compelled to accept the inevitable. Time passes on, and a master gives me sixty doors to frame and panel; my mate on the next bench has a similar number; the amount of labour involved, the style and size are equal. Now mine are sent down to the storeroom at the rate of 2s. per door, while my neighbour's are costing 4s. per door. Now this is the signal for a general boycott for me. I am scandalised the whole length of the shop; called a "sweater," a "master's man," and lo! be it said, there is no depth too low and no trick too mean for my shopmates to stoop to in order that I may by any means whatever be ousted from my post of labour. I hold to my post and eventually I rise to take the highest post possible in the same shop, that of staircase building and handrailing, and now things assume a different aspect altogether. I am told by my shopmates that I am a fool for studying and persevering in my pursuit of knowledge, and more particularly so since that for this advanced and arduous labour, in our part, I can demand not $\frac{1}{4}$ d. per hour above the standard rate of wages, and the man who cannot manage even to make an ordinary frame and sash can demand the same. Now, what is the reason of this? I am told "that for my work I am paid the standard rate of wages; what more do I want?" Now, sir, may I ask, where is there any incentive to advancement? To what purpose should I think or study for the benefit achieved? I must confess that to a man whose mind is dull and unfertilised there is none. And this cry is heard up and down the land.

Unavoidable circumstances compel me to leave this scene of labour, and the first shop I enter in my new sphere and commence to work, believe me, sir, I am not allowed to work one hour before I am approached and ask if I intend to work all day long at this "racket." To this inquiry I replied by asking whether I was not doing sufficient, and I am quickly told "Yes; too much by one-half." Here I am called a "fool" and a "pacemaker," and pressure is brought to bear with a view to limiting my output, the chief cause for this being "that if I continue to assert my individuality the boss would expect all the men in the shop to do the same." I need not say that my stay in this shop was of short duration. I enter

another shop, and at the close of my first day's lab. I am surrounded by my fellow-workmen and told again that I was a fool for doing so much in one day, and that the job I had done should at least have lasted me three days. It could be bought in any town in England for a paltry 16s., and yet to the mind of a knowing unionist ought to have lasted me three days, and for which my master must have paid in wages alone 17. 0s. 3d. If such things as these have mentioned do not tend to limit a man's output, would you call it? It may be argued that this is an isolated case, but I would remind my objectors that a multitude is made up of individual units, and also that there are hundreds of men whose morals are pure, whose intentions are honest, who are positively ashamed to leave their work on a night, and in the heart of hearts are thoroughly disgusted with the state of affairs altogether. They know, and that only too well, "though they are powerless to relieve it," that, so far as labour in connection with the building trade is concerned, the State of Denmark is rotten to the core.

Mr. W. Emerson also writes:—

The details of the working of the labour unions, and the principles guiding the workmen that have been explained and discussed in your columns can, if correct, cause only a feeling of intense sadness in the minds of thinking persons.

It is not the fact only of the increase of cost to the ratepayers and the community in all public and private works or the way in which the union principles of labour may be upon the poor by the increased rents they must have to pay for their housing, if the guiding principle during construction has been not the most and best a man can do, but the vilest possible for the money earned. But there is a far more serious question, and that is the necessary demoralisation of the workmen themselves caused by such action. No man can pervert and bastardise the powers and energy with which he has been endowed by working in a way which "sacrifices time, talent, labour, honour, principle and life at the altar of mammon," as seems to be encouraged by the trade unions, if the accounts in your columns are true, with the worst moral deterioration; and as this principle appears to govern not only the building trade but most, if not all, other branches of British labour, it must affect the bulk of the work masses—in other words, the bulk of the British nation is being demoralised by means of an organised system.

If this goes on and better influences do not prevail, how will this moral deterioration affect our country if in some future

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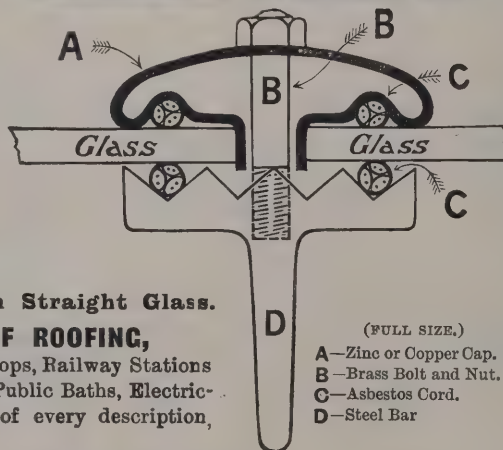
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we find our nation face to face with adversity, or some great national peril?

May Heaven help us then.

But there seem many signs that the best men are getting tired of a system which restricts the diligent and earnest workers to the output and level of the worst and most incompetent amongst them.

LIGHTING AND WATER SUPPLY IN GLASGOW.

On Saturday, the 23rd inst., in different districts of the city lectures were delivered by officials of the Corporation on the water and gas supply of the city.

In the public hall, Maryhill, Mr. Robert Wilson, treasurer of the Water Department, lectured on "The Waterworks of Glasgow, Past and Present." He began, says the *Glasgow Herald*, by giving a brief historical sketch of the water supply of Glasgow since the beginning of last century. Prior to 1804 Glasgow, he said, had to depend on public wells for the supply of water. The population was 92,000, and there were only one thirty public wells, but of course there were a good number of private wells. In that year an enterprising citizen started waterworks, and drove large barrels of water through the streets, for which he got a ready sale. In fact, the demand for the water was so great that it was estimated the adventure yielded him about 4,000*l.* per annum. He also fitted up hot and cold-water baths in Bath Street, from which the street derived its name. The water in some of the wells was not safe to use, and at many of the wells could only be obtained at great inconvenience, as they were only open at certain hours, and people had to wait their turn. Various attempts were made at that period by the magistrates to get a better supply, and in 1806 the Glasgow Water Company was formed and power granted from Parliament to get a supply of water from the Clyde. In 1806 a rival company was started; but in 1838 both companies amalgamated, and the Glasgow Water Company supplied the city themselves. Mr. Wilson then traced the gradual growth of the works and the means adopted to supply the best possible water, after which he referred to the great opposition and expenses incurred before the Loch Katrine water was introduced in the year 1859. Her late Majesty Queen Victoria performed the opening ceremony on October 14, 1859, and in March 1860 the supply was general

over the whole city, and the engines at Dalmarnock were stopped. The lecturer then took his audience (by the aid of limelight views) to visit the Gorbals Works and Loch Katrine Works, showing the various lochs from which the water is obtained, the sluices at Loch Katrine, the old and new aqueducts, aqueduct bridges, reservoirs, &c., showing the great skill and expense entailed in carrying out these undertakings. The total length of the new aqueduct was 23½ miles, and the cost of the tunnel through the rocks was from 27,000*l.* to 30,000*l.* per mile. The first aqueduct opened in 1859 was 8 feet wide and 8 feet high; the second, opened in June last by the Lord Provost, was 12 feet wide and 9 feet high. Both aqueducts combined would be capable of conveying 110,000,000 gallons per day when that quantity was required. If Loch Katrine and Loch Arklet were not able to supply that quantity, then additional water could be brought into Loch Katrine from the adjoining valley of Loch Voil and Loch Doine; 110,000,000 gallons would fill a canal 30 feet wide and 6 feet deep for nearly 19 miles. The area of distribution extended from Mount Vernon on the east to the outskirts of Renfrew on the west, a distance of 11 miles, and from Milngavie on the north to Barrhead on the south, a distance of 15 miles. The total cost of the works to date was 3,907,578*l.*, of which about 1,300,000*l.* had been spent in the new reservoir and aqueduct works. The debt was being paid off by sinking funds, and 1,075,628*l.* had since 1870 been wiped out. The population supplied at present was 1,057,833, and the average quantity of water supplied last year was 56,345,000 gallons per day, equal to 53½ gallons per head per day. The revenue drawn last year was 216,512*l.* The domestic rate, which at one time was 1*s.* 4*d.* per 1*l.* within the city, was now 5*d.* Supplies by meter had been reduced from 1*s.* per 1,000 gallons to 4*d.*; thus hundreds of thousands of pounds had been saved to the citizens through the reductions in rates. He concluded by paying a warm tribute of honour to those men who forty years ago, in face of great difficulties and in spite of strenuous opposition, carried through to a successful issue the Loch Katrine Waterworks. The lecturer received a cordial vote of thanks.

Mr. Alexander Wilson, manager, Dawsholm Gasworks, delivered his lecture in Pollokshields Public Hall. Treasurer Murray presided. Mr. Wilson began by referring to the time when, little more than a hundred years ago, Murdoch made his wonderful discovery as to the value of gas in coal, and when Sir Walter Scott, Sir Humphry Davy, Wallaston, the scientist, and others made merry over Murdoch's seemingly

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mad notions. He sketched the early movements for the introduction of gas into our own city. The year 1805 saw the first shop lit by Mr. Lumsden, bookseller, with gas made on the premises. Twelve years later the matter of gas-supply was taken up seriously, and a company was formed with borrowing powers to the extent of 40,000*l.* to light the town and streets with "inflammable air." The holder then built, capable of accommodating 25,000 cubic feet of gas, was the largest in the kingdom. Great was the excitement when the first shop was lit from these works in the year 1818, and on September 5 in the same year Glasgow's first street lamp was lit. That the gas industry made rapid strides in the early days was evident from the following dates and amounts of additional capital required:—1822, 40,000*l.*; 1825, 25,000*l.*; 1826, 50,000*l.*. The first Tradeson works was completed in 1838 at a cost of 20,000*l.*. Five years later the City and Suburban Company fought issues with the old company by erecting Dalmarnock Works. It was in the year 1869 that both companies were absorbed by the Corporation. The great increase in our gas industry since then would be apparent when it was stated that in 1870 the yearly make was but 1,295 millions, whereas last year the make amounted to 6,121 million cubic feet of gas. During that period the gross revenue had risen from 235,700*l.* to 870,000*l.*. Dawsholm Works, the largest of our stations now in operation, contains 2,112 retorts, and during last year 300,000 tons of coal were carbonised. Over 1,000 men are employed at Dawsholm in the winter months, and the wages bill for the year amounts to 62,000*l.*. To meet the increasing demands new works are being presently erected at Provan, on the lands of Easter Blochairn, and a portion of Blackhill and Germiston estates. These new works when completed will cover an area of 131 acres. There will be four distinct sections, each capable of producing 12 million cubic feet per day. The lecturer then gave an interesting description of the different processes of gas-making. In conclusion, Mr. Wilson said that gas, although one of the most useful necessities of modern life, and supplied at a low cost, was used and paid for generally in anything but a thankful spirit. Most people had the idea that payment of gas bills was on the same level with payment of taxes. This idea seemed to have got crystallised into the mind of the public, and no doubt accounted in a large measure for the indifferent treatment which gas often receives. If gas had to be bought at a shop like any other household commodity and carried home for consumption, and a fresh supply procured as

soon as the stock ran low, what a different value would be upon it. If gas consumers would only bring the same amount of common sense to bear on the use of gas by trying to get value out of it, as they did with the other commodities, they would save money and have much better lighting. The lecturer demonstrated his contention by an exhibition of dull, dim light procurable from the flat-flame burners as compared with the splendid illuminations to be obtained by the use of incandescent burners and mantles. Reference to public lighting, Mr. Wilson said great advances had been made, but that little evidence of this was to be seen coming as yet in Scotland. Glasgow, one of the most advanced cities in many respects, was far behind in the matter of street lighting. One of the engineers at a recent congress said that the lighting of Glasgow streets was deplorable, and described the means employed as a lot of lights and flickering blue-bottles. Other cities in England and especially abroad, were taking full advantage of the improved methods of street lighting, but the authorities in Glasgow seemed content with some experiments in the streets, using in most cases old, out-of-date lanterns, which were quite unsuitable for the modern system of lighting.

On the Continent, with gas from eight to twelve candle power, the streets in the largest towns were brilliantly lighted by the incandescent gas system. In one district alone in the south of London over 17,000 out of a total of 22,000 lamps had been altered within the last few years from flat flame to incandescent lighting, and invariably with properly constructed lanterns, as it was found that a great deal of light was wasted by the old style of lantern. High-power lighting similar to that used in the Exhibition grounds had been adopted for many of the principal thoroughfares, crossings and bridges, and was giving much satisfaction, the places especially mentioned in this connection being Liverpool, Sheffield and Newcastle. The lecturer also made reference to our public halls. He advised that the decoration of the halls should be arranged so as to assist the lighting, at present in many cases the colours used tend to absorb rather than reflect or diffuse the light. During the lecture over 100 slides were thrown on the screen, and many exhibits were shown of incandescent burners suitable for home, the hall and the street, including the Welsbach and Scott-Snell intensifying burners, the latter mainly being suitable for large buildings and for outside lighting. Mr. Wilson received a vote of thanks for his interesting lecture.



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The Architect.

THE WEEK.

So much has been said of late about the advantages to architects from the alliance of provincial societies with the Royal Institute, it was, we suppose, unavoidable that the influence of the organisation on the First Commissioner of Works should be tested. The occasion was not entirely opportune, for it was not to be expected that a Minister, after arriving at a decision by an anxious course of reasoning, should on demand confess that his labour was in vain. Besides, the case selected by the allied societies was somewhat indefinite. It was proposed to entrust the carrying out of the late Mr. BRYDON'S plans for the Government offices to some living architect who was in sympathy with him, but there was not enough courage on the part of those who got up the memorial to name the individual who was contemplated as his *alter ego*. Mr. AKERS-DOUGLAS replied that he did not believe so self-sacrificing an architect was to be easily discovered, and there was common sense for the conclusion. The attempt to exercise control over the Commissioner having failed, architects unfortunately will have to accept the consequences. Hitherto it was possible to believe that an architect, should a dispute arise with a client, had some powerful organisation at his back to uphold him; but it is now apparent to all England that no such protective force exists. An architect must henceforth submit to be regarded as a constituent of a mass that is not valued by men in authority. Already several provincial papers are turning some of the assertions in the memorial into ridicule, and warning their readers against the declaration of the combined architects that "it is only during the execution of his building that the architect himself arrives at the true development of his original conception." Clients will, of course, interpret the words as meaning that they must not assume the commonest building can be properly represented by the plans which the architect prepares, or the quantities which are based on them. Unknown, if fine, developments are to arise for which he will have to pay. That is not a satisfactory result of organisation. The affair will, however, enable presidents of societies to display their eloquence in explaining their courage against the Office of Works, and it will also form an important item in annual reports.

A DECISION which has been given in the Court of Appeal of Montpellier must be ominous for French architects, and we hope will never be adopted in English courts. An architect had claimed 5 per cent. on the cost of the works for the erection of a house which amounted to 163,000 francs, but the defendant refused to pay the percentage on a larger sum than 90,000 francs, the amount of the architect's estimate. The court decided that architects' fees should be based upon the "devis primitif," or original estimate. It was admitted by the judges that it is not possible always to fix the architect to an amount that would be absolutely rigorous, but that the proprietor had the right to demand an approximate valuation of what was to be executed, otherwise the expenses might grow to an amount which would cause much inconvenience or even ruin. The neglect to protest against expenditure was excused, as it was said the proprietor could not well do so during the progress of the works, for if they were stopped he would also suffer inconvenience. But he could not be compelled to pay for an estimate which was incorrect, or for the want of foresight on the part of the architect when planning and making preliminary arrangements. In England it is generally accepted that percentage will be paid on the total outlay, but some public bodies have of late years passed resolutions to the effect that commission will not be allowed on any excess of a prescribed sum, and, of course, a similar arrangement can be entered into by individuals.

READERS of CARLYLE'S "French Revolution" will find in the reproductions of the drawings by JEAN LOUIS

PRIEUR, which are published in the two last numbers of *L'Art*, the most graphic illustrations of the memorable events which have hitherto appeared. Little is known about the artist. He was born in 1759, and was the son of a "ciseleur du roi" or engraver on metal. The young PRIEUR was a political enthusiast, like many artists of the time, and appears to have been closely allied with the terrible FOUQUIER-TINVILLE. He wished to display the history of the Revolution by means of paintings and engravings, and for that purpose made drawings of the events of which he was a spectator. He was one of the judges of the Revolutionary Tribunal, and it was charged against him that he sometimes made caricatures of the accused. His drawings might not in all cases be included in that category, but he certainly sketched the prisoners who came before him. As was to be expected, he shared the fate of other judges and came under the guillotine. His widow offered to the Government a collection of his drawings, and twenty of them were accepted. But somehow those remarkable historic documents have been ignored for a century, and their republication now excites intense interest. One of the characteristics of PRIEUR'S work is the care taken in the representation of buildings, and it is sufficient to warrant the statement that he was an architect. The plates are, however, only a part of the valuable illustrations which appear in each number of *L'Art*. Not satisfied with enriching the public with single numbers which are volumes, the Director has just given the most amazing of his gratuitous "primes," being a large size etching by M. ADOLPHE LALAUZE of a *pastorale* by PETER, and which alone is worth more than the sum charged for a year's subscription. M. PAUL LEROI is to be congratulated on the success which his extraordinary liberality has gained.

It is generally held that competitions of an artistic kind do not suit the German nature. Every artist, whether he is a painter, sculptor or architect, is well taught, and it is, therefore, easy for him to summon up reminiscences of countless works by other artists whenever he attempts to design. But as all the artists who engage in a competition arrive at a conclusion by the same process it is not very probable that there will be much difference between the sketches or models which are produced. This fact is apparent from the large memorials of the campaign of 1870 to be seen in various cities of Germany, and which have a familylikeness which is unmistakable, if monotonous, to a stranger. The same peculiarity was exhibited in the competition for the Wagner memorial, which has just been concluded in Berlin. The character of the great composer was well known to his countrymen, and all his works have been heard in every German town where there is an opera house or even a theatre. WAGNER'S devotion to Germanic myths also appealed to theories of art which are common with German artists, for they were in keeping with the muscular men and women which for many years have been the ideals in all academies and schools of art. Herr EBERLEIN, the sculptor, has been successful, and we presume his model will be executed. To say it is correct in all its parts may seem faint praise, but it cannot be asserted that the artist was favoured by inspiration, and his group does not suggest any new ideas about WAGNER and his works.

It is with regret we announce the death of Mr. C. J. INNOCENT, of Sheffield, which occurred on the 30th ult. Last week it was mentioned that he had taken his son into partnership. Mr. INNOCENT was in his sixty-second year, and since 1862 he has been in practice in his native town. In 1871 he was appointed architect to the local School Board, and about twenty of the schools were erected from his plans. He was also engaged as architect by the Board of Guardians and other public bodies. Mr. INNOCENT served the Sheffield Society of Architects and Surveyors by acting as honorary secretary, and he was elected President a few years ago. Until the time of his illness he was in active practice, and was much respected in Sheffield.

BYZANTINE EGYPTIAN ART.

IN an article entitled "Duality of Egyptian Art," which appeared in *The Architect* of September 6, we endeavoured to explain one remarkable peculiarity of the ancient Egyptians. That was their belief not only in the immortality of the soul, but likewise in the immortality of the body. As the artists were able to lend themselves to the Egyptian anticipations of a return to earth, they were largely employed in the furnishing of tombs. We said:—"The multiplicity of Egyptian works of art was, therefore, indispensable, because they ministered not only to a visible state of existence, but also to one which was veiled to most eyes. The undiscovered country from whose bourne no traveller returns was not recognised by any orthodox Egyptian. The travellers he was assured, came back. Affection might in some cases dictate that provision should be made for their relatives' needs when revisiting the Nile Valley, but every prudent Egyptian took care to be independent of the memories of his children and friends. He made preparations for the reappearances to which he was destined." The preparations to which we referred were mainly of an architectural character, as they would appeal more strongly to our readers. In many of the tombs there were, for example, models of temples or shrines, and in the oldest class of tombs there was sometimes a doorway or a table or some other article which recalled the terrestrial life of the defunct person. The conclusion we came to was "that there was a wider field for artistic labour in Egypt than in any other country, and that the demand for the services of artists arose because, unlike the custom in most other countries, ancient or modern, they had to gratify not only the living, but, as was supposed, the departed Egyptians also."

In the last number of *L'Art* the subject is considered from another point of view by M. A. GAYET, in an article on "La Peinture Byzantine en Egypte." It was only after the Roman occupation that Byzantine influence could be exercised in Egypt. But there is much to prove that the old belief to which we referred in "The Duality of Egyptian Art" was still effectual in spite of the number of centuries which had elapsed and the modifications to which the religion of the people was subjected.

M. GAYET begins with describing the peculiarity of the personality of the "double," which sometimes was believed to animate a figure of wood or stone if it bore more or less resemblance to the subject when he or she lived in Egypt. This credulity, which lasted fifty centuries, had the effect of substituting realism for conventionalism, for we can imagine that the artist would endeavour to produce a faithful likeness in proportion as the heirs, executors and administrators of the departed person were willing to pay for the labour required over details. M. GAYET says that Christianity when it gained a footing in the country was unable to transform the traditional theory of a future life among the Egyptians. There was a simpler form of burial. Embalming was no longer necessary, but the body was enveloped as before in a great number of wrappings fastened by bands. In some districts, if not in all, the face of the corpse was covered with a panel of wood on which was painted a portrait, and a painting of the person was sometimes executed on the outer envelope. In the necropolis of Antinoë a burial-place belonging to one family was found, and in it was a large medallion portrait which was placed near the entrance. One of the corpses was so well preserved it was possible to test the portrait, and the fidelity of the likeness was undeniable. What is also surprising is that the costumes shown in representations bore a resemblance to those which are found depicted in wall-paintings and mosaics at Ravenna, allowance being made for the difference in the character of the figures. In Ravenna we see the emperor, empress, officers of state and courtiers, while in Egypt it was a less exalted class of people who wore the dresses. But in the embroidery and other ornamentation the affinity of the fashions of dress, too, is apparent. It is still more surprising to learn that the treatment of the figures and the colouring are declared by M. GAYET to recall the portraits of the Romantic school in France from the time of DAVID to that of PAUL DELAROCHE.

It is maintained by M. GAYET that the realism of the portraits was due to the primitive belief of occasional re-

appearances, and that the Greeks and Romans when they conquered Egypt adopted the Egyptian customs of burial. Plaster-masks were sometimes substituted for the wooden tablets; occasionally the mask was gilded, but more often it corresponded with the colour of skin. When Christianity gained power the mask was increased in size, so as to cover the chest, and in the case of women garlands of flowers surrounded the head and lay on the shoulders. In course of time the artists were enabled to paint, or rather to model portraits in wax, for in the grave-digging at Antinoë two of the knives have been met with which were used in the process. As it was believed the dead man or woman was in glory in another world, the use of gold became common, and is to be seen not only surrounding the head as a nimbus, but in the representations of jewellery. The costumes were produced with a fidelity which imparts almost as much interest to fashions as can be found in the portraits. One picture shown in *L'Art* is a medallion of about 2 feet diameter, on which we see two men, while behind them are two statuettes apparently of APOLLO and MERCURY. They wear Byzantine robes, and one of the mantles is fastened on the shoulder by a brooch. The type of face is in neither case Egyptian, and M. GAYET thinks they are Oriental Greeks. On one of the robes is a *suastica*. Another painting, which was discovered this year, is a portrait of a woman who holds in one hand a cross of a form which recalls the old Egyptian *ankh*, having a circle above the arms. Ancient Egypt is also suggested by the pattern on the robe. This is one of the most extraordinary paintings in existence, and although in the photographic copy the colours are wanting, we must be struck by the vigour of the execution and the vitality which is expressed.

These Egyptian figures are remarkable because they can be considered as the precursors of the sepulchral images which are found in Mediæval and Renaissance churches. In the European examples so far as we know all that was desired was to preserve a likeness of the person buried in the tomb or in a neighbouring grave. It is only in exceptional cases that portrait-statues were erected during the subject's lifetime, and the Egyptians may therefore be said to have set a fashion which has continued to the present day. Whether in other countries there was an independent incipience of paintings and figures which are faithful portraits is not yet determined. There are, for instance, in the Assyrian sculptures of the British Museum and the Louvre strongly marked types of character. To what extent the royal heads resembled the rulers cannot be ascertained. Some day discoveries may be made which will solve all doubts. It should be remembered that at one time it was generally believed the Egyptian artists produced conventional representations only, but the figures in the tombs have shown that they could likewise express the characteristics of individuals. In consequence there has been a reaction in the theories about art, and the tendency now is towards the belief that one class at least of Egyptian artists were genuine realists, and adhered to the models before them. Another question which must arise on seeing portraits like those found at Antinoë is, to what country did the portrait-painter belong? Were they Egyptians who accepted Byzantine treatment, as in our time the Japanese copy French and English forms, or had a great change at an earlier age occurred in Egyptian art which was developed in Greece and Byzantium, and which therefore at the beginning of our era would not be considered novel in Egypt? Questions like these cannot be now answered with confidence. For the archaeologist there is still corn in Egypt, and all who love antiquity must therefore rejoice that so many reverent experts are engaged in explorations which are likely to increase our knowledge of the ancient Egyptians.

We cannot conclude this article without referring to the interesting experiment which M. GAYET has just tried at Paris. In the Musée Guimet are two mummies which were lately brought by him from Antinoë. One of them is that remains of a girl named THAIS. She was not the love THAIS who, as JOHN DRYDEN said, sat by the side ALEXANDER THE GREAT, "blooming like an Eastern bride" but was a Christian anchorite who lived in the fourth century of our era. The body when found was richly clad, and a rush basket near it was a crown of roses, a palm-branch

and a rose of Jericho as a symbol of immortality. M. GAYET was not satisfied with the possession of the mummy, for he lately resolved that he would show by means of a living model how an Egyptian woman was dressed at the time on ordinary occasions and how she was prepared for the tomb. He was able to obtain the services of a figurante, who at his bidding clothed herself as THAIS may have done 1,500 years ago. The experiment was witnessed by a large number of Parisian ladies, and met with complete success. It proves that the knowledge of antiquity would be popularised if similar attempts were made to show the difference between past and present.

READING ABBEY.*

THE abbey of Reading is devoid of that romance which is associated with Melrose, Tintern, Fountains, Whitby and others, and to that cause must be ascribed the comparatively restricted interest which is taken in it. But the student of history finds more material at Reading on which to reflect than in the majority of similar establishments. This peculiarity arises in part from the extent of the evidence which has survived about transactions of which the abbey was the scene. In an architectural sense there is little of the ancient building to be seen. The hand of the vandal was unsparing, and only occasional stretches of wall remain to carry the mind back to the days when the abbey was an embodiment of ancient art.

The beginning of the construction was undertaken at a time when the massive Norman architecture was being transformed into Early English, and, unlike their Cistercian brethren, the monks were of a class who were not afraid to employ the style in all its beauty. The order of Cluny, or Cluni, that settled at Reading, stands out prominently in the religious life of the Middle Ages. It was one of the many branches of the great Benedictine tree. The abbey of Cluny, near Mâcon, was founded early in the tenth century, and HILDEBRAND, who was afterwards GREGORY VII., was one of the members. The introduction of the Cluniac monks into England arose almost by an accident. While on a journey to Rome WILLIAM of Warren, to whom Lewes and other possessions had been parcelled out by WILLIAM THE CONQUEROR, was forced owing to the robbers to take refuge with his wife in the monastery of Cluny. They were so impressed by the orderliness of the inmates that they prayed the abbot to supply a community for a monastery they were desirous of founding at Lewes. WILLIAM THE CONQUEROR had also offered inducements to the abbot to send over half a dozen of the monks. But the English were looked upon as a barbarous race, ill adapted to receive men of refinement, and it was only after much hesitation that four were despatched to Lewes. WILLIAM of Warren was so proud of the success of the negotiations that on his wife's tombstone he inscribed the remarkable boast that "she introduced into the churches of the English the balm of good manners." In his will the founder expressed a hope that the growth of the monastery would keep pace with the growth of his own family. This injunction was fulfilled, for in 1147 a second dedication took place at Lewes, which was rendered necessary by the large additions that had been made to the original building. The English houses were, however, ruled by Frenchmen, and when HENRY I. founded Reading Abbey seven monks with their Prior were sent over from Cluny, while only a few native brethren came from the monastery of St. Pancras at Lewes, probably to act as interpreters. Four years elapsed before the abbey was ready to be dedicated and receive its charter. As was usually the case, the abbey church was not completed until after the domestic requirements of the community had been attended to. It was consecrated in 1164 by THOMAS A BECKET. HENRY II. was present at the ceremony.

When the monks arrived on the scene Reading was, says Dr. HURRY, "a hamlet of thatched wooden houses, covered with straw and reeds, grouped round a little Saxon church, which, together with some of the cottages, was doubtless demolished in order to make room for the

monastery. There were only thirty homesteads within the burgh at the time of Domesday." We can imagine why Reading was selected as a site, from what Cardinal NEWMAN wrote of the Benedictines generally: "They were not dreamy sentimentalists," he says, "to fall in love with melancholy winds and purling rills, and waterfalls and nodding groves, but their poetry was the poetry of hard work and hard fare, unselfish hearts and charitable hands. They could plough and reap; they could hedge and ditch; they could drain; they could lop; they could carpenter; they could thatch; they could make hurdles for their huts; they could make a road; they could divert or secure the streamlet's bed; they could bridge a torrent. If their grounds are picturesque, if their views are rich, they made them so, and had, we presume, a right to enjoy the work of their own hands. They found a swamp, a moor, a thicket, a rock, and they made an Eden in the wilderness. They destroyed snakes; they extirpated wild cats, wolves, boars, bears; they put to flight or converted rovers, outlaws, robbers. The gloom of the forest departed, and the sun, for the first time since the Deluge, shone upon the moist ground."

There had been an earlier religious house at Reading, for HENRY I. in his charter gave it with two others, which had been "destroyed on account of their sins," as an endowment to his abbey. About 400 years afterwards the same reason was no doubt offered for the dissolution of the abbey. The abbot was then HUGH COOK FARINGDON, who gained the favour of both HENRY VIII. and THOMAS CROMWELL. But the king was fickle, and although the monk was described as "HENRY'S own abbot," he was in 1539 tried in his hall of justice and sentenced to death. The punishment took place at the abbey gateway. Two monks were also executed at the same time. FARINGDON'S treatment was the more remarkable as he was a mitred abbot, and therefore ranked as a baron. By the law of England he should have been tried before Parliament by his peers.

The abbey was regarded as wealthy. HENRY I. contemplated the admission of 200 monks, and the endowments were on a scale that would provide for so large a number. On several occasions money, gold plate and jewels were borrowed by kings. But it is also recorded that the abbot was sometimes in debt. Under HENRY VIII. the revenue was valued at 2,116*l.* 3*s.* 9*d.*, while Westminster was worth 3,997*l.* 6*s.* 4*d.* The abbey was allowed to have a mint, but little is known of the coinage. At the Dissolution an inventory was taken of the plate, which was valuable. But a house that was often visited by English kings and the great officers of State was required to offer its hospitality under costly conditions.

Gold plate to many modern censors will seem to be only accessories to a luxury that could not be considered as altogether suggestive of Christianity. What in our time appears far more interesting are the proofs we possess that the Reading monks were faithful to the ancient command about copying books. The manuscripts in the British Museum and Bodleian Library which were derived from Reading Abbey demonstrate the wide range of the calligraphists. Some reproductions in Dr. HURRY'S book show the style of writing. In the Museum are copies of the Biblical books, as well as commentaries on the Scriptures, histories, treatises on common law and theology, digests of Roman law, hymns, cartularies, chronicles, &c. One manuscript is described as having initials in red and blue, a miniature of the VIRGIN and CHILD with an adoring monk, and a full border with the arms of Reading Abbey. Dr. HURRY tells us that "the famous Rota 'Sumer is icumen in,' which has been described as 'the most remarkable ancient musical composition in existence,' although composed by a North-countryman, probably a Northumbrian, was first written down at Reading Abbey about the year 1225." The following lines from it are familiar:—

Sumer is icumen in,
Lhude sing Cuccu!
Groweth sed, and bloweth med
And springth the wde nu,
Sing Cuccu!

The Bodleian Library also contains several of the Reading manuscripts, and there are a few in the University Library, Cambridge. In one manuscript there is a refer-

* *Reading Abbey.* By Jamieson B. Hurry, M.A., M.D. London: Elliot Stock.

ence to 228 volumes which were possessed by the abbey. It is believed, on the authority of a description of the monastic library at Durham, published by the Surtees Society, that at Reading the books were kept in the cloisters.

Although the remains of the abbey are inadequate to exhibit the arrangements, archaeological research has enabled the plan to be traced out. The grounds are assumed to have been bounded on the north by the existing North Forbury Road, on the east by East Forbury Road, on the south by Holybrook and the river Kennet, and on the west by a line which ran through the present Berkshire seed establishment, the Town Hall, &c., to the junction with the northern boundary. The precincts enclosed about 30 acres and the entrances were by four gateways. The inner gateway still exists, and was restored in 1861 under the direction of Sir GILBERT SCOTT. It was in this building that the manorial court was held, and there the last abbot was tried and condemned. The abbey church was cruciform, with a very long choir. The monks of Cluny had no apprehension of the evil effects of art, for according to MONTALEMBERT, "The churches of the Order, always in the first rank for grandeur and beauty, were generally ornamented with paintings, probably frescoes." The chapter-house measured 79 by 42 feet, and was among the most important in England. The refectory is said by Mr. ALBURY to have measured 168 feet by 38 feet. The dormitory was 150 feet long. There was also a leper-house, a guest-house, a residence house for poor brethren, corresponding with the modern almshouses, an infirmary, workshops and other buildings. After the Dissolution the abbey buildings were converted into a royal palace by HENRY VIII., and it was occupied by EDWARD VI., Queen MARY and ELIZABETH. CHARLES I. lodged in it for a time during the Plague in London, and parts of the buildings were at the same time used by the King's Bench, the Court of Exchequer, and the Court of Augmentation.

It is remarkable, however, that demolition of some of the buildings began as early as 1550, when the abbey was utilised as a quarry. The remains of HENRY I. were cast aside to make room for a stable. Queen ELIZABETH granted the mayor and burgesses the right to dig, take and carry away 200 loads of ragged or free stones for the repair of nineteen ruinous bridges, and the old masonry was employed to mend the streets. In the Civil War the walls remaining were battered and demolished. But the supply of material seemed inexhaustible. In 1754 General CONWAY built a bridge with stones from the abbey. The structure was described by HORACE WALPOLE, his friend, as sublime, being "composed of loose rocks that will appear to have been tumbled together there from the very wreck of the Deluge. One stone is of 14 cwt. It will be worth a hundred of PALLADIO'S bridges, that are only fit to be used in an opera."

In 1835 what was left of the ruins, with some adjacent lands, were sold for 500/, and subsequent purchases enabled the site of the abbey to be secured against all further attempts at vandalism. The abbey, in fact, although only portions of the walls are left, will always be identified with Reading, and will recall the days when the agriculturists, artists and scholars from Cluny served as agents in the civilisation of "Berroc-scyre."

Dr. HURRY'S history is illustrated by views, plans, armorial bearings and copies of manuscripts. It may be taken as a model of its class, and will help to show how the archaeologist's inquiries can supplement the historian's. Whatever may have been the faults ascribed to the monks, they are deserving of kindly consideration on account of their love of architecture. Perhaps they realised that a fine building was a monitor, for as SCHILLER tells us, the temples of ancient Rome continued to be holy to the eye, although the gods were ridiculed and the crimes of emperors were rebuked by the edifices in which they were committed. It was art which preserved man's dignity in times of decadence. It is not to be believed that with noble buildings before them the Mediæval monks could have been so degraded as they are represented. Dr HURRY has collected enough evidence about the monks at Reading to give an idea of their character, and the conclusion must be drawn that they were at least equal to laymen in good conduct. They were not ascetics, but were generous in

their hospitality, and in England we hope that will never be considered a crime. Although the information in Dr. HURRY'S interesting volume relates mainly to Reading, it may be taken as having application to English monastic life in general, and the impartial reader is likely to say that although there may have been shortcomings in the men as in their buildings, both exemplified the progress of development in the Mediæval age.

THE NEW GOVERNMENT BUILDINGS.

THE following correspondence has passed between the Council of the Royal Institute of British Architects and the First Commissioner of Works:—

Royal Institute of British Architects, 9 Conduit Street, Hanover Square, London, W.: November 8, 1901

To the Right Hon. A. Akers-Douglas, M.P., First Commissioner of Works and Public Buildings, Storey's Gate, S.W.

Sir,—The Council of the Royal Institute of British Architects have taken the opportunity of their first meeting of the session to pass a unanimous resolution that representations be respectfully addressed to His Majesty's Government with regard to the present proposal to execute the new Government buildings in Parliament Street from the late J. M. Brydon's designs without the aid of a specially-appointed architect of repute

The Council, with the warm support of the presidents of all the architectural societies in the United Kingdom in alliance with the Royal Institute, whose names are appended as signatories to this letter, venture to express the earnest hope that even at this eleventh hour an architect in sympathy with Mr. Brydon's artistic ideals may be appointed to superintend the erection of this vast building, which, if not very carefully detailed in the spirit in which it was designed, will lose much of the grace with which Mr. Brydon, had he lived, would have clothed it. They would also, with all deference, point out that it is only during the execution of his building that the architect himself arrives at the true development of his original conception, so that, for the successful execution of work of this important character, the inventive genius of a sympathetic colleague of the original designer is essential.

The Council of the Royal Institute of British Architects earnestly and respectfully urge the above considerations upon the attention of His Majesty's Government.

We have the honour to be, sir, your most obedient servants
William Emerson, President Royal Institute of British Architects

Thomas Drew, Kt., President Royal Hibernia Academy (Member of Council, R.I.B.A.)

George C. Ashlin, President Royal Institute of the Architects of Ireland.

F. Marshall, President Sheffield Society of Architects and Surveyors.

S. Perkins Pick, President Leicester and Leicestershire Society of Architects.

Alfred Darbyshire, President Manchester Society of Architects

John James Burnet, President of the Glasgow Institute of Architects.

Frank Caws, President of the Northern Architectural Association.

Frank W. Wills, President Bristol Society of Architects.

Arthur Marshall, President Nottingham Architectural Society.

F. M. Simpson, President Liverpool Architectural Society.

W. H. Bidlake, President Birmingham Architectural Association

Butler Wilson, President Leeds and Yorkshire Architectural Society.

H. G. Luff, President Devon and Exeter Architectural Society.

James P. Bruce, President Dundee Institute of Architectural Science and Art.

C. H. Channon, President York Architectural Society.

Edwin Corbett, President Cardiff, South Wales and Monmouthshire Architects' Society.

Arthur Clyne, President Aberdeen Society of Architects.

H.M. Office of Works, Westminster, S.W.:
November 28, 1901.

Sir,—I am directed by the First Commissioner of His Majesty's Works, &c., to acknowledge the receipt of your letter of the 8th inst., together with a resolution signed by the President of the Royal Institute of British Architects and others; and to say that Mr. Akers-Douglas quite appreciates the point of view of those who would prefer some other method of carrying out Mr. Brydon's work than that upon which has decided.

It was, however, after careful examination, during which none of the considerations now urged were overlooked, that the decision to carry out the designs by the agency of Mr. Henry Tanner, F.R.I.B.A., the principal architect of this department, was arrived at.

I may say frankly that among architects of high repute the First Commissioner failed, after some confidential inquiry, to discover any one sufficiently in sympathy with Mr. Brydon's artistic ideals to subordinate his own inventive genius to that of the original designer.

It appeared to Mr. Akers-Douglas due to the memory of Mr. Brydon that his work should remain intact, and that the designs which he left should be carried out with as little variation as possible. The question as to whether these drawings are in a sufficiently complete state to enable this to be done is one upon which the First Commissioner is aware opinions differ; but he has confidence in the judgment of his technical advisers, and he will be ready to exhibit these drawings to Parliament should his action as a Minister of the Crown be hereafter questioned.—I am, Sir, your obedient servant,

ESHER.

The Secretary, Royal Institute of British Architects,
9 Conduit Street, W.

The following letters have passed between Sir John Aird, M.P., and the First Commissioner of Works:—

37 Great George Street, Westminster, S.W.:

November 27, 1901.

Dear Sir,—As I take a special interest, as a London member, in the new public offices which are to be erected in Westminster, I have noticed the comments which have appeared in the Press lately as to the action taken by you as regards the execution of the late architect's designs.

I think, notwithstanding what you have said in Parliament from time to time, that there must be a good deal of misconception, which it would be desirable to clear up, as to the course which you have decided to follow. I certainly understood that your experienced architects would carefully supervise the faithful execution of Mr. Brydon's plans on the lines of the details indicated by him, for which I have understood he left abundant materials.

Personally I remember the care which you took at the outset in the selection of the architects, and I cannot think that you have now left the matter in the position in which it has been represented to be. I should much like to be able authoritatively to say that there is no ground for the great uneasiness which would appear to be felt in some quarters in reference to this important subject.—Yours faithfully,

Right Hon. A. Akers-Douglas, M.P. JOHN AIRD.

H.M. Office of Works, &c.: Dec. 2, 1901.

My dear Sir John,—I am happy to comply with your request for information as to the course which I have taken with regard to the architect of the new public offices at Westminster.

In order to do this more clearly, it may be best for me to revert to the measures originally adopted by the Government for the selection of architects for the offices in Whitehall and Parliament Street.

With a view to obtain the services of the best professional talent, I requested the Council of the Royal Institute of British Architects to furnish me with a panel of leading architects competent to design large buildings of Classical character, from amongst whom I might make a choice. The architects named in this list were invited to submit to the Government portfolios of drawings of their works, and, as a result, Mr. W. Young and Mr. J. M. Brydon were commissioned to prepare plans for the new War Office and the new offices in Parliament Street respectively.

The designs, having been approved by the Government, were exhibited at the House of Commons and were also reproduced in the architectural and other illustrated newspapers. They were favourably received by Parliament and by the Press. But before final orders were given to proceed with their execution they were submitted for criticism to an advisory committee. This committee, formed to advise me on matters of general design, was composed of the President of the Royal Institute of British Architects, together with Mr. Aston Webb, Sir John Taylor and the two selected architects.

In each case, before tenders for the superstructure were invited, the architect died; but in both instances the designs had been revised by the architects themselves and agreed on, and the general drawings were practically completed.

For the War Office the Government retained the services of Mr. Clyde Young, son of the deceased architect, who had been associated with his father in the preparation of the plans and designs, and appointed him to carry out the work in connection with Sir John Taylor, consulting architect to the Office of Works.

The question of the other block of buildings was less easy. Mr. Brydon left no son or partner to succeed him. It seemed

to the Government to be out of the question to abandon his plans after the large sum already expended on them, and on the foundation works, and if his designs, which are still satisfactory to the Government, are to be carried out they should be executed in their integrity.

I satisfied myself, after careful inquiry, that this object would be best secured by entrusting the execution of the plans to the architects of my own Department.

Fortunately, very abundant materials existed for ascertaining Mr. Brydon's intentions. His executors handed over to the Office of Works complete plans, elevations and sections, to the scale of 10 feet to an inch; also full, careful and clearly drawn half-inch scale details of all the important parts. The work of carrying out these designs was placed in the hands of Mr. Henry Tanner, principal architect to the Department, who is a Fellow of the Royal Institute of British Architects, and the winner of their Tite prize for Classical design in 1878. Thus qualified, Mr. Tanner may fairly claim to have been recognised by that body as possessing talent for sympathetic treatment of the work.

The employment of Mr. Tanner has the great advantage of securing that the building shall be erected with every regard to the requirements of the departments which will occupy it; and for this end not only Mr. Tanner's own great experience in the erection of very large public buildings, but that of Sir John Taylor (who will be in consultation with him) will be available. Such saving of cost as there may be by this arrangement has only weighed with me as a secondary consideration.

It is obviously unfair to speak of this work, as many do, as if it had been handed over to draughtsmen or architectural clerks, or as if the attention of the Office of Works staff would be given to it in the intervals of ordinary official duties. On the contrary, I have made arrangements in the Department to relieve Mr. Tanner of much of his ordinary business; and Mr. Brydon's chief assistant, who prepared a large proportion of these drawings under Mr. Brydon's direction, has been engaged to assist in working out such details as yet have to be made up. I have confidence in the judgment I have formed upon the advice of my professional staff, that this development of the drawings can be faithfully and effectually executed. I shall be prepared to exhibit Mr. Brydon's designs, stamped and signed as being those handed over by his executors, for the information of Parliament and to defend my action if it should be questioned.

As a further guarantee that Mr. Brydon's work shall be respected, I propose that no variations in the external elevations shall be made without the assent of the advisory committee above mentioned, on which Mr. W. Emerson (president of the Royal Institute of British Architects), Mr. Aston Webb and Sir John Taylor will act; and, in the improbable event of any suggestions for such variations being put forward, I will refer them to this committee.

I venture to think that when my action is fairly considered in the light of the full facts it will be held to have been justified.

With your consent, I am sending this correspondence for publication.—Believe me, yours very faithfully,

A. AKERS-DOUGLAS.

Sir John Aird, Bart., M.P.

THE NATIONAL GALLERY.

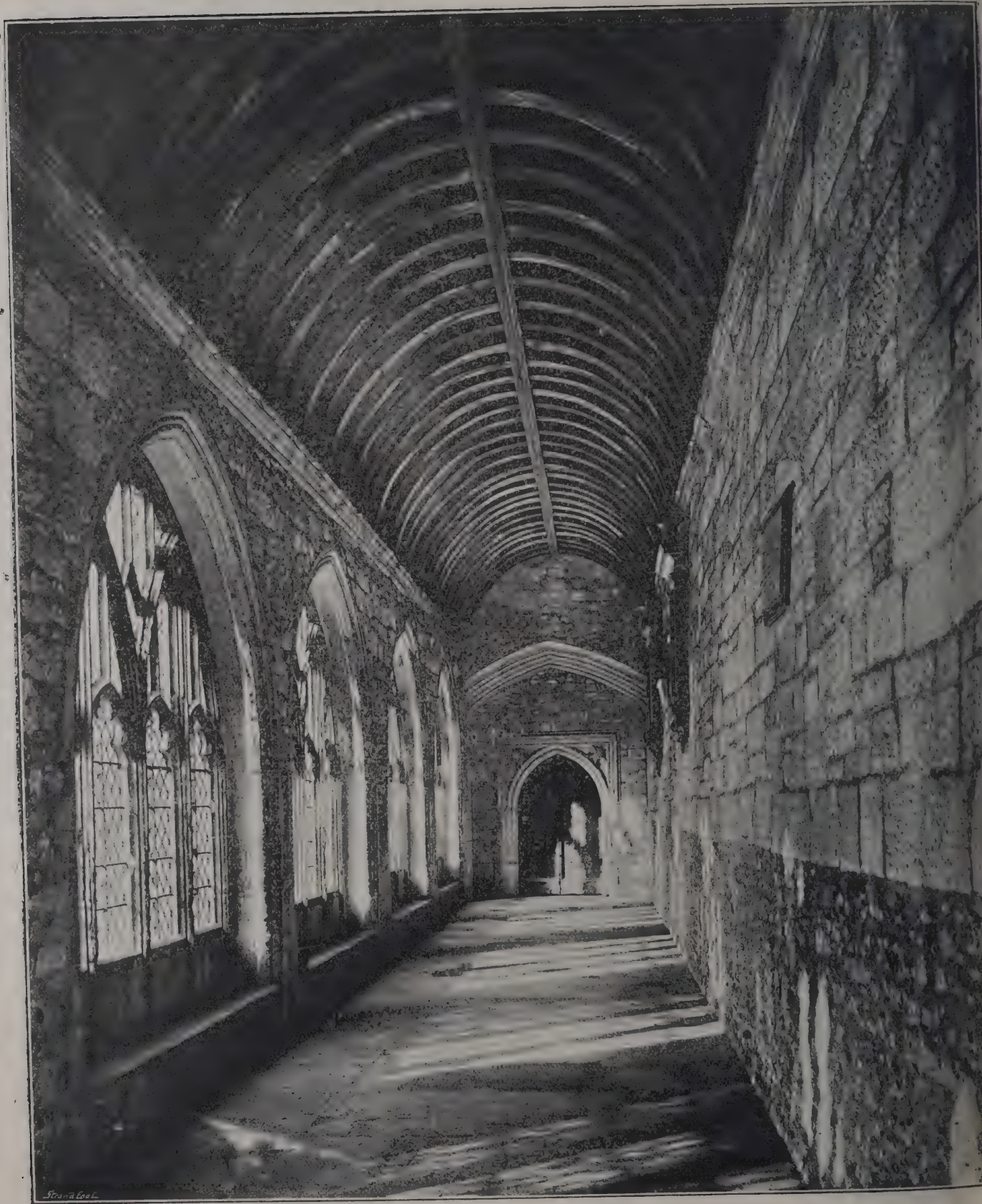
A LARGE altar-piece, by Luca Signorelli, representing the Virgin crowned by Angels, attended by St. Sebastian and St. Jerome on the left, and Sta. Cristina and St. Nicolas of Bari on the right, with a landscape background representing Lake Trasimene, which was purchased in the summer of this year, has now been placed in the Umbrian Room (No. VI) in the galleries in Trafalgar Square.

A portrait of a young man, signed and dated 1657, by Abraham Ragueneau, portrait-painter and writing master to William III., representing possibly the same individual as painted by Terburg, apparently about twenty years later, in the picture No. 1,399 in the National Gallery, has been purchased and is placed in Room XI. The picture here mentioned is the only known work of this painter.

A small panel, representing the Adoration of the Magi, by Benedetto Bonfiglio, was purchased and placed in the Umbrian Room during the summer.

A painted sketch for a ceiling, by Sir James Thornhill, representing an incident in the life of St. Francis, has been presented to the National Gallery by Mr. Charles W. Dopson, and is hung in Room XIX.

The National Gallery has received, as a bequest from Mrs. Charles Wood, a picture by Paris Bordone, representing the Saviour as the Light of the World; it is hung in the Venetian Room (No. VII.).



CATHEDRAL SERIES, No 374A.—CHICHESTER: EAST CLOISTER.



CATHEDRAL SERIES No 3742.—CHICHESTER: WEST DOOR.

NOTES AND COMMENTS.

THE decision of the Court of Appeal in the London and Westminster Bank case, which was delivered on Monday, is not without interest for architects in planning similar buildings in which residential and business parts are combined. The branch bank at 217 and 218 Strand is well known. It consists of an underground basement, the bank on ground floor, and four floors above. For taxation purposes the whole was valued at 3,000£, the gross value being 3,600£. The directors of the bank claimed that they should be charged upon the third and fourth floors alone, and it was maintained that, instead of being taken as one building, it had been arranged in the planning that each floor could have a separate occupation. Undoubtedly there were offices in the occupation of tenants. The fact that a common staircase led to the first, second, third and fourth floors was relied on in support of this view. According to the Customs and Inland Revenue Act, "Every house or tenement which is occupied solely for the purposes of any trade or business, or of any profession or calling by which the occupier seeks a livelihood or profit, shall be exempted from the duties by the said Commissioners upon proof of the facts to their satisfaction, and this exemption shall take effect, although a servant or other person may dwell in such house or tenement for the protection thereof." It was asserted that the exemption from inhabited house duty should apply to the ground floor and basement, first floor and second floor. But as the Divisional Court did not adopt that view there was an appeal. Decisions had been given already in similar cases in which the meaning of a tenement was defined. Lord DAVEY had said there must be a physical division of the house, and in the Scottish courts it was laid down that a tenement means part of a house so structurally divided or separated as to be a distinct property or a distinct subject of lease. Now in the bank building there was a private door between the bank and the staircase of which the manager held the key, and he resided on the third and fourth floors. The private door was, in the opinion of the Master of the Rolls, evidence of a desire that the dwelling-house should be used in connection with the bank. The bank premises accordingly became part of an inhabited house and the appeal was dismissed with costs. It is intended to bring the case before the House of Lords, and owing to its importance it deserves the attention of the highest tribunal in the land.

SUBWAYS are so rarely built in this country, the law respecting them must be somewhat dubious. The Public Health Act prohibits the construction without consent of the urban authority of a vault, arch or cellar under the carriageway of a street, and the authority can alter or pull down such structures. It is, on the other hand, permissible for a person who owns land or property on two sides of a street to carry mains for electric lighting, and it may be for other purposes also, beneath the street. This apparent anomaly was exemplified in an action which the Urban District Council of Walker, in the county of Northumberland, brought against the firm of WIGHAM, RICHARDSON & Co., LTD., and the cross action of the defendants against the plaintiffs. The company owns property on both sides of Fisher Street, in Walker, and in April last, without informing the urban council, they made a subway beneath the roadway with a concrete floor. Seemingly it was intended to lay electrical mains along the floor, but afterwards part of the concrete was removed and the pipes laid in the excavation. The Council gave notice that they had resolved to deal with the subway as they were empowered, and the company then anticipated the destruction by removing the arch and filling the tunnel space with ballast and concrete. The pipes were left. The Council then brought an action claiming the right to deal with the subway, which signified removal of the mains, while the company brought a cross action to restrain the Council from disturbing or injuring their pipes or trespassing on their land beneath the street. Mr. Justice FARWELL, who heard the case, decided that where the pipes were placed could not be considered as part of the floor of the structure, and although a tunnel had existed it could be removed without interfering with them. The Urban Council was, his lordship said, entitled to alter, pull down or otherwise deal

with the tunnel, but they could not interfere with the pipes. In other words, the Council had the right to do what was done already by the company; and in this case authority is therefore only barren, for the company's mains have to be left as they are. The plaintiffs were ordered to pay defendants' costs and defendants plaintiffs' costs, which we suppose is equivalent to each side paying their own costs. It was pointed out by the judge that as the Council were suppliers of electric light, a serious question might hereafter arise as to how far such an authority could use its powers against rival traders.

THE American insurance company which has obtained the corner site lying between the Boulevard des Capucines and the Rue de la Paix, and which consequently faces the Grand Hotel, the Circle Militaire, and the Place de l'Opéra in Paris, have determined to obtain the design for the new offices which are to be erected there by means of a competition. It will be open to all French architects. There is no more unique site available in Paris, and from the extent of the frontage on two sides a grandiose structure will not be out of place. An unsatisfactory building in so important a position would be detrimental to the appearance of one of the most frequented parts of Paris, and on that account there are apprehensions that the existing regulations of the Municipal Council are not sufficiently rigorous to overcome all risks. It is not likely, however, that the American company would fail to rise to their responsibilities, and although an ugly building, if capacious, might be thought good enough for London, we are confident that no attempt will be made to introduce the ultra-American commercial style in Paris.

THE important case which was brought by Messrs. STEWARDS & Co., stone merchants and quarry-owners, of Portland, against the Admiralty, really turned on the meaning of the words "may be required." When the tender was accepted by the Director of Admiralty Works, he used the words "about 2,000,000 tons, or such quantity as may be required, of cap and roach stone." The question was, Did the phrase "may be required" relate to a less quantity than 2,000,000 tons, or a larger quantity? It was contended on the part of the Government that the Admiralty need only take the quantity they required and not the amount that was necessary for the construction of the breakwater, or of any definite portion of the works. There is no doubt the official documents were loosely drawn. But in the consideration given to the case in the House of Lords by the Lord Chancellor and Lords DAVEY, ROBERTSON, SHAND and BRAMPTON, it was treated as if it were a transaction between ordinary individuals. Mr. Justice DAVEY had decided in favour of the contractors, and his judgment was approved in the Court of Appeal; but in the House of Lords it was held that when the Director spoke of "such quantity as may be required" it was to be understood that the Admiralty could at any time cease to draw stone from the heaps belonging to Messrs. STEWARDS & Co. In other words, the plaintiffs were bound to have a supply of 2,000,000 tons available, and within that amount the contractors could take as much or as little as they pleased. Although the argument could not be brought before their lordships, it is well known that the price charged for stone depends generally on the quantities to be taken. The Admiralty, by proposing to take 2,000,000 tons, were able as it were, to obtain a wholesale price, whereas if their intentions were known a much higher retail price should have been quoted. The case should serve as a warning, for it shows the necessity of precision in the phraseology of contracts relating to materials.

ILLUSTRATIONS.

LEANS GATE ARCADE, MANCHESTER.

THE GROSVENOR RESTAURANT, GLASGOW.

CATHEDRAL SERIES—CHICHESTER: EAST END OF LADY CHAPEL
WEST END OF LADY CHAPEL

STAINED GLASS IN ENGLAND SINCE THE GOTHIC REVIVAL.

INCLUDING SOME ACCOUNT OF ECCLESIOLOGICAL PROGRESS, FROM 1860 TO THE PRESENT TIME.

By T. FRANCIS BUMPUS,

Author of "Ecclesiologia Germanica," "Summer Holidays among The Glories of France," &c.

(Continued from page 341.)

ST. MICHAEL'S, Shoreditch (Mark Street, Paul Street, Finsbury), consecrated St. Bartholomew's Day, August 24, 1865, on which occasion Archbishop Tait, then Bishop of London, came into collision with certain of the more "advanced" clergy of his diocese touching ornaments and vestments, is a most stately church. Not only is it both lofty and long, but extremely spacious, accommodating 1,200 persons—it goes without saying—all on the ground floor. With the adjacent schools, clergy-house, convent and Hospital of St. Mary at the Cross, the joint work of Brooks and Sedding, and which the ecclesiologist should make a point of visiting, it forms a remarkably fine architectural group.

Yellow brick banded and patterned with red is the material

The tracery throughout St. Michael's is of the "plate" kind. Into the great west window, shown in the illustration brick enters to a considerable extent, but the eastern one has its five lancets surmounted by three circles pierced in stone under a containing arch. The effect of both these fine windows is more Italian than English. A rose, likewise exhibiting plate tracery, lights the quasi 'transeptal' south aisle of the chancel.

Both aisles and clerestory have rather small windows of two lights in pairs, those of the former being distributed somewhat erratically, as the visitor to St. Michael's will observe when he gets inside, neither coinciding with the nave arcades nor with one another in the opposite aisles. Only a portion of the narthex which it is in contemplation to extend along the west front, communicating with a cloister which shall surround the quadrangle between the church and the conventual buildings, has as yet been begun. This is the south entrance, the excellence of whose effect is enhanced by the handsome iron gates with which it is furnished. Mr. Brooks's plans likewise included a tall north-western tower and quadrangle spire, the absence of which is of little or no detriment to the church's grand external ensemble, though something more important than the spirelet above noticed is requisite to indicate the church's where-



ST. MICHAEL, SHOREDITCH, FROM THE S.W.
(James Brooks, Architect, 1863-65.)



ST. MICHAEL, SHOREDITCH. INTERIOR LOOKING EAST.
(James Brooks, Architect, 1863-65.)

of St. Michael's, and its style a mingling of Early English and Decorated, though treated with much freedom.

One feature noticeable, not only here but in the other churches of this group, is the grand mass of roof planned with truly artistic ability; another, the almost total absence of buttresses, the south aisle forming a portion of one side of Mark Street without any environing wall; a third, the unusual dignity imparted to the west front by its flanking turrets into which, as well as the graceful and appropriate spirelet at the junction of the nave and chancel, supplying *pro tanto* the want of a steeple, stone is cleverly mingled with brick. Access to this central belfry—a refreshing feature after the somewhat hackneyed gabled bellcote—is gained by a piquant circular staircase turret on the north side, which, as well as the noble eastern elevation, is worth turning the corner of Mark Street to see.

abouts, flanked as it is by a regiment of tall, gaunt model lodging-houses.

However, the great height which Mr. Brooks gave to the structure enables it to assert itself boldly, and to afford an example of how important such a quality is in a town church.

In style St. Michael's is altogether more developed than the three churches of the group already passed in review, and a first glance at its internal assemblage of parts brings the works of Butterfield to the recollection. At the time of the erection of this church Mr. Jas. Brooks was a member of the congregation at St. Matthias, Stoke Newington, and it is possible that so intimate an acquaintance with the features of that masterpiece may have influenced the architect of St. Michael's.

This is observable in the employment of the narrow western or narthex bay of the nave, the arch of which dies off into a square pier, the remaining five arches formed of one large

chamfered order springing from tall circular columns with simply moulded capitals; in the arrangement of the patterned brickwork above the chancel arch, and by the chancel arch itself, which, composed of two stone ribs apparently about 4 feet apart, and starting from corbels affixed to flat pilaster-like responds, carry a brick arch sustaining the bell-spirelet; and to a certain extent in the instrumenta of the chancel, where the arch opening into either aisle springs from gracefully

upon a stone plinth relieved at intervals by circles inlaid with tiling, it just gives that break in the long perspective that is so desirable, without impeding a view of the ministrants at the high altar.

The reredos has already been noticed in these pages. In the large five-light window above it Messrs. Clayton & Bell have made a commencement of stained glass, and a small but effective specimen of their work executed contemporaneously



ST. AUGUSTINE'S, KILBURN.
(J. L. Pearson, R.A., Architect, 1872-78.)



ST. JOHN EVANGELIST, RED LION SQUARE.
(J. L. Pearson, R.A., Architect, 1875-78.)

arranged shafts, recalling St. Alban's, Holborn. The clerestory, with windows regularly spaced and arranged in pairs, is somewhat low in proportion to the arcade, but the roof, gabled, open to the ridge and devoid of tie-beams, is a great factor in the height of the church.

The separation between nave and chancel is effected by a graceful iron screen. Crested with polished metal, and raised

with the building of the church (*i.e.* between 1863 and 1865) may be seen in the first window of the north aisle.

The number of works in stained glass executed in England during the last forty years is so large, that to treat of them in the narrative form hitherto pursued in these pages would be interminably tedious. It has, therefore, been deemed advisable

to present them in the catalogued form here subjoined, some brief and generalising remarks being made upon the history or architecture of such churches or windows alluded to as are of more than ordinary interest and importance.

WORKS BY MESSRS. CLAYTON & BELL.

St. Paul's Cathedral: West window of either nave aisle; originally by Revs. A. & F. Sutton, but rearranged by Clayton, & Bell about 1873.

Westminster Abbey: Five clerestory windows on south side of choir fixed in the autumn of 1857,* one window in eastern clerestory of south transept, six lancets below rose of north transept (1860), Turle Memorial window in north aisle near organ, central window in triforium of apse, half window near entrance in Poets' Corner, series in chapter-house, Herbert Cowper window in south-west tower, &c.

St. Alban, Wood Street (one of the few specimens of Wren's Gothic): Three windows in apse for Sir G. G. Scott, from whose designs it was added in 1856.

All Hallows Barking: East window (1898).

All Saints, North Peckham: † Series in apse (1895).

St. Andrew, Plaistow: Lancets in apse, several in clerestories, all in aisles, and four lancets at west end, for late Jas. Brooks.

St. Andrew, Wells Street: All in northern clerestory (1860-70), "Te Deum" window at west end, west window of either aisle, ‡ large five-light one in north aisle.

St. Andrew, Westminster: Three central windows of apse for John Oldrid Scott.

St. Augustine, Kilburn: Two tiers of tripled lancets at east end of especial beauty (1872-73), great rose and five lancets below it at west end (1881). Perhaps no church erected in London during the "inventive" phase of the Gothic movement has deserved or won more admiration and notice than this of the late J. L. Pearson, R.A.—a work worthy to rank with some of the noblest of the Middle Ages. The chancel, the first portion completed, was opened in 1872; the nave followed six years later; the tower and spire, one of the finest in the Metropolis, and of which an illustration will be given in the next number, was finished but lately.

Battersea Training College: East window of chapel, under direction of Butterfield (1858).

Christ Church, Albany Street: Series in windows of upper tier (very fine single effigies).

Christ Church, Clapham: § East window (1865) and three westernmost ones of either aisle; remarkable for clearness with which groups are treated in a narrow compass (1870-80).

St. Clement, Barnsbury: Eastern triplet (1865), four large western lancets (1894); both the gift of the founder, Lord Ashcombe, and interesting comparative studies. The church, a dignified Early English structure of red and yellow brick, is by Sir G. G. Scott.

Guards' Chapel, Wellington Barracks: Series for G. E. Street, R.A., in connection with his clever remodelling of that edifice's interior (1879).

Hampstead Parish Church: Several windows, one in north gallery inscribed "In grateful memory of the late Sir Gilbert Scott, Kt., by one sometime his pupil" (Alfred Bell, who died in October 1895).

St. James Less, Westminster: Series in apse exhibiting careful system of iconography (1861); apostles, &c., in aisles; three-light window in south clerestory, the Resurrection.

St. John Baptist, Croydon: Great east window (1870); noble series in north aisle of nave (1880-90).

St. John Baptist, Kensington: Two lancets in north tran-

* These windows are interesting as being among the earliest works of Mr. J. R. Clayton, just after he set up in partnership with the late Mr. Alfred Bell in Cardington Street, Hampstead Road. Some mention of them is made in page 217 of Sir Gilbert Scott's *Personal and Professional Recollections*.

† A sumptuously fitted church built at the sole cost of Mrs. Gooch.

‡ The north-western window, commemorative of one who was a great musician, is interesting as being the very last work of the kind reviewed in *The Ecclesiologist*, which came to a conclusion with the number for December 1868.

§ Finished in 1862 from the designs of Benj. Ferrey. The chancel was refitted a few years later, when the east window and frescoes were added under Street's superintendence.

sept (St. Joseph and St. George); two pair lancets north aisle (St. Martin and St. Basil, St. Ambrose and St. Athanasius, 1898); all treated in a fifteenth-century style. The late James Brooks was the architect of this stately cruciform stone church.

St. John Divine, Kennington: Apse and south chapel for G. E. Street, R.A. (1874). One of the most remarkable churches built during the Revival in the transpontine districts of the Metropolis.

St. John Evangelist, Red Lion Square: Two tiers of five lancets at east end; two windows of two lights in south chapel (1878-88), and lancets in apse. In this church, remarkable for combination of graceful detail and skill in dealing with an irregular site, the late J. L. Pearson, R.A., has given us another specimen of that peculiar type of Early English which was first demonstrated in St. Augustine's, Kilburn. His idea for connecting a wide nave with a much narrower chancel, as evidenced in this church, was doubtless derived from the cathedral of Gerona. An exterior view of St. John's will be given next week.



ST. JAMES LESS, WESTMINSTER.
(G. E. Street, R.A., Architect, 1861.)

King's College Chapel, Strand: Series forming part of Sir Gilbert Scott's remodelling (1863-73).

Lambeth Palace Chapel: Series of lancets inserted during Mr. J. P. Seddon's restoration under Archbishop Tait.

St. Laurence, Gresham Street: Two at east end placed during the late Sir A. Blomfield's refitting in 1868, and remarkably beautiful.

St. Margaret, Lee, S.E.: Quintuplet of lancets at east end, representing the "Te Deum," with brilliantly tintured figures on white grounds; a truly superb piece of work, inserted during the late James Brooks's recasting of the interior (1876).

St. Mary Aldermary, City: Complete series of Third Pointed windows in aisles and east window; the west window—the Radix Jesse—is a grand piece of vitreous decoration.

St. Mary Abbots, Kensington: The entire series. The finest are at the east and west ends and in the clerestory of the nave, where are small single effigies in brilliant tinctures on white grounds. This church is a good example of Scott's style subsequent to his return to more strictly English detail. Church consecrated in 1872; tower and spire completed 1879.

St. Mary, Stoke Newington: Lancets in clerestory of transepts. The figure of St. John in the northern arm is one of Clayton & Bell's earliest works (1858), central window of apse (1861), others in apse (1876-86), spherical windows in clerestory of chancel.*

St. Mary Magdalene, Munster Square: Alderson memorial windows in south aisle; one representing the Resurrection, designed by Butterfield (1859-60); Charrington memorial window, west end of either aisle (1880-90); east window of Stuart memorial aisle (1884).

St. Mary Virgin, Primrose Hill: Three in apse good, but subjects somewhat too microscopic.

St. Matthias, Stoke Newington: Windows in Monk Memorial chapel (1884-94); two small but excellent recent specimens of these artists' work.

St. Michael, Cornhill: Complete series inserted (1859-60) when Sir Gilbert Scott "recast" this church. The series on south side taken *en masse* is of great richness, and the "Majesty" within a large circle over the altar has a remarkably impressive effect viewed from the west end.

St. Michael, Croydon: The tall, narrow lancets of the apse, and those in the square-ended south chapel, for the late J. L. Pearson, R.A., one of whose finest works this church is.

St. Pancras: The three square-headed windows in the apse, inserted 1866, are good specimens of Clayton & Bell's work at the time; the superb series in and below the galleries are fifteen years later.

SS. Peter and Paul, Teddington: East window, for G. E. Street, R.A., 1867, one of the most beautiful works executed by Clayton & Bell in conjunction with that architect; richly-coloured groups on white quarries; absence of accessories and canopywork.

St. Peter, Eaton Square: Romanesque triplet at east end, inserted in 1873 when the chancel, the first part of Sir A. Blomfield's scheme for reconstructing this church's interior, was completed. There are other fine specimens of Clayton & Bell's work in this church.

St. Saviour, Paddington: East window of chancel, reconstructed in 1888.

St. Saviour, Pimlico: East window.

St. Saviour, Clapham (Cedars Road): West, east and transept windows, forming a connected series from the Life of Our Lord (1864-66); somewhat archaic in treatment, like most of Clayton & Bell's works at that period, but abounding in rich colour properly balanced by white. The church, an early Middle Pointed structure, from the design of J. K. Knowles, is cruciform, with a lofty pinnacled tower at the intersection grouping well with the chancel and transepts.

Savoy, Chapel of St. John in the: Several on either side, easily distinguishable by their style from those of other artists.

St. Sepulchre, Holborn: West window of tower (1884).

St. Stephen, Hampstead: A square-headed window in the south aisle in memory of the architect of this sumptuous and in many respects picturesque church, S. S. Teulon, who died in 1873. Subject, "Solomon building the Temple."

St. Stephen, Lewisham: Complete series for Sir Gilbert Scott. The eastern and western triplets admirably exemplify Clayton & Bell's mosaic or medallion style of 1865-70. The small figures of English saints on white grounds in the lancets of the clerestory are typical examples of how such windows should be treated.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. W. H. Seth-Smith, president, in the chair. Messrs. E. G. Dawson, D. N. Paddon and A. Pomeroy were elected members. The meeting also elected Mr. R. H. Weymouth to act on the general committee.

The President, in speaking of the premises fund, said he wished there were more donations of a guinea. Such subscriptions would show that the appeal was supported by the Association's own members. The scheme for new premises was not a matter of ambition; it was an urgent necessity. The Association must be prepared to go into new premises at the end of two years or else renew the old lease of their present

offices. The committee were hopeful of their appeal by the sums already received, but for success the Association would have to rely upon the support of its own members.

The following list of donations was announced, in addition to those already published:—The Architectural Association 1,000*l.*, Mr. Basil Champneys 50*l.*, Mr. H. T. Hare 50*l.*, Mr. E. W. Mountford 50*l.*, Messrs. Ernest George & Yeates 50*l.*, Mr. John Belcher 25*l.*, Mr. Beresford Pite 20*l.*, Mr. E. Guy Dawber 12*l.* 12*s.*, Mr. R. S. Balfour 10*l.* 10*s.*, Mr. Francis Hooper 10*l.*, Mr. H. D. Searles-Wood 10*l.*, Mr. E. M. Gibbs 10*l.*, Mr. A. Paull 6*l.* 6*s.*, Mr. W. A. Forsyth 5*l.* 5*s.*, Mr. A. H. Hart 5*l.* 5*s.*, Mr. H. P. G. Maule 5*l.* 5*s.*, Mr. J. H. Squire 3*l.* 3*s.*, Mr. C. B. Bone 3*l.* 3*s.*, Mr. F. D. Clapham 2*l.* 2*s.*, Mr. W. H. Raffles 2*l.* 2*s.*, Mr. E. F. Reynolds 1*l.* 1*s.*, Mr. H. Teather 1*l.* 1*s.*, Mr. P. J. Turner 1*l.* 1*s.*, Mr. A. O. Collard 1*l.* 1*s.*, Mr. Stanley Towse 1*l.*

Mr. ARNOLD MITCHELL, in the absence of Mr. Francis Bond, who was indisposed, gave a lantern lecture, dealing mainly with

Details in Church Architecture.

He said that he was asked to contribute a paper on capitals, but he claimed a wider license for his remarks, and he would speak of details in old work of which capitals formed a part. Much of the interest of old buildings was due to their details, and if carefully examined they would find that the details in English ecclesiastical architecture seemed to surpass any foreign examples. The general grouping of all the parts, and the harmony of the exterior to the surroundings gave additional effect to many English churches, and the lecturer said there was no more beautiful picture than the cloister of Salisbury Cathedral. In interior work the triforium seemed the part of the design which received the first thought of improvement by the Mediæval builders. In tracing the progress of the embellishment of the triforium, they would find that none of the compositions were the result of sudden ideas, but rather the gradual development of what had gone before. The treatment of Norman arches was crude, simple and elementary, but the builders were confined to rough stones and workmanship. Architectural effect by the arrangement of stones was soon appreciated, and this was followed by improvement in mouldings. The effect of recessing was wonderful, and the contrast in varying light and shade gave architectural severity. Incised ornament introduced in the tympanum was another advancement; but although in these improvements they secured richer effects the actual designs were simple. Rochester and Peterborough Cathedrals were good examples. Lincoln Cathedral, too, was notable, inasmuch as it was a complete epitome of all our architectural styles. Ely had elaborate mouldings gradually working to the geometric tracery. In their sculpture the Mediævalists were also careful in their work, and it was interesting to-day to trace out the subjects. The builders were content with the telling of their story, and either distorted the figures or the facial expression of the characters introduced. Their sculptured work showed a fertility of design, though they seemed content to copy natural forms rather than those based upon the ideal. No trouble was too great to get effect, and the marble capitals in Lincoln gave testimony to the labour, skill and care with which they worked out their inspirations. The scalloped enrichment in their early capitals seemed to have been an accident, and yet the elaboration of the scalloped work resulted in the greatest advancement. The introduction of concave instead of the convex forms was another improvement. In all their work the builders of the Middle Ages were in earnest, and their designs resulted in the maximum architectural effect with the minimum expenditure.

The PRESIDENT said the student never tired of going over the details in early architecture. They had had in the views exhibited lessons which could not fail to be of the greatest interest and practical importance to their work. The suggestion that cost in building could be saved by the application of brains was of value to the architect if he could only impress its importance on the client. Architects would thereby bring credit on their profession. Another great lesson was the enormous importance of studying Gothic to attain freedom in style.

Mr. ALEXANDER WOOD proposed a vote of thanks for the lecture, which was seconded by Mr. C. H. BRODIE. Mr. H. P. G. MAULE supported the motion.

The Foundation-stone of a new church, to be erected at a cost of 4,500*l.*, at Pentonville was laid on Saturday. The church measures 38 feet by 45 feet, and seating accommodation will be provided for 250 persons. Below the church is a gymnasium with the same floor space and 15 feet high. The building is being constructed by Messrs Campbell, Smith & Sons in red brick with Bath stone dressings, from the designs of Mr. R. A. Briggs.

* A detailed account of this noble church will be found in *The Architect*, February 23, 1900.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A PRELIMINARY EXAMINATION, qualifying for Probationership R.I.B.A., was held simultaneously in London and the provincial centres indicated below on the 5th and 6th ult. One hundred and eighty-eight candidates were admitted, and 37 were exempted from sitting. The remaining 151 were examined, with the following results:—

	Passed.	Relegated.	Total Examined.
London	59	15	74
Birmingham	8	3	11
Bristol	7	3	10
Exeter	3	4	7
Leeds	20	6	26
Manchester	17	6	23
	114	37	151

The following are the names of the successful candidates, together with those exempted, making a total of 151 newly registered probationers:—

William Litchfield Allen (Regent's Park), Frank Leslie Atwell (Plumstead), Herbert Joseph Axten (Crouch End), Charles Henry Barlow (Widnes), John Jackson Beck (Doncaster), Alan Leslie Belcher (Brixton), William Thomas Benslyn (Birmingham), Horace Eugene Bernton-Benjamin Windsor), Albert Bolton (Bingley), Arthur Boulton (Dundee, I.B.), Thomas Brameld (Hull), James Edward Godfrey Burroughs (Bristol), Herbert Carnelley (Yorks), William Carver (City Road), Ernest Stewart Charlton (Tunbridge Wells), Harold Griffith Cherry (St Albans), Clement Chippindale (Harrogate), Harold Hutton Christie (West Kensington), Wilfred Thorp Clarke (Birmingham), William Thomas Clarke (Liverpool), Robert Hawkin Cochrane (Rathgar, Dublin), John Cocker Timperley), Gilbert Scott Cockrill (Gorleston), Henry Richard Collins (Exeter), Arnold Sutherland Constable (Stockfield-on-Tyne), William Henry Howard Cooke (Stroud, Glos.), Archibald Cooper (Rickmansworth), Frank Conrad Rutteau Dabbs (Clapton Common, N.), George Francis Blackburne Daniell, B.A.Cantab (London), James Sylvan Butchart Davidson (Aberdeen), Arthur Henry Davis (Notting Hill), Francis Moorhouse Dean (Streatham), David William Ditchburn (Leytonstone), Alex. Houston Douglas (Maida Vale), Andrew Douglass (Morpeth), Gordon Burdett Dransfield, Barnsley, Yorks), William Tees Duncan (Rochdale), Alex. Dunn (Moseley, Birmingham), Eric Edmonds (Stamford Grammar school), Alfred Hewlett Edwards (Leicester), Arthur Cecil Morris Edwards (Rickmansworth), Ernest Sugden Englund (Blackpool), Harry Launcelot Etherington-Smith, B.A. (Putney), Edward Willoughby Cole Faulkner (Freshfield, near Liverpool), Walter Granville Fearn (Clacton-on-Sea), Haworth Fielding (Accrington, Lancs), Algernon Hugh Fitzroy (Cross Cliff Hill, Lincoln), Frank Burwell Foster (Leamington), Harold James Fox (Stamford Hill), Donald Saunders Gardner (Weston-super-Mare), John Howard Goodchild (Crouch End), Blakeley Rinder Gribbon (Leeds), Arthur Hutton Gully (Bedford), Reginald Wilson Gunson (Manchester), Bertram Granville Gwyther (Egham, Surrey), George Hanson (Bradford), Francis Hurst Healey (Bradford), James Hardwick Higgs (Leicester), Henry Houghton Hill (Liverpool), Joseph Reginald Hobson (New Eltham), John Nixon Horsfield, junr. (Kingston-upon-Thames), William Henry Luckvale (Tring), Alastair Hope Kirk (Pall Mall, W.), Frederick Richard Jolliffe (Penarth, Glam), Basil Wallace Jones (Bexhill), George Howard Jones (Cardiff), Leon de Barr Kelsey (Kensington), Arthur William Kenyon (Sheffield), Ashley Scarlett Killby (Highbury), Charles Ussher Kilner (Bayswater), Stanley James Lampshire (Devonport), Albert Arthur Langman (Wimbledon), Herbert Langman (Southport, Lancs), Harry Brooksbank Laycock (Manchester), Harry George May (Wellingborough), Thomas Linton (Leith), James Henry Lowry (Liverpool), Percy John Maffey (Southampton), Ernest Harry Norham Major (Mecklenburgh Square), Harold W Markwick (Devonport), Robert Hattrick Mason (Birkenhead), Frederick John Matthews (Clapton), Montagu George Maule (Huntingdon), Frank Charles Mears (Edinburgh), Evan Holford Mills (Shrewsbury), Henry Graham Hunt Mills (Southsea), Alfred Mawson Millwood (Surrey), Edward Milnes (Rochdale), Sydney Wilfrid Mobbs (Lowestoft), Eric Morley (Bradford, Yorks), Paul William Mulready (Brondesbury), Frederick Turney Negus (Woburn, Beds), William Horace Nevell (St. Albans, Herts), George Edward Hanson Newbold (Gainsborough), James Norquoy (Chorlton-cum-Hardy, Manchester), Dominick Mary O'Connor, B.A. and B.E. Dublin (Southall), Sidney Stuart Parkinson (Gravesend), Guy Pemerton (Edgbaston, Birmingham), Gilbert Eyre Peto (Bath), George Edward Phillips (Cambridge), Arthur Patrick Hector Pierce (Auckland, N.Z.), Albert Edwin Poley (Hampton Hill, Middlesex), William Dathy Quirke (Camden Road, N.W.), Norman Loal Read (Leicester), Arthur George Edward Rebbeck (Somerset), Harry Jones Roberts (Portmadoc), Robert

George Roberts (Doncaster), Archibald Hurley Robinson (Birmingham), Bernard Royce (Leicester), Walter Puckering Rylatt (Hull), Harry Shackleton (Keighley), William Henry Shute (Newport, Mon), Ernest Harry Smith (Leicester), John Woodfield Smith (South Hampstead), James Conran Smythe (Mutley, Plymouth), Robert George Stevens (Bromley, Kent), Joseph Daniel Stevenson (Redhill), Russell Stockton (Stockport), Ralph Stokoe (Sunderland), Hugh Spencer Stowell (Croydon), Percy Montagu Stratton (Salisbury), Laurence Walton Taylor (Newcastle-on-Tyne), Charles Edward Tebbs (Upper Tooting, S.W.), Frederick William Tempest (Notts), Eric Edward Temple (Upper Norwood), Claudà Beckett Romako Terrell (Tonbridge, Kent), Robin Audrey Thomas (Gosport), Morris Thompson (Doncaster), Gilbert Mackenzie Trench (East Dulwich), John Reginald Truelove (Sharrow, Sheffield), Richard Froude Tucker (Upper Teddington), Jabez Tennyson Turner (Essex), Horace George Turner (South Croydon), Michael James Wadsley (Hull), Percy Francis Warren (Norwich), Alexander James Watson (Newcastle-on-Tyne), Bryan Watson (North Shields), Reginald Francis Wheatly (Bromley, Kent), Howard Enstor White (Birmingham), Richard Wakeham White (Kentish Town), Alexander Hornby Whyte (Kensington), Tom Smeaton Wilcockson (Chesterfield), Leslie Wilkinson (Cyprus, New Southgate), Herbert Attenborough Willatt (Nottingham), Edward John Williams (Leicester), John Ross Wills (Derby), Richard Horace Willson (Kingston-on-Thames), John Driver Winder (Wandsworth Common), Alfred Thomas With (Anerley), William Oswald Wright (Morecambe, Lancs), John Arthur Yells (East Dulwich).

The intermediate examination, qualifying for Studentship R.I.B.A., was held simultaneously in London, Bristol, Leeds and Manchester, on the 5th, 6th, 7th and 8th ult., with the following result:—

	Number Examined.	Passed.	Relegated
London	52	29	23
Bristol	9	5	4
Leeds	7	3	4
Manchester	11	8	3
	79	45	34

The following are the names of the passed candidates given in order of merit as placed by the board of examiners:— Archibald Scott (Glasgow), Courtenay Melville Crickmer (Regent's Park), Herbert Wilson Asman (Bradford), Walter Frederick Clarke Holden (Cambridge), Charles Henry Brightiff (Southampton), Willie Josiah Freeman (Halifax), Archibald Gilpin (Bristol), Ernest Llewellyn Hampshire (Rye Hill Park), Vincent Corbet Cook (Wolverhampton), Douglas Anderson (Hampstead), Joseph Edward Mundell (Dorset), Charles Barry Cleveland (Cambridge), Bernard David Tracy (Camden Road), Joseph Henry Taylor (Battersea), John Wilcock (Bradford, Yorks), Charles Percy Moss (Crouch Hill), Harold Slater (Preston), Kenneth Duncan Stewart Robinson (Westminster), Charles Herbert Heaton (Wigan), Henry Ralph Crabb (Exeter), William Bunter Colthurst (Taunton), Augustus Robert Crisford (Eastbourne), Percy Aspden Horrocks (Bolton), Edward Miller Ellis (Fenchurch Street), Percy Ripley Strong (Balham), Frank Sykes (Manchester), Frederick George Brooker (Peckham Rye), William Thomas Curtis (West Dulwich), Sydney Herbert Raintorth (Lincoln), John Weston Jarvis (Moseley, Birmingham), Henry Walcott Stone (Taunton), John Tallents Wynyard Brooke (Cheshire), Reginald Wentworth Alfred James Cosway (H.M. Prison, Wandsworth), Edward Harding (Brixton Hill), Florence Fulton Hobson (Belfast), Edwin Riddell Kennedy (Belfast), Sydney Maddock (Cheshire), Leon Morris (New Brompton, Kent), Bailey Scott Murphy (Edinburgh), William Robert Osborne (Swindon, Wilts), Frank Ifor Moran Owen (Liverpool), Stanley Highfield Penlington (Sunderland), Edward Randolph Sladen (Bucks), John Barlow Smith (Bedford), Charles Joseph Thompson (Lincoln's Inn Fields).

The final and special examinations, qualifying for candidature as Associate R.I.B.A., were held in London alone from the 15th to the 22nd ult. Sixty-two candidates were examined and the following thirty-seven passed, the others being relegated to their studies:—

Charles Thomas Adshead (Stockport), Sidney Walter Bensted (Wandsworth Common), Ernest George Besant (Cambridge), Alfred Ernest Biggs (Brooklyn, Felixstowe), Austin Barugh Botterill (Streatham), Charles Alfred Broadhead (Nottingham), Harold Busbridge (Plumstead), Ralph Scott Cockrill (Great Yarmouth), Henry Louis Emile Merille de Colleville (Brighton), William John Devlin (Adelphi), Walter Ernest Dobson (Hampstead), Walter Watkin Ellison (Kent), James Ewing (Regent's Park), Edward Lawrence Gaunt (Ilkley, Yorks), Arthur Everett Gibbins (Islington), Francis Robert Boyd Haward (Marylebone), Ralph Eustace Hemingway (Nottingham), Augustus Edward Hughes (Regent Street), Allen Trevis Hussell (Ilfra-

combe), Ernest William Lees (Mecklenburgh Square, W.C.), Edward Berks Norris (Birmingham), Leonard Rycroft Oakes (West Kensington, W.), Harold Frederic Ponton (Hammer-smith Road), William Beddoe Rees (Cardiff), Charles Herbert Reilly (Victoria Street), Frank G. Richardson (Tufnell Park), Ernest George Rodway (Weston-super-Mare), George Lister Thornton Sharp (Barnes), William Slater (Nottingham), Francis Danby Smith (Victoria Street, S.W.), Thomas Marshall Smith (Tollington Park), Arthur Halcrow Verstage (Camden Square), Walter Stephen Tucker (Newmarket), Joseph Alfred Woore (Derby), Edmund Livingstone Whatten (Croydon).

The following shows the number of failures in each subject of the final:—

I. Design	23
II. Mouldings, &c.	18
III. Materials	11
IV. Sanitation	13
V. Specifications	1
VI. Construction: foundations, walls, &c.	11
VII. Construction: iron and steel, &c.	10

The Ashpitel Prize.—On the recommendation of the board of examiners the Council have decided to award this prize to Mr. Charles Thomas Adshead (probationer 1894, student 1897), he having most highly distinguished himself in the final examinations held during the current year.

Special Prize.—On the recommendation of the board of examiners the Council have decided to award a prize of books of the value of 10*l.* to Mr. F. Dare Clapham, in recognition of the merit displayed by him in his work at the special examination held last June. Mr. Clapham obtained the highest number of marks ever awarded at the final and special examinations.

ARCHÆOLOGICAL DISCOVERY IN CRETE.

IT will be remembered, writes a correspondent of the *Times*, that the revelation of a great palace on the site of Phaestus, in the south of Crete, by the Italian archaeologists Haltheu and Pernier last spring, almost rivalled in interest Mr. Evans's discoveries at Knossos. News now comes that, since the departure of the Italians for the autumn, peasants have lighted on a series of rock tombs in the neighbourhood of the palace, evidently belonging to some generation of its lords. These tombs, which are both of the dome and chamber types, contained several skeletons apiece, richly adorned with gold objects, such as necklaces and rings, in which are set engraved gems, representing cult-scenes, demons and other typical Mycenaean subjects. The discovery is of exceptional interest, since no tombs have hitherto been found pertaining to the great Cretan palaces, and it is only in tombs that the richer objects of the luxurious prehistoric civilisation of the island are likely to be found.

It seems that the Cretan Government, on hearing of the first find, sent its *ephor*, M. Xanthodides, to the spot, and this gentleman has continued the peasants' work. This action has caused great indignation in Rome, and has been followed by a protest from the Italian Minister for Foreign Affairs. For Phaestus and all its vicinity are definitely and exclusively conceded to the Italian Mission, and the latter has always intended to search for the cemeteries, and contemplates the resumption of the palace excavations in the coming winter. The Cretan Administration is still somewhat lacking in experience; but it ought to know that, beyond necessary police measures, it cannot, without grave breach of international courtesy, as understood in Europe and especially in Greece, under the rule of M. Kabbadias, conduct excavations on a spot already conceded and not yet resigned by the concessionaires. No doubt, however, it will explain the matter to the satisfaction of the Italians, and see that a similar lapse does not occur again.

Mr. George A. Macmillan, treasurer of the Cretan Exploration Fund, writes:—

The managers of the Cretan Exploration Fund are just issuing to the subscribers and to others interested in the matter a statement summing up the results of the excavations undertaken during the last two seasons on several important sites in the island of Crete, and notably at Knossos, where Mr. Arthur Evans has partly laid bare a magnificent prehistoric palace which it has not been thought unreasonable to associate with the name of King Minos.

For the artistic and archaeological results of these remarkable discoveries, I may refer your readers to the circular in question—which I trust, sir, may find hospitality in your columns—or to the fuller accounts which have been published by Mr. Evans and Mr. Hogarth in the *Annual* of the British School at Athens.

My object in addressing you is to call special attention to the financial aspect of the matter. The balance-sheet submitted by the directors of the fund shows that since it was established in the spring of 1900 about 3,500*l.* have been

raised by subscriptions, partly from learned societies, but mainly from individuals. Rather more than this sum is shown in the published accounts to have been spent on the excavations at Knossos, Kephale, the Dictaeon Cave, Kato Zakro and Praesos. Knossos alone is accountable for 2,000*l.* out of this sum, but unfortunately even this does not represent more than half the money spent on this important site. For, without reckoning his travelling or personal expenses, Mr. Evans has himself spent 2,000*l.* on the work in the last two seasons. To complete the excavation of the palace it is estimated that another 2,000*l.* will be required, and, considering the unique importance of the discoveries made, it ought not to be difficult, even in these times, to raise so moderate a sum. Two points I should wish to emphasise. First, it would not be creditable to us as a nation to leave an excavation, which has already yielded such valuable fruits, unfinished for lack of funds. Secondly, the explorer himself, who has already devoted so much time and labour to the work, ought not to be allowed to draw further on his private resources, at a sacrifice which, as his friends know, is more than merely personal. One could wish that enough money might be raised to recoup him at least in part for what he has already, in his disinterested zeal, spent out of his own pocket. But at least he should be spared the necessity of further sacrifices.

In conclusion, I wish to draw attention to the fact that Mr. Hogarth has secured the right to excavate another very important early site which he would be prepared to undertake next season if a sum of at least 600*l.* could be raised for the purpose. Unless this sum can be assured this very competent explorer must reluctantly abandon further work in Crete, which would involve a serious loss to archaeological research.

I have only to add that contributions to the Cretan Exploration Fund may be sent to the account of the fund at Messrs. Robarts, Lubbock & Co., Lombard Street, or else to me, at St. Martin's Street, W.C.

The statement to which Mr. Macmillan refers gives the history of Mr. Evans's excavations at Knossos, and describes their results. As to their general value it says:—

Apart from the architectural results already gained, the finds within the walls of the palace have been of such a nature as to throw an entirely new light on the art and culture of prehistoric Greece. Partly still clinging to the walls, partly on the floors of the chambers, were found the remains of a whole series of fresco-paintings. Among these the full-length figure of the cupbearer supplies the first real portrayal of a man of the Mycenaean age, while the miniature groups representing court ladies show a liveliness and expression far beyond any work of the kind in contemporary Egypt. Another more recently unearthed fresco represents a bull-catching scene in which female "cowboys" take part. Allied to this branch of art are the painted reliefs in *gesso duro*, showing a force and naturalism for which no parallel can be found till the great days of Greek sculpture some ten centuries later. To the remarkable bull's head discovered last year the more recent excavations have added parts of human figures, in which the muscles and even the veins are reproduced with a singular mastery of execution. With these was found a relief of the upper part of a male head bearing a kind of fleur-de-lis crown, copied from an original in precious metals. . . . Of all the discoveries made within the Palace of Knossos the most interesting is the accumulated evidence, here for the first time afforded, that there existed on the soil of prehistoric Hellas a highly developed system of writing some eight centuries earlier than the first written Greek monuments, and going back six or seven centuries even before the first dated record of the Phœnician script. A whole series of deposits of clay tablets has come to light, many of the most important of them during last season's excavations, engraved with a linear script, often accompanied by a decimal system of numeration. That these documents largely relate to the royal stores and arsenals is seen by the pictorial illustrations with which the inscriptions are often accompanied. Others, in which signs representing men and women frequently occur, probably contain lists of slaves or officials. Others again of a different class may, perhaps, ultimately reveal to us fragments of contemporary correspondence or the actual formulas of Minoan laws.

Beside these linear tablets there was discovered a separate deposit of clay bars and labels containing inscriptions of a more hieroglyphic class. Although contemporary with the linear tablets, the script on these is apparently of quite distinct evolution, and in all probability in a different language. The characters answer, in fact, to the sign-groups already observed in certain seal-stones mostly found in the east of Crete. The hieroglyphs themselves present many parallels to the presumed pictorial prototypes of Phœnician letters.

After references to the work done by the British School at Athens, which has also received assistance from the Cretan Exploration Fund, the statement concludes as follows:—

Other interesting sites, already previously secured for

ish 'excavation,' remain to be explored. The executive committee, however, are of opinion that, before devoting any money towards breaking new ground, a sufficient amount shall be raised to enable Mr. Evans to complete his excavation of the Palace of Knossos, a considerable part of the cost of which has already fallen on his shoulders. The large scale of the work, on which throughout the greater part of last season 200 men were constantly employed, makes it necessarily costly, and in this case, in addition to many other incidental expenses of expenditure, a great deal has to be done towards the preservation, and in some cases even the roofing-in of the chambers discovered. It is estimated that, apart from the heavy arrears on last season's work, a sum of between 1,000*l.* and 2,000*l.* will be necessary for the adequate completion of this important work alone. The unique character of the results already obtained is, however, so fully recognised that the committee confidently trusts that no financial obstacles will stand in the way of this consummation. In order to carry out the satisfactory exploration of other sites allotted to the fund, at least twice the above amount will be ultimately required. The directors have recently acquired the right to explore a certain early site of exceptional interest. From the point of view of primitive civilisation there is, perhaps, no site in the Aegean which promises such rich results. It is much to be hoped that at least 600*l.* may be available over and above what is necessary for the completion of the work at Knossos in order to explore this early settlement during the coming season, there being always risk of a serious loss to the fund in postponing the exploration of such sites when once the attention of natives has been drawn to them.

THE CELTIC GOLD ORNAMENTS.

THE Society of Antiquaries, at a special meeting held at Burlington House, passed the following resolution with regard to the proposed action of the Government in connection with the Celtic gold ornaments acquired in 1897 by the British Museum:—"That the Society of Antiquaries of London, which takes a keen interest in all matters connected with the archaeology of these islands, views with marked dissatisfaction the proposal to remove from the British Museum certain gold ornaments lately acquired from Ireland. The Society is of opinion that the cause of archaeology will be best served by the retention of those interesting objects in the central museum of the Empire, where they are accessible to a greater number of students than would be the case elsewhere; while, as remains of the art of the ancient Britons, and having only an accidental connection with Ireland, these relics could be placed nowhere more appropriately than in the British Museum. That this resolution be communicated to the Lords Commissioners of the Treasury, and be humbly laid before His Majesty the King, the great patron of the Society."

NEW VAUXHALL BRIDGE.

THE completion of the new Vauxhall Bridge is as yet an event of the dim and distant future, but if ever it does get finished, says the *Daily News*, it promises to be structurally very interesting. It will, if present intentions are adhered to, present what may be regarded as a new system of stone and concrete bridge building in this country.

The object of the new system—at present embodied only in model—is to give to stone or concrete bridges something of the elasticity which it has already been employed to give to steel structures, and by this means to permit of a great reduction in the necessary dead weight of the bridge and of the amount of material employed in its construction. If the new principle is finally adopted, each arch will consist of two distinct sections, divided from each other at the centre of the arch and from each abutment or pier. In other words, each arch will have a slit or division at either end, and another in the middle, instead of being one solid structure throughout. The bridge as a whole will be of concrete, but the ends coming together will be formed of solid blocks of granite. Across the width of the bridge there will be thirty-five of these granite blocks on each side of the slit. If these masses of granite were built into the bridge in the ordinary way, two rows of them would of course come together at the crown of the arch. But by this new system they are kept slightly apart by massive cast-steel pivots laid in sections between them. There is a steel groove let into the face of the granite on each side of the slit, and the steel pivot is laid in this groove, forming a sort of hinge between the two sections of the arch, paraffin wax being poured down into the groove to prevent corrosion.

If a very heavy load is brought over a bridge the arches of which are constructed in this way, instead of the fabric bearing up rigidly against the load, there is a slight flexibility. The crown of the arch is slightly depressed. The weight comes down upon the steel pivot in the middle of the slit and the

pressure tends to distribute itself evenly throughout the arch. At each of the shore ends of the bridge there is a similar steel pivot laid between granite blocks forming a similar hinge for giving play to flexibility, and thus tending to distribute the strain brought by a "line" load anywhere about the bridge. In consequence of this distribution it is possible, as has been said, to make the whole fabric lighter and with less material. Built on this principle, the new bridge need, it is calculated, be only about 3 feet 6 inches in depth at the centre, 3 feet 9 inches at the "springings"—where the bridge springs from the abutment, that is, while at the "haunches"—the point of greatest strain, about one-third of the distance from the abutment, the crown—the depth need be only 4 feet 3 inches. This mode of building is calculated to give a concrete bridge the strength and endurance of granite at about half the expense. Carried out in this way, it seems probable that the new Vauxhall Bridge would give an entirely new lead to stone and concrete bridge building in this country. It is a principle very well known in steel bridges, but hitherto it has been confined to them.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

THE annual general meeting of this Society was held in their library at the Museum, Queen Street, on the 30th ult., Mr. David Murray, LL.D., vice-president, in the chair. In the course of his report on the work of the Society during the past session, Dr. Christison, secretary, stated that the interesting results of the Society's excavations in the Roman sites of Birrens, Birrenswark, Ardoch, Camelon and Lyne has encouraged the Council to continue the investigation of Roman sites during the past year, with funds supplied by generous gifts from Sir Herbert Maxwell, the president, of 50*l.* for the excavation of the rectangular fort of Rispa in Galloway, and of 150*l.* by the Hon. John Abercromby for the excavation of the extensive earthworks at Inchtuthil, Perthshire, to which they were invited by the proprietor, Sir Alexander Muir Mackenzie of Delvine, Bart. The results of these extensive excavations had been very interesting, and would be laid before the Society during the present session. Another series of excavations by Professor T. H. Bryce, of St. Margaret's College, Glasgow, aided by a small grant from the Society, had also yielded important results, to be communicated at an early meeting. The Society was to be congratulated on the completion and publication of the catalogue of the Scottish coins in the National Museum by Mr. A. B. Richardson, curator of coins, and the important work on the early Christian monuments of Scotland, with full descriptions and illustrations, which had been long in preparation by Mr. J. Romilly Allen and Dr. Joseph Anderson, was drawing near its completion. The volume of the proceedings of the Society for the past year, which would be issued shortly, would contain the report on the excavation of Camelon, the heaviest and the most fruitful that the Society had yet undertaken, besides other reports of examinations of less important Roman sites. The course of Rhind Lectures delivered last month by Bishop Dowden, on the constitution, organisation and law of the Mediæval Church in Scotland, would be followed next year by a course on the secular architecture of Scotland by Mr. Thomas Ross, architect, who had previously given a course on the ecclesiastical architecture of Scotland; and the Council had further provided for the two following years by the appointment of Professor Hume Brown, LL.D., to deliver a course in 1903 on the times of Mary Queen of Scots, and of Mr. George Macdonald, M.A., to deliver a course in 1904 on the origin and history of coinage. The Gunning Fellowship had been again given to Mr. F. R. Coles to continue his survey of the stone circles of Scotland, and his report to be communicated to the Society in the present session would deal with about seventy sites surveyed during this his third survey. The report of the museum showed that the additions during the year had been 764 by donation and 668 by purchase, while 139 books had been added to the library by donation and 42 by purchase.

TESSERÆ.

Academies of Art.

ON the question of the influence of academies upon art especially Voltaire asserted that the French school became mannerists and mere imitators, after the establishment of the French Academy, and Hogarth energetically opposed the proposition to establish one in this country. He declared that the institution would serve to "raise and pension a few bustling and busy men, whose whole employment will be to tell a few simple students when a leg is too long or an arm too short. More will flock to the study of art than what genius sends; the hope of profit or the thirst of distinction will induce parents to push their offspring into the lecture-room, and many will appear and but few will be worthy. Paintings are plentiful enough in

England to keep us from the study of nature, but students who confine their studies to the works of the dead need never hope to live themselves; they will learn little more than the names of painters. True painting can only be learnt in one school, and that is kept by nature." How far these expressions of Hogarth have been justified is a question too extensive for discussion here. The results of establishing the Royal Academy are that a school of English art does really exist, that it has obtained an honourable position amongst the European academies of art, that its characteristics in portraiture, in landscape and domestic subjects are truth to nature and comparative absence of mannerism, and that the style usually taught in academies and designated "academic" is exactly that which the English school has scarcely attempted; but were any public encouragement offered to artists no doubt can exist that our school could pour forth "its mobs of heathen divinities, nymphs with castellated crowns to represent cities, and the virtues ready ticketed and labelled," as readily as any school of artists, French, German or Italian.

Creation of the Beautiful.

There are two senses in which a thing may be beautiful—the one in which by virtue of some particular association it will excite the emotion of beauty in the mind of a particular spectator, and the other in which it possesses some quality which will naturally make it appear beautiful to all men in all ages. An object which conveys the sense of beauty to any particular person is beautiful to him, and all tastes are therefore equally just, so far as the individual himself is concerned. But it does not therefore follow that all tastes are equally desirable; and if we aspire to be creators of beauty for the admiration of others, we must take care that the elements we employ are such as are the common and natural signs of agreeable emotion. In the exercise of this function we must subdue all our personal associations and address ourselves to the interesting impressions of ordinary minds, and that taste will in this case deserve to be called vitiated which satisfies the associations of only a particular caste of individual, or erects the creations of an eccentric fancy into an idol for universal adoration.

Magnitude in Architecture.

In architecture magnitude is the principal cause of grandeur, although shape and colour may also greatly conduce to this end. Nevertheless, forms either natural or artificial which possess a shape unfavourable to their grandeur may from their excessive magnitude alone become objects of considerable grandeur, as is the case with many mountains and also with several large buildings. Solidity, which corresponds with strength or power in objects of action, and the solemn dignity which appertains to all edifices of magnitude, contribute much to their grandeur. The Norman and Roman styles are well adapted for obtaining grandeur from the boldness and simplicity of character which distinguish them. Association of ideas has a powerful effect in the promotion of grandeur, and of beauty also, but probably more in some arts than in others. Age and decay thus give a character to many edifices that no auxiliaries of art can supply, and which they do in a great measure by the associations that they excite.

GENERAL.

Mr. Walter Emden, past-president of the Society of Architects, has been unanimously awarded the gold medal of the Society in recognition of his services during the past four years.

Mr. C. L. N. Wilson, water engineer and town surveyor, died at Chinde, South Africa, on his way to take up an appointment in the military service. He was a zealous volunteer officer.

Messrs. Brown & Watt, of Aberdeen, have prepared plans for the new poor house which is to be erected at Oldmill, near that city, which have been approved by the Local Government Board for Scotland.

A conversation with **Mr. William Woodward**, architect, on the subject of trades unionism and building workmen is narrated in this week's *Commerce*.

The **Second Ordinary Meeting** of the Society of Architects fixed for December 12 has been unavoidably postponed till Thursday, December 19.

"**Rue Charles Garnier**" is likely to be the name of the new street in Paris which will lead from the Rue Laffitte to the Rue Lafayette. It is in the vicinity of the opera house designed by the architect.

Lieutenant-Colonel Shipway, the purchaser of Hogarth House, Chiswick, has announced his intention that it should remain unaltered as one of the landmarks of the parish.

Mr. Fred Wild, architect, of Bradford, lately died in the town. He was for many years manager and assistant for Mr. W. J. Morley, and since he started separately he erected several new buildings in Bradford.

The **Hôtel Pavla**, a famous modern residence in the Champs-Élysées, is proposed as a mairie for the Eighth Arrondissement. The Grand Salon, which was adorned with work by Baudry, Delaunay, Boulanger, Dalou, Delaplanche and other painters and sculptors, will serve as a *salle des mariages*.

The **Exhibition of Scottish Art** at the Whitechapel Art Gallery will be opened by Mr. A. Birrell, K.C., on Thursday next. In the evening Sir Martin Conway will deliver a lecture.

Dr. Purdie, Professor of Chemistry in St. Andrews University, has offered the university a gift of 5,000*l.* for the purpose of building and equipping a small chemical research department at St. Andrews. Professor Purdie says that their universities are very poorly provided for research when compared with those of foreign countries, and that scientific industries suffer in consequence.

The **Death** is announced of Mr. E. E. Oliver, who was connected as engineer with the Indian Public Works Department since 1868 and latterly had charge of the works in the Central Province. Among his literary compositions were essays on "The Decline of the Samanis and Rise of the Ghaznavis," "The Chagatai Mughals," "The Safavis in Persia," "Coins of Akhbar in Karegra," "Coins of the Mahomedan Kings of Gujrat," "Across the Border, or Pathan and Baluch."

The **Italian Chamber** have adopted Bills approving the purchase by the Government of the Villa Borghese Museum and expropriation of the villa itself.

Mr. E. A. Abbey, R.A., in his picture of the Coronation will show the interior of Westminster Abbey. It will be at least 15 feet in length.

A sum of nearly 2,000*l.* has been received for a memorial to the late Dean Ingram, of Peterborough. After the cost of the memorial tablet has been defrayed, the balance will be devoted to the restoration of the west front of the cathedral. A further sum of nearly 2,000*l.* is required to complete the renovation of the fabric, so that the work begun in 1883, upon which nearly 50,000*l.* has been spent, may be completed.

The **German Government** have voted 300*l.* towards the expenses of an international congress on the question of the housing of the poor, which is to be held next year at Düsseldorf.

An **Appeal** is being made by the committee of the Epping Forest Free Local Museum for 250*l.* which is still required to complete the suite of cases and fittings and to purchase sets of specimens and models, &c., to supplement the collections contributed by members of the club and others.

The **Civil Service Commissioners** announce that an open competitive examination for an appointment as draughtsman in the Hydrographical Department of the Admiralty will be held shortly. Copies of the regulations and forms of application for admission to the examination may be obtained on application, by letter, to the Secretary, Civil Service Commission, Westminster, S.W.

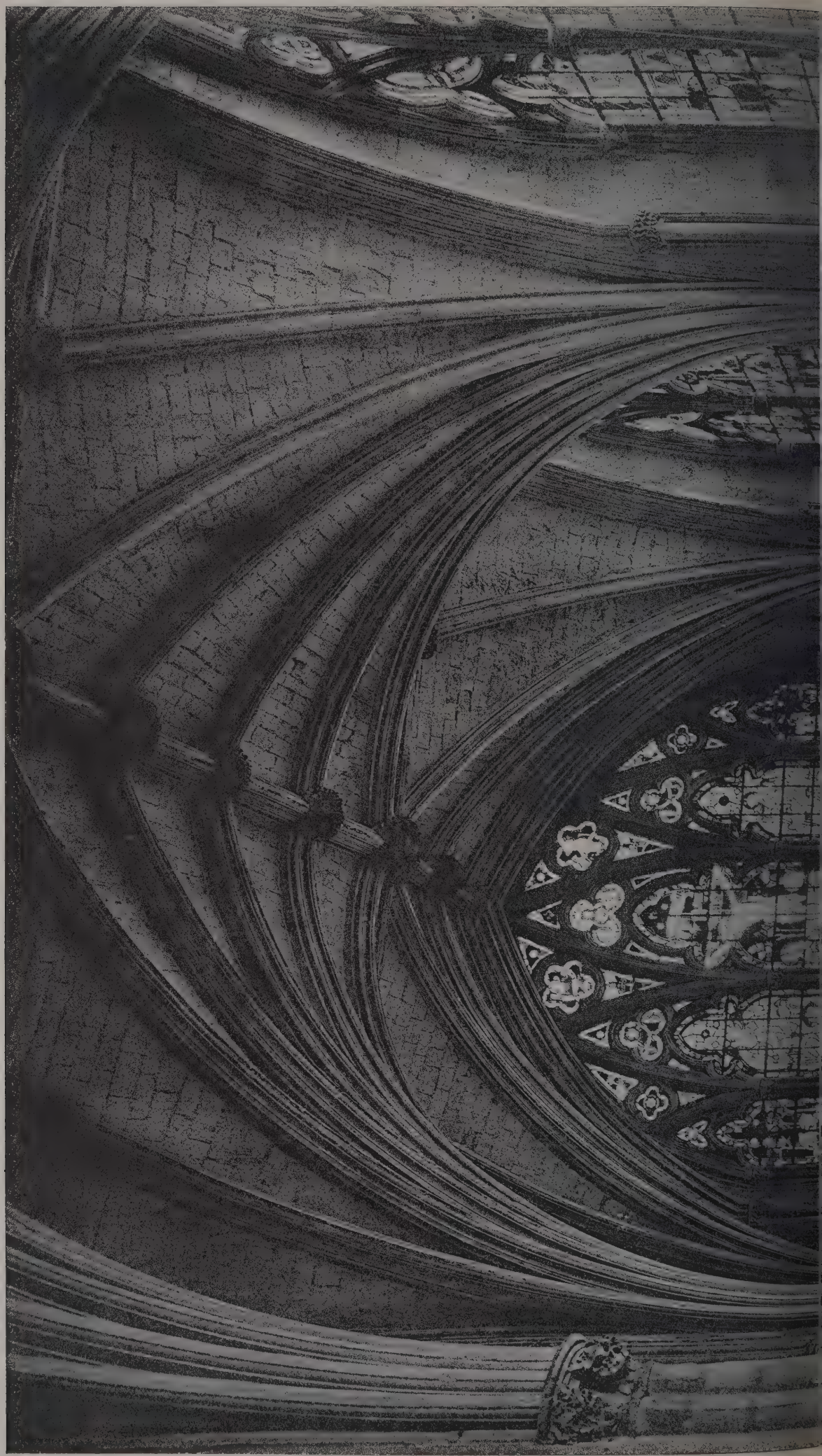
Mr. Peter Bibby, architect, Flint, has been appointed on the commission of the peace for the county of Flint. Mr. Bibby was already a member of the borough bench of magistrates.

Saturday was the last day for receiving plans, &c., in connection with private Bills for the ensuing session of Parliament. This year the total deposits number 318, consisting of 48 railways, 24 tramways, 72 miscellaneous and 174 provisional orders, including electric lighting. This total compares unfavourably with that of last year, when it was 362, made up of 46 railways, 24 tramways, 93 miscellaneous and 199 provisional orders. The miscellaneous schemes include Dover Harbour, Liverpool Cathedral, Post Office (Acquisition of Sites), Dartford Improvement, Medway and Thames Canal, City of London (Spitalfields Market), Royal College of Science and Public Offices Site, L.C.C. (Tramways and Improvement), West Ham Improvement, and London and India Docks Company (Various Powers).

The **Northern Architectural Association** will hold a meeting on Wednesday next, December 11, at 36 Northumberland Street, Newcastle-upon-Tyne, when Mr. J. Miller Carr (of Messrs. Doulton & Co., Ltd., London) will lecture on "Terracotta: Constructional Faience and Ceramic Mural Decoration." The subject will be illustrated by coloured drawings, cartoons, enlarged photographs of completed buildings, and large specimens of actual work.

Mr. S. Inskip Ladds, A.R.I.B.A., architect, of 7 Doughty Street, Mecklenburgh Square, W.C., informs us that he has opened a branch office in the Market Place, Huntingdon.

The Architect, Dec 6th 1901.





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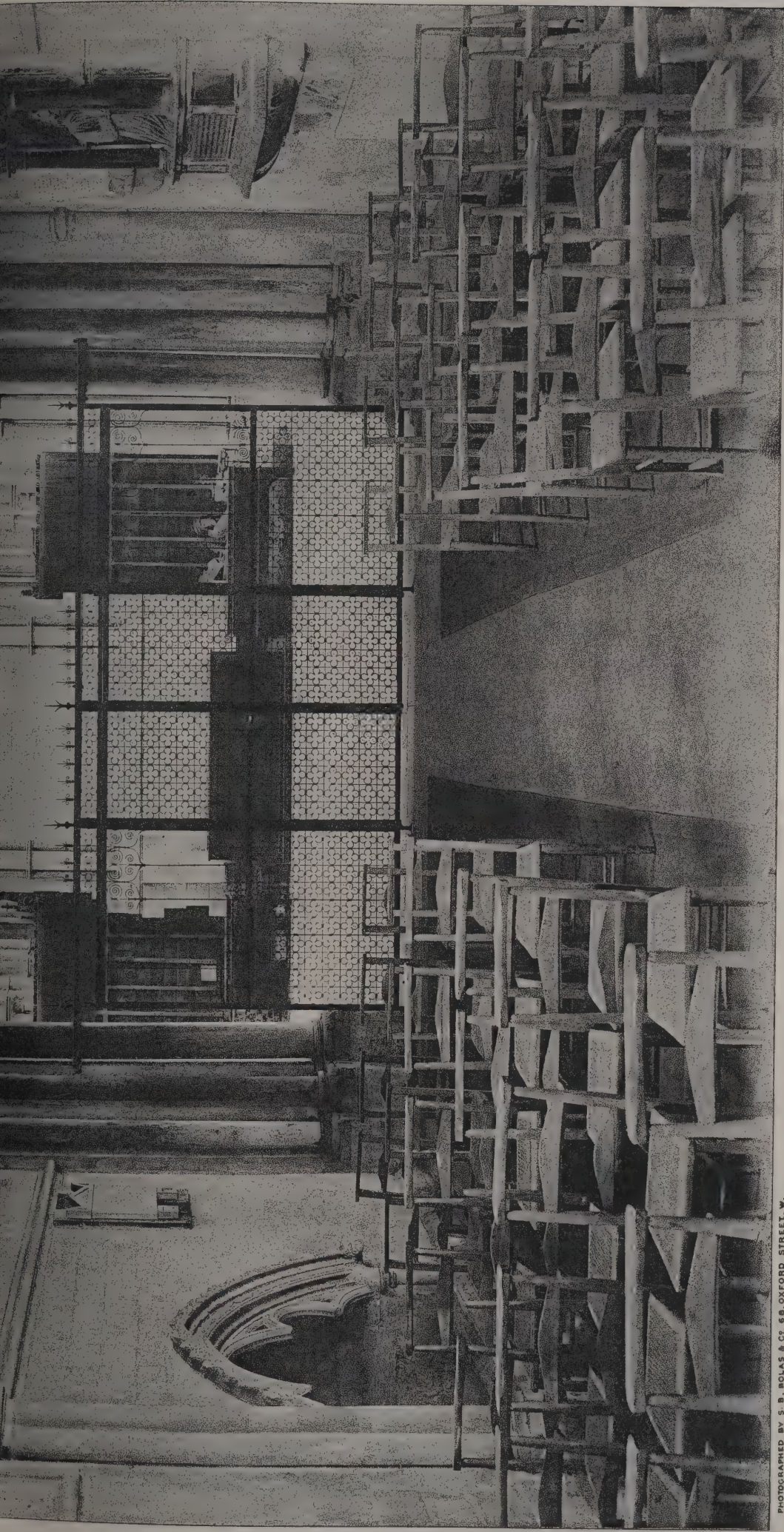
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CATHEDRAL SERIES, No. 373.—CHICHESTER: EAST END OF LADY CHAPEL.

1897
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1899

The Architect, Dec 6th 1901.





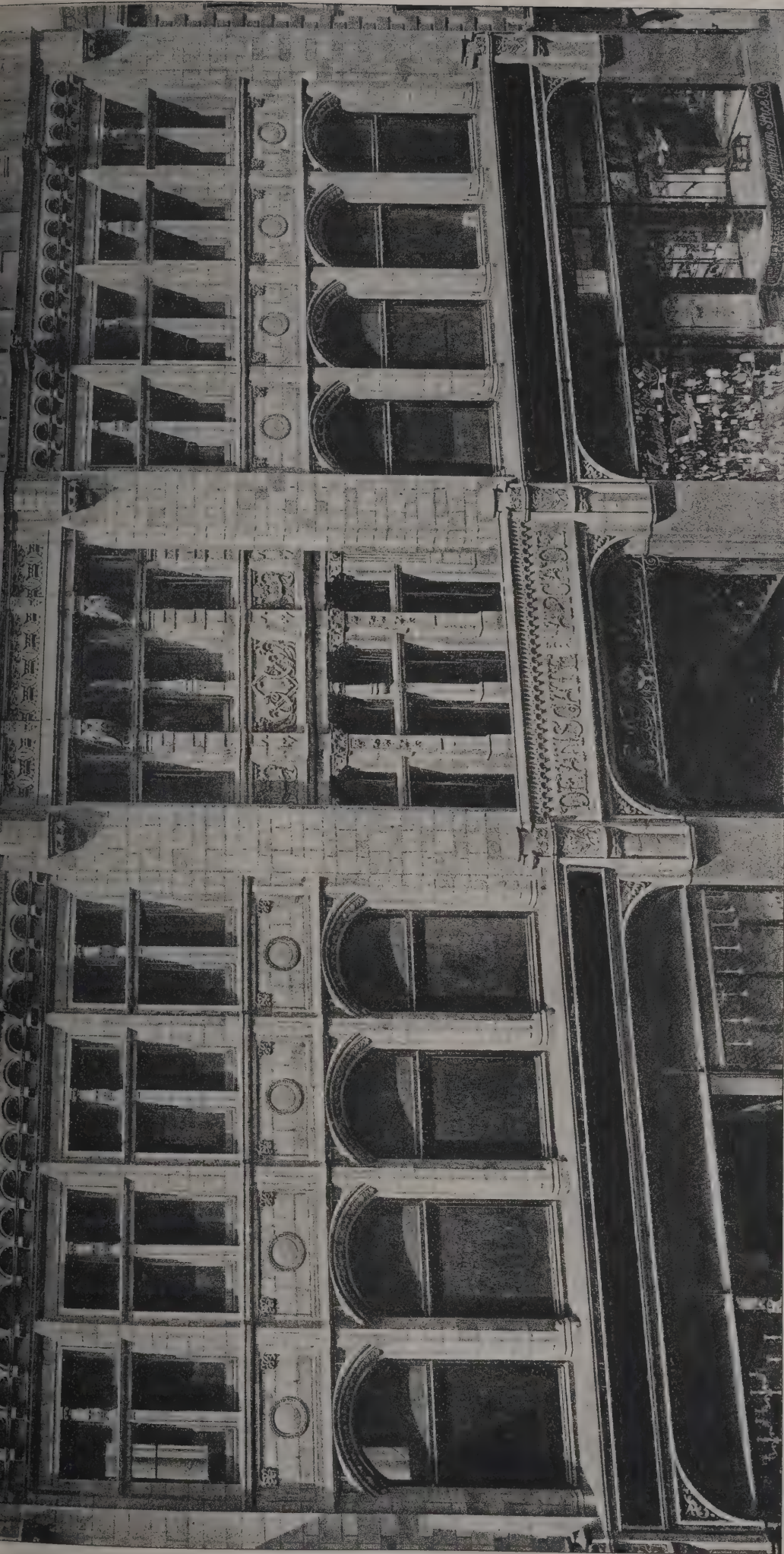
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CATHEDRAL SERIES, No. 374.—CHICHESTER: WEST END OF LADY CHAPEL.

Die Architektur, Dec 6th 1901.





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DEANSGATE ARCADE, MANCHESTER.

JOHN BROOKE, Architect.

Die Apsis, Dec 6th 1901.





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GEORGE BELL, Architect.

THE Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

AUSTRALIA.—May 1.—Designs are invited from sculptors for a memorial statue of Her late Majesty in marble or bronze. All information can be obtained at the office of the Agent-General for the State of Victoria, 15 Victoria Street, Westminster.

BURSLER.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100l. and 50l. will be awarded to the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100l., 50l. and 25l. respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs

placed first, second and third in order of merit (100l., 60l. and 40l.). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

KENT.—Jan. 1.—Competitive designs are invited for laying-out about 16 acres of land, near Canterbury Road, Gillingham, as a recreation-ground. Premiums are offered of £20, £10 and £5. Mr. F. C. Boucher, clerk, Gardiner Street, New Brompton, Kent.

LEIGH (LANCS).—Competitive plans are invited for an infirmary or cottage hospital. Premiums of £30, £20 and £10 will be awarded for the first, second and third best plans. Mr. J. H. Box, hon. secretary, Infirmary Committee, Williams, Deacon's Bank, Leigh, Lancs.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

SCOTLAND.—Jan. 15.—The Kirkcaldy Burgh School Board invite competitive plans for a technical and science and art school to accommodate from 400 to 500 pupils, and an elementary school to accommodate about 400 pupils. Mr. Alexander Beveridge, clerk to the Board.

CONTRACTS OPEN.

ALNWICK.—Dec. 14.—For erection of proposed Duke's school, Alnwick. Mr. T. Pickard, Estates Office, Alnwick Castle.

ARGENTINE REPUBLIC.—Dec. 10.—For construction of harbour works at Rosario. Particulars can be obtained at the Commercial Department Foreign Office, S.W., or personal application.

AXBRIDGE.—Dec. 19.—For laying about 9½ miles of cast-iron socket water-pipes, Axbridge, Somerset. Mr. A. Powell, engineer, 3 Unity Street, College Green, Bristol.

BAKEWELL.—Dec. 13.—For supply of turned and bored spigot and socket cast-iron pipes. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

BAKEWELL.—Jan. 3.—For construction of a circular water-tight concrete reservoir to hold about 115,000 gallons, in the parish of Hassop, and the construction of a circular covered water-tight concrete service tank to hold about 50,000 gallons at the Headstones Head, in the parish of Ashford, and other works in connection with the proposed water-supply. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

BARKING.—Dec. 10.—For construction of a portable floor to the swimming pond at the public baths, East Street. Mr. C. F. Dawson, surveyor, Public Offices, Barking.

BETHNAL GREEN.—Dec. 10.—For water-supply works at the workhouse and for the infirmary, comprising—(1) Enlarging the existing well and lining with iron cylinders; (2) supply and fixing of two gas-engines and pumping machinery; (3) erection of water-tower; (4) supply and fixing of cast-iron tank, about 70,000 gallons capacity; (5) supply and laying of 6-inch mains, &c. Mr. G. H. Hughes, engineer, 97 Queen Victoria Street, E.C.

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BIDEFORD.—Dec. 9.—For erection of infirmary buildings at the workhouse. Messrs. R. T. Hookway & Son, architects, Bridgeland Street, Bideford.

BINGLEY.—Dec. 9.—For taking-down and rebuilding about 46 yards lineal of burr and fence walling in Park Road, Bingley, Yorks. Mr. H. Bottomley, surveyor, Town Hall, Bingley.

BIRKENHEAD.—Dec. 11.—For laying a 14-inch pumping main, spigot and socket, lead joints, from Station Road, Hooton, to the reservoirs on Prenton Hill, Birkenhead, a distance of 6½ miles. Mr. W. Martin Jones, secretary, Cheshire Water Co., 9 Hamilton Square, Birkenhead.

BIRMINGHAM.—Dec. 30.—For erection of pavilions, boiler-house and other works at the workhouse, Erdington Messrs. C. Whitwell & Son, architects, Temple Row, Birmingham.

BISHOP AUCKLAND.—Dec. 9.—For alterations to the Eden Theatre, Bishop Auckland. Mr. F. H. Livesay, architect, Bishop Auckland.

BLACKBURN.—For extensions to Norfolk Street (C.E.) schools, Mill Hill, Blackburn Messrs. Stones & Stones, architects, 10 Richmond Terrace, Blackburn.

BLACKPOOL.—Dec. 14.—For erection of a one-storey frame building, covered with galvanised corrugated iron, about 61 feet long, 17 feet wide, at the destructor works. Chairman, Cleansing Committee, Cleansing Department Offices, 21 Birley Street, Blackpool.

BRADFORD-ON-AVON.—Dec. 10.—For construction of new filter-bed, enlarging receiver, and consequent works at the waterworks, Winsley Road, near Bradford-on-Avon, Wilts. Mr. Sydney Howard, waterworks engineer, Town Hall, Bradford-on-Avon.

BRIGHTON.—Dec. 10.—For laying about 3,660 yards of 18-inch cast-iron water-main and other works along Lewes Road from a point opposite its junction with Hollingdean Road to the Falmer waterworks pumping station. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BROMLEY.—Dec. 17.—For construction of strong rooms. Mr. F. H. Norman, clerk, District Council Offices, Bromley, Kent.

BURY.—Dec. 17.—For construction of sewage-disposal works, comprising circular precipitation tanks, bacteria beds, channels, sludge tank and roads at Livsey Fields. Mr. John Haslam, town clerk, Corporation Offices, Bury.

CAVENHAM.—Dec. 14.—For erection of farm buildings at Cavenham Hall, Suffolk. Mr. P. M. Beaumont, architect, Maldon.

CHISWICK.—Dec. 10.—For erection of certain additions at the polytechnic, Bedford Park. Mr. H. T. Wakelam, C.E., county architect, The Guildhall, Westminster, S.W.

CHESTERFIELD.—Dec. 13.—For construction of a storage reservoir upon the Bar Brook, between Totley and Baslow. Mr. R. F. Hartwright, clerk to Rural District Council, Chesterfield.

CHURSTON FERRERS.—Dec. 14.—For erection of a terrace of three dwelling-houses at Galmpton, Churston Ferrers, Devon. Mr. W. F. Tollit, architect, Totnes.

CONISBOROUGH.—Dec. 10.—For erection of an isolation hospital near Conisborough, York. Mr. J. H. Morton, architect, 50 King Street, South Shields.

DARWEN.—For erection of six dwelling-houses in Jubilee Street and two houses in Hesse Street, off Belgrave Road. Messrs. Woods & Thackeray, architects, Darwen, Lancs.

DOWNHAM MARKET.—Dec. 10.—For renovation of and reseating the Free Methodist chapel, Downham Market, Norfolk. Rev. J. Needham, Bexwell Road, Downham Market.

ERITH.—Dec. 9.—For erection of an engine and boiler-house and a chimney-shaft; construction of sanitary work, water and fire services; rain and surface water drains, and approach roads. Mr. Chas. H. Fry, clerk to Urban District Council, High Street, Erith.

EVESHAM.—For completion of a pair of semi-detached villas on Greenhill Park estate, Evesham. Mr. F. Foster, architect, Leamington.

FLEETWOOD.—Dec. 17.—For erection of Board schools, Chaucer Road, Fleetwood. Mr. T. G. Lumb, architect, 26 Birley Street, Blackpool.

GOOLE.—Dec. 14.—For erection of engineering shop at 13 Barge Dockside, Goole. Mr. F. Chambers, architect.

GREAT STANMORE.—Dec. 18.—For erection of an isolation hospital in Honey Pot Lane, Great Stanmore, Middlesex. Mr. James A. Webb, surveyor, Great Stanmore.

HAMPSTEAD.—Dec. 19.—For installation of an electric fire-alarm system at the North-Western Fever Hospital, Lawn Road, Hampstead, N.W. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment.

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LEEDS.—Dec. 19.—For erection of the showyard at Roundhay Park, Leeds, in 1902, for the Yorkshire Agricultural Society. Mr. John Maughan, secretary, Blake Street, York.

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LEEDS.—Jan. 4.—For erection of about twenty-six blocks of buildings and the alteration of several others, together with roads, drains and all fittings, for the extension of the city hospital at Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LITTLETON.—Dec. 31.—For erection of a bridge in stone, brick and iron across the river Ash at Littleton, Middlesex. Mr. H. T. Wakelam, county engineer, the Guildhall, Westminster.

LONDON.—Dec. 12.—For wiring and fittings for the electric lighting of the Bishopsgate, Brompton and Manchester Square fire brigade stations. Particulars at the Chief Engineer's Department, County Hall, Spring Gardens, S.W.

LONG EATON.—For erection of a three-storey factory, 29 standings long; also a one-storey factory, 28 standings long, with offices, chimney, engine and boiler-houses, &c. Mr. John Sheldon, architect, Darley House, Long Eaton.

LONGTOWN.—Dec. 14.—For construction of waterworks to supply the parishes of Arthuret, Kirkandrews Nether, Kirkandrews Middle and Kirkandrews Moat. Mr. John Little, engineer, Viaduct Chambers, Carlisle.

MANCHESTER.—Dec. 11.—For erection of pigstyes at the schools at Swinton. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Dec. 20.—For erection of the administrative department, &c., at premises in Tame Street, Ancoats. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MACCLESFIELD.—Dec. 16.—For additions and alterations to the public baths, Davenport Street. The Borough Engineer, Town Hall, Macclesfield.

MAIDENHEAD.—Dec. 13.—For supply of electric-lighting plant as follows:—(Contract No. 4) steam, exhaust and other pipes, pumps, condensing plant, &c.; (5) balancing transformers and motor-generators; (6) storage batteries; (7) switchboard; (8) arc lamps and fittings; (9) cable work; (11) travelling crane. Messrs. Burstall & Monkhouse, engineers, 14 Old Queen Street, Westminster, S.W.

MIDDLESBROUGH.—Dec. 9.—For erection of a county court at Middlesbrough. The Secretary, H.M. Office of Works, &c., Storey's Gate, S.W.

NANTWICH.—Jan. 6.—For supply and erection of the following plant:—(Section A) boiler-house plant—one water-tube and one Lancashire boiler, fittings, steam and exhaust

pipes, &c.; (B) engine-house plant—continuous-current steam dynamos, pumps, &c.; (C) switchboard, &c.; (D) and ground mains, lamp-posts, &c.; (E) accumulators; (F) meter; (G) crane, &c.; (H) dust destructor. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

NORWOOD.—Dec. 11.—For erection of a boundary wall at Norwood schools. Mr. W. Thurnall, clerk to School Board, Brook Street, Kennington Road.

PENRITH.—Dec. 12.—For erection of the Threlkeld Wesleyan chapel and schools. Mr. John F. Curwen, architect, Highgate, Kendal.

PRESTON.—Dec. 9.—For supplying and fixing plant connected with a steam blower and heater, electrically driven, the laundry at the Fulwood workhouse, Preston, Lancs. Mr. Whitwell, engineer, Fulwood Workhouse, Preston.

READING.—Dec. 21.—For erection of electric power station. Mr. John Bowen, borough surveyor, Town Hall, Reading.

ROCHDALE.—Dec. 13.—For erection of additional factory buildings at Dearnley. Mr. T. Townend, jun., architect, Fleet Street, Rochdale.

SCOTLAND.—Dec. 9.—For erection of tenement houses at Camelon. Mr. T. M. Copland, architect, 85 High Street, Falkirk.

SCOTLAND.—Dec. 14.—For erection of an electric generating station off Dunnikier Road, Kirkcaldy. Mr. William Williams, architect, 220 High Street, Kirkcaldy.

SCOTLAND.—Dec. 18.—For supply and erection of electric lighting, &c., plant. Messrs. Burstall & Monkhouse, engineers, 14 Old Queen Street, Westminster, S.W.

SEVENOAKS.—Dec. 16.—For erection of an isolation hospital at Roundabout Wood, Sevenoaks. Mr. W. H. Ansell, architect, 11 Great James Street, Bedford Row, W.C.

SOUTHAMPTON.—Dec. 14.—For supply of motors, motor-generators, cables, switchgear, &c., and fixing and adapting the same to existing machines. Messrs. Preece & Carder, 8 Queen Anne's Gate, Westminster.

SOUTHEND-ON-SEA.—For erection of two shops in Heygate Avenue. Messrs. Greenhalgh & Brockbank, architects, Bank Chambers, Southend.

STOURBRIDGE.—Dec. 17.—For erection of three additional purifiers, with elevator and conveyor, valves and connections on the gasworks. Mr. Wm. North, engineer, Gasworks, Stourbridge.

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SUTTON.—Dec. 17.—For erection of public baths, Sutton, Surrey. Mr. C. Chambers Smith, surveyor, Municipal Buildings, Sutton.

SWINEFLEET.—Dec. 18.—For erection of a police station at Swinefleet, near Goole. Mr. J. Vickers Edwards, county surveyor, Wakefield.

TORQUAY.—Dec. 16.—For erection of the Mallock memorial clock tower, Torquay. Mr. J. Donkin, architect, Bournemouth.

TOWCESTER.—Dec. 16.—For making a well and tank at the spring, supplying and erecting wind motor and pump, for the construction of a reservoir of 40,000 gallons capacity, and for providing and laying about 3,000 yards of mains. Mr. J. B. Williams, the Moot Hall, Daventry.

TYWARDREATH.—Dec. 17.—For erection of new schools at Tywardreath, Cornwall. Mr. J. Cook, clerk to School Board, Tywardreath, Par Station, Cornwall.

ULTING.—Dec. 14.—For erection of a house at Ulting, Essex. Mr. P. M. Beaumont, architect, Maldon.

WALES.—Dec. 9.—For erection of new departments for girls and infants at Bodringallt, Ystradyfodwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Jan 10.—For re-erecting the Crown Bridge, which carries the road over the canal at Sebastopol, near Griffithstown. Mr. D. J. Lougher, engineer, Pontypool.

WALES.—Dec. 14.—For supply of plant to the electric-power station, Pontypridd:—(Section A) water-tube boilers, stokers and economiser; (B) (part 1) three steam-engines, (2) two 300-k.w. dynamos and one 150-k.w., (3) balancing set; (C) switchboard and test-room; (E) workshop; (F) travelling crane; (G) arc lamps. Mr. C. Sidney Watson, clerk, Pontypridd.

WANDSWORTH.—Dec. 10.—For erection of four maisonette houses, Wandsworth Bridge Road. Messrs. F. & W. Stocker, 90 and 91 Queen Street, Cheapside, E.C.

WIDNES.—For erection of seventy-yard chimney at Widnes. Messrs. S. P. Bidder & Co., 45 Blackfriars Street, Manchester.

WINCHESTER.—Dec. 13.—For alterations and additions at the workhouse infirmary, Winchester, Hants. Mr. H. Townley Sugden, architect, Eversley, Winchester.

WOLVERHAMPTON.—Dec. 9.—For erection of ice factory and cold stores in Wulfruna Street. Mr. George Green, borough engineer, Town Hall, Wolverhampton.

WOLVERHAMPTON.—Dec. 9.—For alterations and additions at the town hall. Mr. F. T. Book, architect, Wulfrun Chambers, Darlington Street, Wolverhampton.

WOOLWICH.—Dec. 18.—For erection of about 550 feet of boundary wall on the south side of the union grounds at Plumstead. Mr. J. O. Cook, architect, 1A Eleanor Road, Woolwich.

WINCHESTER.—For erection of two pairs of cottages on the Shawford Southdown estate. Messrs. Colson, Farrow & Nisbett, architects, 45 Jewry Street, Winchester.

At Walsall Guildhall on Tuesday Colonel W. R. Slacke held an inquiry on behalf of the Local Government Board into an application by the Town Council for sanction to a loan of 1,800*l.* for surface drainage works. The town clerk (Mr. J. R. Cooper) explained that it had been found that the sewers in the borough were not large enough to carry off the water which ran into them whenever there was a storm, and this had led to flooding in some of the lower parts of the town, which had occasioned great inconvenience. There were also difficulties in the way of dealing with it at the sewage-farm. A scheme for laying a complete system of surface water throughout the borough had been prepared by the borough surveyor, the town being divided into fifteen districts. The estimated cost of the whole scheme was upwards of 23,000*l.*, but the Council thinking that expenditure too large to incur at one time decided to carry out the work in instalments. It had already been done in two districts at a cost of 262*l.* in excess of the estimate. In the third district the cost had originally been put down at 2,716*l.*, but the rise in the price of materials and labour had rendered it necessary to increase the estimate by 30 per cent. In addition, owing to the growth of the town, it had been found necessary to put in a further length of sewer and an increased size of pipe. The lowest tender for the work was 4,360*l.*, and this added to the cost already incurred made a total of 7,338*l.* A loan of 5,500*l.* had been previously sanctioned, and this application was to make up the balance in excess of estimate. The borough surveyor (Mr. R. H. Middleton) having given details of the work to be carried out, the inquiry terminated.

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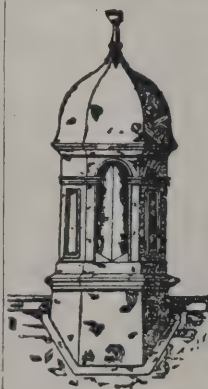
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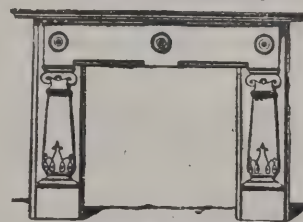
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For alteration to cottages at Alnmouth. Mr. GEORGE REAVELL, jun., architect, Alnmouth.
W. STRAUGHAN & SONS, Alnmouth (*accepted*). £285 0 0

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For erection of two houses in Dale Street, Askham, Lancs.
J. ANDERSON, Beech Street, Askham-in-Furness (*accepted*).

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For electric locomotive crane and permanent way at the Barking Town Urban District Council's wharf.

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Francis & Spilsbury	£955	0	0
Royce, Ltd.	950	0	0
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T. Smith	585	0	0
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J. Booth & Bros.	550	0	0
Lahmeyer Electrical Co.	550	0	0
J. G. Statter & Co.	532	0	0
Chatteris Engineering Co.	445	0	0

Permanent way.

Carrick & Sons	245	0	0
Chatteris Engineering Co.	397	0	0

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For painting and colouring at the Cambridge Street school.
W. RAMSAY, Barrow-in-Furness (*accepted*). £67 19 0

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BRIDLINGTON.

For erection of a detached villa in Flamborough Road. M. A. R. BUCKLEY, architect, Belgrave Square, South Cliff, Bridlington Quay.

Accepted tenders.

J. Sawdon, brickwork	£365	0
G. Storr & Son, joiner	344	0
E. Smith, plumbing	150	0
W. Dodgson, slating and tiling	74	7
E. Dunn, painting	37	0
S. Booth, stonework	11	10

BRISTOL.

For sewerage works in Sneyd Park and Bradley Crescent Shirehampton. Mr. A. P. I. COTTERELL, engineer, 2 Baldwin Street, Bristol.

Sneyd Park Sewer.

W. & J. Bennett	£1,000	0
S. Wood	827	0
J. Flower	825	0
Hatherley	724	0
M. Lovell	717	0
J. & T. Binns	700	0
A. Heard	674	0
Lowe, Ltd.	673	0
Dare & Sons	669	10
MEREWETHER & SON, Bedminster (<i>accepted</i>)	629	0

Bradley Crescent Sewer.

J. Flower	335	0
W. & J. Bennett	320	0
M. Lovell	281	0
S. Wood	280	0
Lowe, Ltd.	265	0
J. & T. Binns	240	0
Merewether & Sons	239	0
Hatherley	237	0
A. HEARD (<i>accepted</i>)	225	0

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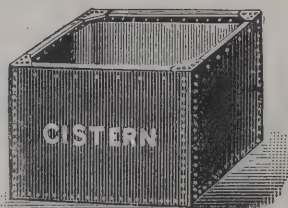
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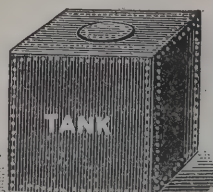
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For carrying out the Bank Street improvement. Mr. GREEN, surveyor.
J. L. RODGER, Castleford (accepted at per schedule).

CHISLEDON.

For erection of three cottages, Draycot Farm, Chisledon, Wilts. Mr. ROBT. J. BESWICK, architect, 35 Regent Street, Swindon.

Leighfield	£590	0	0
S. Chambers	586	5	0
A. J. Colborne	579	10	0
C. Hunt	555	0	0
W. WARREN, Chisledon (accepted)	545	0	0
W. Cowdrey	505	0	0

DEVONPORT.

For erection of a building for disinfectory, and additional wing to the infectious diseases hospital, near North Prospect, Devonport.

Matcham & Co.	£1,298	0	0
T. May	1,197	0	0
A. N. Coles	1,117	10	0
Pearse Bros.	1,098	5	0
Blake	1,065	17	9
Paynter	1,046	12	9
Steer & Pearce	994	12	2
Ambrose	993	16	3
ALLEN & TOZER, Devonport (accepted)	992	0	10

EAST GRINSTEAD.

For supply of laundry machinery at the union workhouse. Messrs. J. DOUGLAS MATTHEWS & SONS, architects, East Grinstead.
CHERRY TREE MACHINE CO., LTD. (accepted).

GREAT BURSTEAD.

For construction of a well near the church, Great Burstead, and for construction of a well and providing and fixing a pump thereto at Guivers Corner, Great Burstead, Essex, for the Billericay Rural District Council. Mr. H. G. CLARK, surveyor.

Harris Bros, Balham	£19	5	0
Harris Bros, East Horndon	17	9	0

FOLKESTONE.

For widening Risborough Lane, Cheriton.
WALLIS & SONS, Maidstone (accepted) £6,228 0 0

HALIFAX.

For erection of the Golden Lion hotel, with stabling, at High-road Well, Halifax. Mr. LISTER COATES, architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.

Accepted tenders.

T. Pickles, Luddenden Foot, near Halifax, mason, &c.
Fielding & Bottomley, South Parade, carpenter and joiner.
J. Naylor & Son, Cheapside, plumber and glazier.
Rushworth & Firth, New Bank, slater, plasterer and concreter.
W. Milligan & Son, Hanson Lane, painter and paperhanger.
Total, £3,710.

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For repairing the water supply connected with the public fountain at Greenhead.
T. NIXON, Hollywood Place, Greenhead, Carlisle (accepted) £21 15 0

HARROW-ON-THE-HILL.

For construction of sewerage works. Mr. J. PERCY BENNETTS, surveyor.

T. W. Pedrette	£9,433	0	0
E. W. Hollingsworth	8,923	0	0
Meston & Hale	8,545	0	0
B. Cooke & Co.	8,483	0	0
J. & T. Binns	8,404	0	0
Wimpey & Co.	8,254	0	0
J. Jackson	8,230	0	0
Wilkinson Bros.	8,216	0	0
C. FORD, Harlesden, N.W. (accepted)	7,974	0	0
Lowes Syndicate (special pipes)	7,425	0	0

HOO.

For rebuilding Four Elms bridge, in the hundred of Hoo, Kent.
TUFF & MISKIN, Rochester (accepted) £311 17 8


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Soole & Son	6,000	0	0
C. Emmett	5,983	15	0
Lock Bros.	5,829	18	0
Barkers, Ltd.	5,575	0	0
A. Westbrook	5,373	18	3
J. Macklin	5,337	0	0
T. Hiscock	5,291	0	0
J. Christie	4,855	0	0
BEACH & CO., Woodford (accepted)	4,575	0	0

JARROW.

For painting and colouring at the Dunn Street schools.			
I. Ingor	£85	0	0
J. G. Halliday	80	0	0
H. Cooney	80	0	0
T. FRASER, 13 Ormonde Street, Jarrow (accepted)	69	10	0

KENDAL.

For street works. Mr. R. HAMPTON CLUCAS, borough surveyor.			
T. Cook-Starkey	£1,732	5	0
F. & W. Dirken	1,160	4	0
S. Park & Son	1,146	9	10
W. CARRIDUS, Fellside, Kendal (accepted)	798	9	2

KILKENNY.

For erecting a boundary wall in the village of Dunbell.			
P. KELLY, Gowran (accepted)	£6	5	0

LAINDON HILLS.

For erection of a detached villa on the Nightingall estate, for Mr. H. Foulger. Mr. H. G. CLARK, architect, Wickford.			
C. S. Johnson, Whetstone, Middlesex	£455	0	0

LANCASTER.

For erection of a water tower at the electricity station, Merton Street.			
R. L. DILWORTH, Aldren's Lane (accepted).			

LONDON.

For construction of two new roads on the Durant's Arboretum estate, Ponder's End. Messrs. MICHAEL FARADAY & ROGERS, surveyors, 77 Chancery Lane, W.C.			
E. J. Betts, Enfield Highway	£1,947	17	0
For erection of cottages at Ponder's End. Messrs. MICHAEL FARADAY & ROGERS, architects, 77 Chancery Lane, W.C.			
Constad & Co., Edmonton	£7,680	0	0
For sinking well at the Renfrew Road workhouse, Lambeth.			
ISLER & Co. (accepted)	£1,809	0	0
For supplying and fixing power distributing mains, electric lighting installation and system of intercommunicating telephones at the new printing works of the Celvicol Company, Ltd., 76 Southwark Street, S.E. Mr. B. H. JENKINSON, consulting engineer, 18 Crouch Hall Road, N.			
C. Cooper & Co.	£503	13	0
Drake & Gorham	456	10	0
W. Heath	423	0	0
F. Hooydonk & Co.	418	8	0
F. A. GLOVER & Co. (accepted)	411	0	0

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For street works in Highfield Street, Haslam Street, Tudor Street and Back Andrew Street, Middleton, Lancs. Mr. W. WELBURN, borough surveyor.			
J. Daltry	£2,382	14	0
T. Rowlands	2,165	15	0
Etheridge & Clarke	2,054	17	0
French & Clough	1,962	7	0
Snap & Son	1,960	19	0
A. Williamson	1,755	11	6
R. Heard	1,710	8	4
Cordwell, Wilson & Lunt	1,700	14	4
R. PARTINGTON & SON, Middleton (accepted)	1,663	15	4

OSWESTRY.

For erection of a sanitary convenience at the Smithfield, in English Walls. Mr. G. WILLIAM LACEY, borough surveyor.			
W. Felton	£197	10	0
W. H. Thomas	185	0	0
Jones & Evans	149	14	6
J. Higgins	147	13	6
J. VAUGHAN, Oswestry (accepted)	133	14	0

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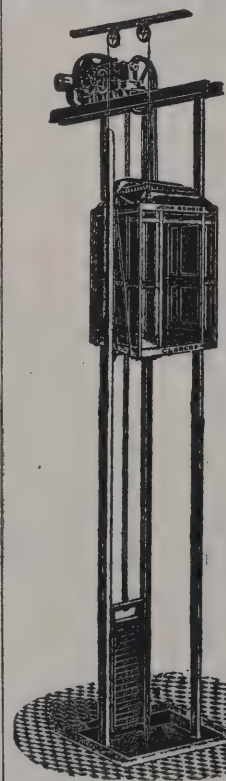
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For erection of a shelter seat around the tidal-ball flagstaff, West Cliff. Mr. T. G. TAYLOR, borough surveyor.

J. Forwalk £135 10 0
G. Home 129 10 0
R. Colgate 103 16 0
J. Buddle 99 10 0
Jarman Bros. 88 14 0
C. Collins 85 0 0
G. MIRIAMS (*accepted*) 81 12 6

RISHWORTH.

For rebuilding of the Ryburndale paper mills, Rishworth, near Halifax. Messrs RICHARD HORSFALL & SON, architects, Commercial Street, Halifax.

Accepted tenders.

C & W. Whitley, Rishworth, joiner.
Crawshaw Bros., Ripponden, mason.
J. Stafford, Sowerby Bridge, plumber.
Rushworth & Firth, Halifax, slater.
G. Greenwood & Son, Halifax, concreter.

ROCHDALE.

For sewerage and draining works.

C. KERSHAW, 5 Tennyson Street (*accepted*).

ROMFORD.

For sewerage works, &c., in Hare Street. Mr. J. TURVEY, surveyor.

T. W. Pedrette £2,226 2 6
W. & C. French 2,071 8 6
Wilson, Border & Co. 1,760 0 0
W. T. Jackson 1,522 18 10
W. Manders 1,287 0 0
W. Poel, jun. 1,274 15 4
JOHNSON & LANGLEY, Brockley, S.E. (*accepted*) 1,230 8 7

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For supply of pumping machinery, for the Swinton Urban District Council. Mr R FOWLER, surveyor.

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For alterations at the Stotfield Hotel, Lossiemouth. Mr. R. B. PRATT, architect, Town and County Bank Buildings, Elgin.

Accepted tenders.

Cruickshank, Aberlour, mason.
Ritchie & Son, Lossiemouth, carpenter.
Ross Bros, Elgin, plumber.
G. Murray, Lossiemouth, slater.
G. Gray, Elgin, plasterer.
McGillivray, Lossiemouth, painter.
Anderson & Bowie, Elgin, ironwork.
Bannochie & Son, Aberdeen, grates, &c.
Total, £2,274.

STRATTON ST. MARGARET.

For erection of infirmary and administrative block at the union, Stratton St. Margaret, near Swindon, Wilts. Mr. R. J. BESWICK, architect, 35 Regent Street, Swindon. A. J. COLBORNE, Swindon (*accepted*) . . . £8,423 0 0

SURBITON.

For private street works at the western portion of Cranes Park Avenue, Surbiton.

W. Adamson £225 0 0
S. KAVANAGH, Surbiton (*accepted*) . . . 182 10 0

WIMBLEDON.

For sewerage works in the district. Mr. C. H. COOPER, engineer and surveyor.

B. COOKE & Co, Westminster, S.W. (*accepted*).

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UXBRIDGE.

For sewerage works, some 200 yards in length, adjoining Lawn Road, Uxbridge. Mr. WILLIAM L. EVES, architect, 54 High Street, Uxbridge.

J. J. Pratt	£620	0	0
Soan	600	0	0
Felkin & Watson	449	0	0
Wheeler	442	0	0
Fassnidge & Son	434	0	0
Williams	315	0	0

WAKEFIELD.

For erection of a store at Lofthouse, near Wakefield.

Accepted tenders.

Binks Bros., Outwood, near Wakefield, brick and mason	£520	0	0
Blakeley & Thackeray, Upper Wortley, carpenter and joiner	321	0	0
Watson & Worsnop, 25A Whitehall Road, Leeds, slater	39	0	0
J. Platts, Wakefield, plasterer	18	19	0
W. Scott, Ltd., Leeds, steel joists £6 15s. per ton; steel girders £9 5s.			

WALES.

For erection of a public convenience at Roath, Cardiff. Mr. W. HARPUR, borough engineer.

J. Allan & Sons	£326	12	4
J. E. Evans	291	14	9
D. W. Davies	291	0	0
F. Small	269	14	1
Knox & Wells	260	0	0
W. T. Morgan	258	15	0
F. J. ROBBINS, Cardiff (accepted)	253	13	6

For erection of two semi-detached houses in Llandrindod Wells. Mr. E. PETERS MORRIS, architect, Llandrindod Wells.

H. Gough	£1,320	0	0
Weale & Lloyd	1,214	0	0
R. E. Davies	1,078	0	0
H. MILLWARD, Llandrindod Wells (accepted)	1,000	0	0

WEST HAM.

For erection of thirty-six double tenement houses for the working classes in Invicta and Rendel Roads, Canning Town, E. Mr. JOHN G. MORLEY, borough engineer.

Spencer, Santo & Co.	£21,000	0	0
Calnan & Son	20,063	0	0
W. Irwin	19,215	18	11
H. L. Holloway	18,370	0	0
Martin, Wells & Co.	17,999	0	0
W. E. Davey	17,275	0	0
Hardy Bros.	16,565	0	0
J. Shelbourne & Co.	16,542	0	0
Gregar & Son	15,930	0	0
J. Barker & Co., Ltd.	15,826	0	0
A. T. Haines & Co.	14,656	0	0
Herbert Bros.	14,247	0	0
G. WISE, West Ham (accepted)	13,955	0	0

WICKFORD.

For extension of drains and construction of outfall works, for the Billericay Rural District Council, Essex. Mr. H. G. CLARK, surveyor.

F. Carter	£200	0	0
WILSON, BORDER & Co. (accepted)	194	10	0

WORTHING.

For installation of electric lighting at Board school, Sussex Road.

B. S. Hiscock	£128	2	0
Duffield & Son	82	10	0
Page & Miles	74	15	0
Bostell Bros.	60	0	0
W. W. Smith & Co.	58	17	6
ROBINSON & SONS (accepted)	52	10	0

Received too late for Classification.

BRADFORD.

For erection of four houses at Great Horton. Mr. HORACE E. PRIESTLEY, architect. Quantities by the architect.

Accepted tenders.

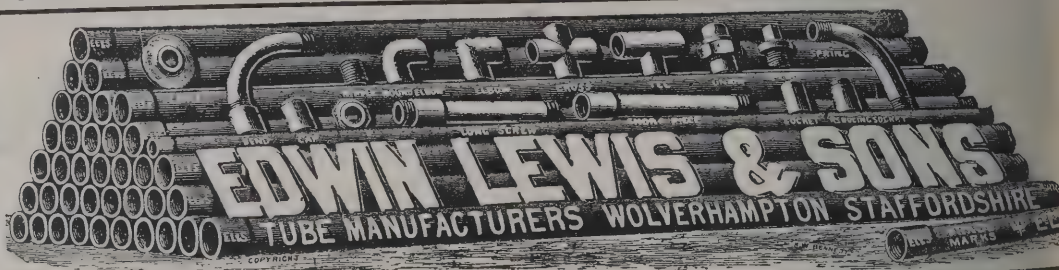
Thos. Balmforth, Queensbury, mason.			
Wilkinson & Kellett, Little Horton, carpenter and joiner.			
Thos. Nelson & Son, Manningham, slater's work.			
O. Smith, Horton Bank, plumber and glazier's work.			
W. Berryman, Manningham, painter's work.			

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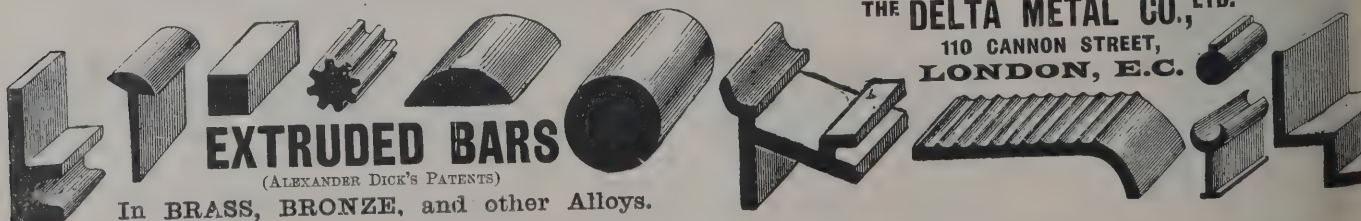
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KETTERING.

For Pytchley water supply for the Kettering Rural District Council. Mr. HERBERT NORWOOD, architect and surveyor.

Contract No. 1.

R. Boyles	£557	3	9
W. Stone	461	18	0
A. Lewis	444	10	0
Smithdale	409	3	6
H. Bolton	399	4	0
R. Marriott	395	5	0
F. Barlow	379	0	0
W. Smart	336	15	0
A. Claypole	329	11	6
LEWIN & SON, Kettering (accepted)	324	14	0
O. P. Drevor	284	19	11

Contract No. 2.

Mather & Son	1,067	9	0
R. Marriott	820	0	0
W. Stone	719	16	10
Smithdale	664	2	6
Jessop & Co.	662	0	0
Roberts & Son	652	4	6
F. Barlow	607	5	0
Salmon, Whitfield & Co.	593	2	6
H. Bolton	588	3	0
W. Smart	561	10	0
Lewin & Son	539	13	0
DIXON & FISH (accepted)	486	15	6

LONDON.

For erection of two workshops in the rear of Nos. 50 and 52 Lindley Street, Mile End, E. Mr. ERNEST H. ABBOTT, 6 Warwick Court, Gray's Inn, W.C.

J. F. Holliday	£395	0	0
J. Gibbs, junr.	368	0	0
Cone & Smith	310	0	0

For erection of seven workshops in the rear of Nos. 24 to 32 Philpot Street, Mile End, E.

R. & E. Evans	£1,758	0	0
Henry Hood	1,449	0	0
George Brown	1,398	0	0

LONDON—continued.

For erection of four workshops in the rear of Nos. 35 to 41 Clark Street, and Nos. 118 to 122 Rutland Street, Mile End, E. Mr. ERNEST H. ABBOTT, architect, 6 Warwick Court, Gray's Inn, W.C.

Henry Hood	£998	0	0
R. & E. Evans	925	0	0
A. E. Symes	850	0	0
George Wales	837	0	0

FIRE TESTS WITH DOORS.

THE British Fire Prevention Committee again undertook a series of investigations at their Bayswater Testing Station on Wednesday afternoon. Mr. Edwin O. Sachs, chairman of the Executive, presided, and among the principal visitors were Sir Joseph Renals, Bart. (lately Lord Mayor), Sir James Weeks Szlumper (lately Mayor of Richmond), Major Fox (London Salvage Corps), Captain Dyson (Windsor), and a number of representatives from the London County Council, the local authorities and principal fire insurance companies.

The afternoon was devoted to tests with doors, firstly with two double deal doors and two double oak doors; secondly, with a single "Jarrah" wood door and a single "Karri" wood door, the thickness of the doors in each case being 2 inches.

The double oak doors appeared to have very considerable fire-resistance compared to the deal double doors, the test in each case extending to 1½ hours.

The "Karri" and "Jarrah" wood doors were unfortunately badly constructed by the makers, and although the wood itself showed considerable resistance during a test of one hour, the fire appeared to get through where the joints had not been satisfactorily made.

The full official reports will shortly appear in the usual way. It may be noted that the testing operations were somewhat hampered by the fog, all the photographs and records having to be taken by flash-light.

Prior to the tests Mr. Sachs entertained a party of officials and visitors at luncheon in the principal committee-room.

BUILDERS who are willing to tender for the erection of a mansion on the sea front at Hove are invited to send their names to the architects, Messrs. Clayton & Black, 152 North Street, Brighton. Bills of quantities will not be supplied.

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Hair Brush,
Elegant Design,
9 in. long, 8/11
and Mirror 17/6
Brush 6/6
tooth Brush 6/11
Comb 5/9



Handsome Design Silver-
plated Sugar Basin,
gilt inside, complete with
tongs, 8/11.
Height over all, 5 in.



Richly Chased Solid
Silver Trinket Box,
2 in. by 1½ in., 7/6.



Solid Silver Cruet, pierced design, fitted with
blue glass lining.
Pepper, 2½ in. high, 5/6.
Salt Cellar, 1½ in. long, 6/6.
Mustard Pot, 2½ in. high, 8/9.



Solid Silver
"Midget" Photo
Frame,
with velvet back,
1/11.



Wrought-Iron and Copper
Jardiniere Stand, fitted
with Polished Copper Pot,
7/11. Height over all,
34 in.; Pot 8 in. across
top.

ILLUSTRATIONS.

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THE GROSVENOR RESTAURANT, GLASGOW.

CATHEDRAL SERIES.—CHICHESTER: EAST END OF LADY CHAPEL.
WEST END OF LADY CHAPEL.

THE PLUMBERS' COMPANY DINNER.

THE Lord Mayor and Sheriffs dined on Tuesday night with the Worshipful Company of Plumbers at the Haberdashers' Hall, Gresham Street. The two branches of the Legislature were represented by Lord Glenesk, Mr. J. Powell Williams, M.P., the Hon. Claude Hay, M.P., and Mr. H. E. Duke, M.P., and the Government Departments by Sir S. Provis (Secretary of the Local Government Board), Sir Geo. Kekewich (Board of Education) and Sir H. Craik (Scotch Education Department). Among the other invited guests were a number of metropolitan and provincial mayors. The Master (Mr. Charles Hudson) presided, and there were also present Alderman Sir John Knill (the Warden) and Alderman R. Hind (Renter Warden).

The Plumbers' is one of those City Guilds which stands in the same position in the reign of King Edward VII. as in 1365, when Edward III. was on the Throne—that of a practical educational institution—and in responding to the toast of "The Houses of Parliament," Lord Glenesk expressed a hope that the Bill promoted by the Company for the compulsory registration of plumbers would soon be passed by Parliament.

Mr. H. E. Duke, replying for the Lower House, spoke of the Company's Bill as just one of those utilitarian measures that was awaiting the attention of the House of Commons.

The duty of proposing the toast of the evening—"Prosperity to the Plumbers' Company and its Public Work"—fell to the Lord Mayor. The Plumbers', unlike many other City Companies, had not, he said, lost its claims to be a trade guild, and he too, as a member of Parliament, hoped the time was not far distant when the Company would have power to certificate those who entered upon the career of a plumber. The toast was acknowledged by the Chairman.

In giving "Our Guest," the Warden, remarking that there were a thousand gates to death, expressed the view that none

were open so wide as that which admitted obnoxious gases to our homes.

At the conclusion of the speeches a conversazione was held.

ABERDEEN ASSOCIATION OF CIVIL ENGINEERS.

THE first ordinary meeting of the Aberdeen Association of Civil Engineers was held recently in Robert Gordon's College, Aberdeen. After Mr. P. M. Barnett, C.E., engineer-in-chief of the Great North of Scotland Railway, had delivered the inaugural address, a paper was read by Mr. James Barron, C.E., on "Harbour Construction," in the course of which he said that on the east coast there were few natural sites for harbours of refuge, and consequently they could only be obtained by the construction of costly breakwaters. He exhibited a design of a national harbour of refuge in Wick Bay, which had been submitted to the Commissioners appointed in 1883 to select a site for a harbour of refuge for the east coast of Scotland, to be constructed by convict labour. It was outside the scope of his paper to introduce controversial matter regarding the best site for a national harbour of refuge for the east coast of Scotland, but he might be allowed to state that the natural features of Wick Bay lend themselves for such a purpose to a greater extent than any other point on our coast. However, the site was not selected, but as it had been recommended by the highest nautical and engineering authorities for the past sixty years, it might be safely stated that none of the other designs or sites submitted to the Commissioners offered the same advantages as Wick.

TRADE NOTES.

THE contract for the new laundry machinery at the East Grinstead Workhouse has been placed with the Cherry Tree Machine Company, Ltd., of Cherry Tree, near Birmingham.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied their patent Manchester grates to the receiving house for Children and Nurses' Home, St. Giles Workhouse, London.

THE alterations to heating arrangements at Copt Hall school, for the Waltham Holy Cross School Board, have lately been carried out by Mr. Sam Deards, hot-water engineer, of

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LONDON, W.

Harlow, and 34 Old Broad Street, E.C. His "Champion" coil boiler has also been selected for heating All Saints Church, Cambridge, by the low-pressure system.

THE War Office has erected a handsome building to provide additional accommodation for the recreation establishment at the Tigne Barracks, Malta, in the tower of which is to be placed a striking turret clock, with four dials and gravity escapement, manufactured and supplied by Messrs Kendal & Dent, of London.

ELECTRIC NOTES.

MR. W. M. ROGERSON, chief assistant in the Nottingham Corporation Electricity Department, has been appointed electrical engineer to the Halifax Corporation in succession to Mr. Street, who has obtained a better appointment in Southampton. The salary attached to the post is 400*l.* per annum.

MR. H. P. POULNOIS, M.Inst.C.E., of the Local Government Board, held an inquiry at Morecambe on Tuesday into the application of the Urban District Council to borrow 5,000*l.* for electric lighting purposes, 1,035*l.* excess expenditure on the refuse destructor, and 200*l.* excess expenditure on street improvements.

A REPORT has been prepared by the Edinburgh electric lighting committee of the Town Council which shows that during the six months just ended the loss on the operations of the undertaking in Edinburgh has been reduced by about 3,400*l.* compared with the corresponding six months of last year, when the figures were over 9,000*l.* This year the sum is about 6,000*l.*

BUILDING AND BUILDERS.

THE foundation-stone has been laid of the new chapel which the Primitive Methodist community are erecting at Woodhouse Hill, Hunslet.

IT has been decided to build a Primitive Methodist school-chapel at Shaw, Oldham, at a cost of between 1,500*l.* and 1,600*l.* A Nottingham architect has submitted plans to the local District Council, which have been approved.

THE building committee of St. John's District, Heywood, Lancs, have accepted plans prepared by Mr. Oakley, of

Manchester, for the erection of a new church in the parish in place of the present iron structure. It is proposed to build the chancel, organ-chamber and vestries, and use the present iron structure as the nave.

CONSIDERABLE difficulty is being experienced by the Woolwich Borough Council in procuring a site on which to erect municipal buildings for the accommodation of their staff. It is proposed to pull down a large number of cottages (which can ill be spared) in the rear of Woolwich Police Court and Town Hall, on a portion of the Ogleby estate. It is estimated that the site alone will cost several thousand pounds.

A SITE has been selected for the proposed Stoke Newington swimming baths north of the passage in Albion Road, and powers are being sought to acquire nine houses and land for the purpose. The site abuts on to the Council's offices and yard in Milton Road, adjoining which it is proposed to erect a dust-destructor, the heat thus generated being used for raising the temperature of the water.

SINCE the appointment recently of a resident priest to the church of St. Mary at Bo'ness the present chapel has been found to be quite inadequate and unsuitable for the wants of the congregation. Realising this, it has been resolved to proceed at once with the erection of a school which will also serve as a place of worship. The site of the proposed new school is situated on the Stewart Avenue.

THE master builders in the West Bromwich and surrounding Black Country districts gave an intimation to their operatives some time ago that, owing to the depressed condition of the trade, they found it necessary to ask for relief in the shape of a reduction in wages, and it was suggested that the men should concede a reduction of $\frac{1}{2}$ *d.* per hour. It is reported that the operatives have determined to refuse this, but some of the leading employers, upon being asked, asserted that they have not as yet had any official intimation of the decision of the men. It is not likely that any further action will be taken on either side before March or April next.

A TERRIBLE accident befell some steeplejacks while at work at Marsden on Sunday afternoon, one man being killed on the spot, whilst another died from his injuries in Huddersfield infirmary at seven o'clock in the evening. A well-known steeplejack named John Tinker, of Manchester Road, Huddersfield, who has had a long experience in the work of chimney building, was engaged to extend a chimney standing 35 yards high at the premises of Messrs Crowther, Bruce & Co.,

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woollen manufacturers. The necessary scaffolding, &c., had been satisfactorily erected, and the work of removing the upper portion of the chimney prior to the extension was being proceeded with, when a considerable portion of the coping-stone and bricks fell. Four men were on the scaffold, these being Bernard McHugh (about 30), of Castlegate; Richard Code (31), Cross Grove Street; James Tinker (20), son of Mr. Tinker; and Vincent McDermott (25), Castlegate, all of Huddersfield. Falling material caused the wooden stage to jerk severely, with the result that McHugh and Code were precipitated to the ground. The former was shockingly injured, and died almost immediately. Code was conveyed unconscious to the infirmary suffering from fracture of the skull and both legs, and died about an hour after admission. The two others had a miraculous escape, and it is stated that they saved their lives by clutching at the fixed material on the chimney, though neither was able to give an intelligible account of his experience. McHugh was engaged to be married at Christmas.

VARIETIES.

THE Bishop of Exeter has opened the new parish hall of St. Simon's at Plymouth. It will seat about 500, and until the new church is built will be used for services. Mr. Ambrose Andrews, of Plymouth, is the builder, the architect being Mr. Harbottle Reed, of Exeter.

AT the last meeting of the Liverpool estate committee a letter was read from Councillor Brownbill suggesting a central railway station to connect the various Liverpool railways. The committee agreed to invite Mr. Brownbill to attend its next meeting.

THE Manchester Society of Architects will hold its third sessional papers meeting in the board-room of the Chamber of Commerce, No. 44 Mosley Street, on Thursday next, December 12, after the special general meeting, when Mr. Halsey Ricardo will read his paper, entitled "The Revival of Gothic Architecture," illustrated by lantern slides.

THE new United Free church at Newtyle, which has been erected at a cost, exclusive of bell and organ, of 1,600*l.*, was formally opened on Saturday last. The new church occupies an admirable site in the centre of the village, granted by Lord Wharnclyffe, and takes the place of an inadequate little building which has served the congregation since the disruption.

AN interesting ceremony took place at the Kidderminster Roman Catholic church on the 27th ult. to mark the completion of the spire which now surmounts the tower, and which has been built at a cost of about 1,000*l.* Another addition has at the same time been made to the church by the gift of a peal of five bells.

AT St. Mary's Hall, Coventry, recently, Colonel C. H. Luard, R.E., held an inquiry into the application of the Coventry Corporation for sanction to the borrowing of 1,945*l.* 7*s.* 4*d.* and 610*l.* for the respective purposes of providing police-station, library and reading-room, and fire-station for Foleshill. There was no opposition, and the inspector afterwards visited the site of the proposed erections.

AN extension of the hospital at Dover, by the addition of a new out-patients' department, is to be carried out as a memorial to the late Queen Victoria, and the foundation-stone was laid by Lady Pearson on Wednesday. An operating theatre is also being built as the town's memorial to the late Sir Richard Dickeson, who was for many years president of the hospital. The foundation-stone of this section was laid by the Countess of Guilford. The Earl of Guilford was also present.

A MIXTURE of powdered Canadian asbestos with 10 per cent. of white lime has been recommended in Germany as a mortar having important advantages, with slow drying as the only disadvantage. It resists fire to an extraordinary degree and is also waterproof, exposure to a hot fire for an hour and a half followed by a drenching with water having had no effect. The mortar is very tough, and only half as heavy as cement mortar.

AMONG the contents of *The House* for December, which are specially suitable for Yuletide, may be mentioned "Santa Claus"—which introduces a pleasing variation in the old-fashioned Christmas tree—an illustrated article on Christmas decorations, and also "A Christmas Play, and how to produce it." Besides these seasonable articles, there are also full instructions for a new Home Art Work in Plaster, with working drawings; an illustrated article on Buckingham Palace and details of an important prize competition in designing for Home Art Work, with prizes to the value of over 10*l.*

FOR some time past it has been rumoured that the Islington parish, or borough church is unsafe, and it now appears there is good reason for this belief. The building has been examined by an architect, and it is proposed, in place of

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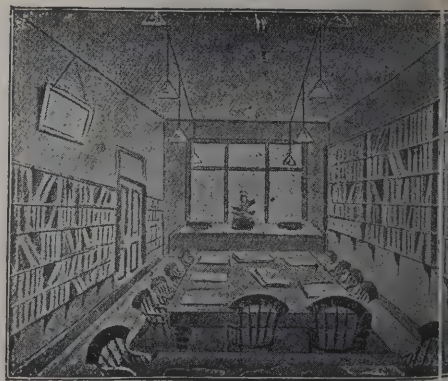
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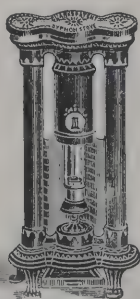
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Mr. D'OYLY CARTER, of the Savoy Theatre, writing of these Stoves, says:—"I used your Hygienic Gas Heating Stoves in this Theatre all last winter, and found them in every way most satisfactory. I think I must have had ten or a dozen of them in various parts of the Theatre, and in the very cold weather we had last winter they succeeded in warming the corridors, &c., admirably. Two of them were used to heat the Business Offices of the Theatre, and they fulfilled this object capitally while apparently in no way injuring the air in the offices—a most important consideration."

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VOLUME LXV.

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making extensive alterations, to rebuild the entire structure. The present edifice, which is better known as St. Mary's Upper Street, was opened for Divine service on May 26, 1754. It is expected that an attempt will be made to demolish the edifice next spring, and during the process of building the services will be held in the Bishop Memorial Hall attached to the vicarage.

THE new fever hospital which has been erected at Tippetthill, near Bathgate, has been formally opened. The building and furnishing have cost over 8,500*l*. The new hospital occupies a conspicuous position, and has a handsome outward appearance, while inside it is fitted up in the most modern fashion. It gives accommodation for twenty-eight beds, two pavilions containing twelve beds each, and the two observation wards, which are attached to the administrative block, accommodating two beds each. The cost per bed works out at 316*l*. Messrs. John Melvin & Sons, Alloa, are the architects.

A COMMODIOUS new post office, which is in course of erection in Castle Foregate, Shrewsbury, where it is greatly needed, is now approaching completion, and it is hoped that it will be ready in time for the Christmas rush of business. It is built of brick, with some stone facing, is heated by hot-water pipes and paved with wood blocks. On one side are the offices of the superintendent of the department, from which that official can ascend unobserved to a "crow's nest," and notice what is going on in all parts of the sorting-room. Quite adjacent are a large dining-room, a kitchen, storeroom, pantry and other offices, and at the rear of the premises are a large yard and offices, which will be used by the outdoor telegraph department. The mails will be loaded and unloaded in a covered passage running alongside the sorting-room.

THE Birmingham Medical Officer of Health's quarterly report includes a section dealing with the sanitary work performed by the Health Department, in which Dr. Hill points out that as many as 712 houses were cleansed, 559 were repaired and twelve were closed as unfit for habitation. Thirty houses were provided with better ventilation, water was removed from the cellars of 100 and the spouting of 150 was repaired. The danger to health arising from the presence of ashpit and pan privies was reduced by the conversion of 195 of the former and 107 of the latter into water-closets. Considerable attention was given during the quarter to the proper provision of receptacles for ashes and house refuse, 256 tubs or

pails being ordered and provided. To improve the condition of the courts, sixty-four yards were paved and 120 were repaired. The Corporation staff also cleansed a number of courts at the expense of the landlords or tenants.

A MEETING of the Edinburgh Architectural Association was held in their rooms, No. 117 George Street, on the 28th ult., Mr. Henry F. Kerr, president, in the chair. Mr. Louis A. Barnier, B.A., delivered a lecture on "The Old Monuments of Provence." The lecture opened with some remarks on the history of the country, and showed how the influence of Greek and Roman civilisation began earlier and finished later than in the rest of Gaul, and therefore left a stronger mark on the people, who have ever since preserved an individuality and have been, so to speak, a nation apart from the rest of the French. Some of the monuments, Roman theatres, amphitheatres, temples, mausoleums, &c., in the following towns were specially mentioned:—Orange, Avignon, Tarascon and Beaucaire, Arles, Aignes, Mortis, Carcassone and Nîmes. These buildings were also illustrated with a set of very fine limelight views. At the conclusion of the lecture Mr. Hunter Crawford proposed a hearty vote of thanks to Mr. Barnier for his lecture, which was duly accorded.

SHALLOW UNDERGROUND RAILWAYS.

A REPORT has been prepared by Mr Alfred Baker (tramways manager), Mr. John H. Rider (electrical engineer), and Mr. J. Allen Baker (vice-chairman of the highways committee of the London County Council) on the underground lines which have been adopted in New York and Boston. "In the latter the methods adopted for building the subway were of three distinct types. In the first the side walls and the arch are of masonry, a single wide arch covering the whole subway. In the second there are two distinct tunnels side by side, each built of masonry. In the third upright steel columns for the side walls and transverse steel girders for the roof are used, with masonry and concrete around and between them. . . . The open inclines leading to the surface roads have granite walls, and are protected by railings. . . . The standard height of the roof is 14 feet clear above the surface of the rails, and the roof is generally about 3 feet below the street surface. In some places, however, the subway is considerably lower than this. . . . One of the most important differences between a shallow sub-

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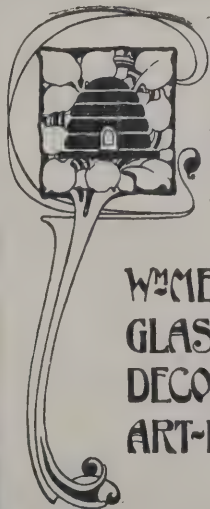


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way and a deep-level tube, from the point of view of the travelling public, is well illustrated at Boston. Instead of having to descend a very great number of steps or enter a lift in order to reach the cars, passengers use a short, well-lighted stairway, having from twenty-five to thirty steps. . . . The stairways are covered by neat kiosks, or similar structures, placed at convenient points, either on the sidewalks or, where there is sufficient width, in the centre of the roadway. Persons can thus descend to the platforms or ascend to the street in a very few seconds. In our opinion this single feature is in itself one of the principal factors in the great popularity of the subway.

"We were particularly struck with the brightness and airiness of the subway. The air was extremely good and fresh, and gave us the impression of being constantly changed. There was no stuffiness, and although the day was hot the temperature inside the subway was pleasantly cool. At the same time, the difference in the temperature was not so great as to be likely to cause chill or discomfort by the sudden change. The subway was well lighted by incandescent lamps, besides which a considerable amount of natural light was obtained. . . . We were also impressed by the comparative quietness of the subway, both as regards the street traffic and the noise which might have been expected from vehicles passing overhead. . . . The number of cars running in each direction is about 250 per hour, or about 4,000 in each direction per day of sixteen hours. On the Central London Railway there are only 350 trains per day in each direction. These, of course, are trains consisting of about five carriages, but even allowing for this the traffic in the Boston subway is considerably greater than in the 'Twopenny Tube.'

"In New York instead of the arched roof and the massive masonry sidewalls of an ordinary underground railway, the plans of the Rapid Transit Commission call for a structure rectangular in shape, and built in an open trench. On a concrete bottom will be erected, at intervals of 5 feet, running across the line of street, frames of steel beams, securely rivetted together. Between these frames, or ribs, will be built a concrete wall and a concrete roof of sufficient thickness to enclose the steel structures entirely. In addition to the side walls thus formed, the roof will be supported by rows of light steel columns between the tracks. . . . Part of the subway will have four tracks. The two centre tracks will be used for an express service, with stations $1\frac{1}{2}$ miles apart, and it is expected that a speed of about thirty miles an hour will be obtained. On the outer tracks the stations will be at much more frequent

intervals, averaging four to the mile, and the trains will run at a speed of about fourteen miles per hour. This will necessitate two types of stations, one with platforms on the outside of the outer tracks, at which the local trains only will stop, the express trains running through the centre tracks, and the other with outer platforms for the local trains only, and island platforms for either express or local trains. At these latter stations the subway is depressed sufficiently to allow of a bridge under the roadway over the four tracks, with stairways leading to the various platforms. . . . The contract price for the construction of the New York subway was 35,000,000 dols. (7,000,000l.)."

Mr. Allen Baker, in his addendum to the report, says:—"There are distinct advantages in favour of the shallow tramway as compared with the deep tube, especially when the construction and operation is undertaken by the municipal authority." The advantages are said to be as follows:—

1. The shallow construction may be used as a subway for water, gas, electric, &c., mains, as well as a tramway, thus affording a double advantage and yielding a double revenue.

2. When the pipe services have been removed into their subways the great annoyance and disadvantage now experienced by the tearing up of the streets by the companies would be over, as no work would require to be done on such streets except repaving or repairing of the pavement.

3. This double service would not only enable the municipal authorities to deal with the pipes and mains without loss to the ratepayers (which would be impossible otherwise), but should prove to be financially profitable.

4. The shallow tramway should be less costly for construction than the deep tube, and as it would run so near the surface, and be provided with more frequent stations, is not only better ventilated and better lighted, but, being more accessible to the public, would receive greater patronage, especially by short-distance riders.

5. The shallow tramway following the routes of the streets would avoid running under any private property, thus preventing the possibility of objection being raised on account of vibration (and which would also be entirely prevented by its special construction).

6. The service would be much more frequent than in the deep tube, thus avoiding any waiting for trains, and as the shallow tramway would be approached by steps from the street (which would be 12 or 14 feet above the tramway platforms) the time taken to descend by the elevators to the deep tube

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would be saved, and also the expense of operating the elevators, which is an important item of working cost.

7. As these underground tramways have proved to be a great financial success and a public benefit in reducing congested street traffic in such cities as Boston, Paris and Budapesth, it may be safely assumed that a like result would be experienced in London, where the population and the need are so much greater.

8. The provision of these subways in connection with the Council's surface lines would greatly enhance the value and increase the earning power of the Council's tramway system in London, and the providing of a complete system of intercommunication would be of the greatest value in solving the housing problem.

Powers are to be sought to construct a shallow tramway in connection with the new Holborn to Strand thoroughfare.

SOCIETY OF ENGINEERS.

At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on Monday evening, December 2, Mr. Charles Mason, president, in the chair, a paper was read on "The Sewage Question during the last Century," by Mr. H. Alfred Roechling, C.E., F.G.S.

After some preliminary remarks relating to his subject, the author gave a short history of the theory and practice of sewage purification during last century. Concerning its theory he remarked that from the position of pure instinct it had advanced through various stages, until at last Pasteur and others had given it that form it now generally took, viz. that in sewage purification, mechanical, chemical and biological agencies played an important part, and that the decomposition of the organic matter was in the main a bio-chemical process.

Dealing with the practice of sewage purification, the author observed that the only known method of sewage treatment at the dawn of the last century was irrigation on land. He then pointed out how, years afterwards, chemistry had tried to make a lucrative business out of it; how commission after commission, and in fact every authoritative inquiry, had expressed an unmistakable verdict in favour of land treatment, and how, in consequence of this mass of accumulated evidence, the Local Government Board had been compelled to insist on and treatment of the raw sewage or effluent in any scheme of sewage disposal for which its sanction had been asked.

But the author observed that even the best of land could not do its work for ever, if it was not well looked after. And so it happened that through gross neglect and ignorance, the apparent failures created a strong feeling against land treatment, and finally led to the appointment of a new Royal Commission. This new commission had just issued its interim report, in which it had re-established land in its position as the first and only natural method of sewage treatment, and had termed all the biological or bacterial methods "artificial," some of which would be admissible without land.

The author next referred to the natural self-purification of sewage, or to the self-purification of sewage in the only natural medium, land, and considered in detail the self-purifying powers of land, mentioning among other things that besides its retentive and absorbing properties it possessed also the power to decolourise, to deodorise and to retain and render harmless such poisons as strychnine, nicotine, &c. The self-purifying process, he said, might be likened to a process of digestion, and when the digestive powers of land had been overtaxed sickness was the only natural result.

After describing the work of bacteria in the soil and some products of their activity, the author stated that experience and experiment had proved that the chances of pathogenic germs doing further harm on sewage farms were exceedingly remote. No soil, with the exception of peat—owing to its great amount of moisture—was probably entirely useless, and a loamy sand subsoil had in many instances proved very effective. The depth of soil necessary for purification depended on local conditions, such as the character and thickness of the top soil (humus), the nature of cultivation of same, the character of the subsoil, especially its facilities for retaining and exchanging air quickly, the surface slopes of the land, and the level of the subsoil water (thickness of the zone of evaporation and of the passage and capillary zones).

Dealing next with the artificial self-purification of sewage or the self-purification of sewage in artificial media, the author remarked that, apart from the sludge difficulty (which had been reduced but not altogether removed), these artificial methods had given very fair and encouraging results concerning the chemical purity of the effluent. But whilst warning his hearers not to expect that these theoretical results would be reached in practical working, and incidentally mentioning two cases of failure of works of this kind, he drew attention to the bacterial impurity of the effluent, which was little better in this respect than raw sewage. The legislature, however, could not con-

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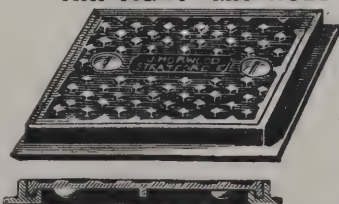
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template without the gravest concern the wholesale admission of pathogenic germs into the streams, as an action might lie against a sanitary authority for causing an outbreak of typhoid fever lower down the stream.

After stating that the excessive quantities of manurial elements in the effluents from artificial self-purification works might engender such a luxuriant vegetation in the streams as to obstruct the natural flow of water and to completely cover the whole bed, the author stated that the objections raised led, in the natural order of things, to the supplementing of the artificial methods by the only natural one—land—when all reasonable requirements would be satisfied. It might likewise prove advantageous to partially treat the sewage by an artificial method before using it on the land. No system, however, would prove successful unless the present method of supervision of sewage-disposal plant was radically altered and the education of future managers systematically taken in hand.

HOUSING IN COUNTRY AND TOWN.

A CONFERENCE on "Housing in Country and Town," under the auspices of the Land Law Reform Association, was held on Tuesday at the Westminster Palace Hotel. Sir W. Foster, M.P., presided.

The Chairman said they hoped to stimulate public interest in the question and to bring about changes in the law. Taking some thirty registration districts throughout the agricultural portions of England, he found that since 1891 there had been a decline of 9.3 per cent. in the rural population, or, in other words, out of some 400,000 people no less than 38,000 had disappeared. The question would naturally be asked how it was, in view of these facts, that the housing accommodation was still insufficient. The explanation of the paradox was simple. The houses in the rural districts of England, owing to the depression in agriculture, to the fact that private enterprise did not find an outlet in the erection of such labourers' cottages as were required, and to other causes, were rotting away faster than the people were running away. The Housing Act of 1890, and the Amendment Act of 1900 had been in operation, but neither had so far had any great influence. The Act of 1890 was inefficient and unworkable. In a few instances, owing to the devotion of good people, the Act had been put in force, but their success had been hardly great enough to stimulate the

parish councils to undertake the Herculean labour involved. He believed they must not only have the power to acquire land at a cheap rate, but that they must put the responsibility on the local authorities of housing the people in a proper sanitary condition, and that the money required for the purpose should be obtained at the lowest possible rates. If we took a bold course future generations would be repaid a hundredfold.

Mr. R. J. Price, M.P., read a paper on "Housing in the Rural Districts," in the course of which he said that the vast majority of rural districts required only a very moderate capital expenditure to render their cottage accommodation sufficient and healthy. They asked that the Local Government Board should be the only controlling authority, and that on its being satisfied of the necessity for the cottages and the reasonableness of the building scheme, it should sanction the carrying out of the work by the rural district council and the advance of the required funds. The localities were willing to do their part if the Government would help them—first, by simplifying and cheapening the procedure of inquiry; secondly, by lending the money at the rate which it cost the Government; and thirdly, by extending the number of annual redemption instalments to 60 or even 75.

Mr. Channing, M.P., moved the following resolution:—"That this conference is of opinion that the scarcity and insanitary condition of the housing accommodation for the working classes in very many of the rural districts of England and Wales is a growing scandal and a menace to the well-being of the country; that as private enterprise has largely failed to meet the needs of the case, and as the Housing Act of 1900 has failed to give any impetus to municipal cottage building in rural parishes, a further Act should at once be passed enabling rural district councils (a) more easily to acquire land for the purposes of building and, if necessary, to use the compulsory powers granted to parish councils by the allotment clauses of the Local Government Act, 1894, except that the inquiry shall be conducted by the Local Government Board instead of by the county council, and that this shall be the only inquiry necessary, and except that the period for which the land may be compulsorily leased shall not be limited; (b) to build cottages, without the sanction of any other authority being required; (c) to raise a loan for these purposes, with the consent only of the Local Government Board, the period of repayment of such loans, if for the purpose of acquiring land, to be extended to 100 years, and if for the purpose of building, to be extended for 75 years; (d) to attach

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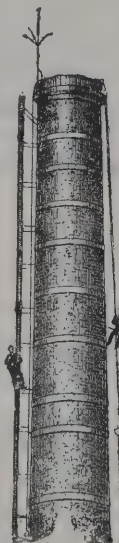
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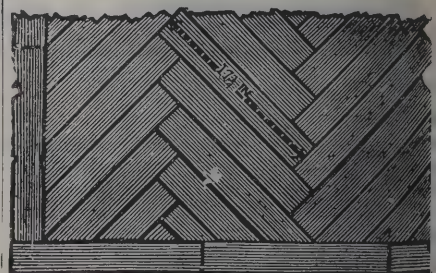
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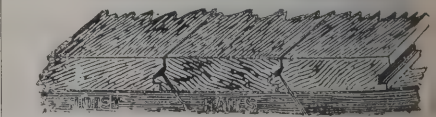
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gardens to the cottages, the limit of size of which shall be 1 acre instead of $\frac{1}{2}$ acre; (e) to delegate to a joint committee of the parish and rural district councils the building and management of the cottages. This conference is also of opinion that, if neither the rural district council nor the county council exercise these powers, the Local Government Board shall, on the application of the parish council, hold a local inquiry, and if satisfied that the working classes of the village or parish are not properly housed, and that the local authorities have neglected their duty in the matter, shall make an order on the rural district council to build such number of cottages with such accommodation as in the opinion of the Local Government Board is desirable."

Sir J. Dickson-Poynder, M.P., read a paper on the housing question in urban districts. The difference between the commercial value and the housing value of certain sites was immense; for instance, in the Holborn and Strand improvements the cost of setting apart certain land in the neighbourhood for rehousing amounted to 215% per head of the persons to be accommodated. On the other hand, sites were still to be obtained on the outer fringes of the county of London, where land could be bought at a sufficiently moderate price to allow for working-class dwellings being erected without having to exercise the artificial manipulation of writing down values. The simplest way would be to fix a fair sum per head as the basis of payment, and in the event of any difference of opinion arising the final assessment might be left in the hands of the Secretary of State or some board of arbitration appointed by him. It was obviously wrong that the fact of an owner possessing property of such an insanitary character as to be unfit for human habitation should afford him the opportunity of obtaining compensation for that property at the full improved value of the land. If Parliament by an improvement in the Housing Act were to say that in all future cases of insanitary areas the compensation allowed the owner should be limited to the actual value of the houses and the value of the land for rehousing purposes, it would reduce the expense of these schemes by a large amount, and, beyond that, it would have a far-reaching effect on all dwelling-house property throughout London.

Mr. T. Lough, M.P., moved the following resolution:—"That this conference, with a view to removing the grave and admitted evils in connection with housing in urban centres, urges—(1) That every facility should be given to local authorities to obtain land and build houses, and particularly (a) that no compensation should be paid to the owners of house

property which is condemned as insanitary and which has to be cleared at the public expense; (b) that money borrowed for the purpose of buying land should be repayable by instalments spread over a period of 100 years, and money borrowed for building should be repayable in a period of not less than 75 years; (c) that the procedure for acquiring land compulsorily for building should be greatly simplified and cheapened in matters of detail. (2) That all practicable means should be taken by Parliament and local authorities to improve the means of communication between the centres of the towns and the suburbs. (3) That in order to bring more building land into the market, in order to prevent the benefit of public improvements falling to a few private individuals, and in order to secure that all sections of the community shall contribute to the expenses of the community, a large measure for the rating of land values in towns is urgently necessary."

The resolution was carried unanimously, and the proceedings closed with a vote of thanks to the chairman.

THE BLACKLEY HOUSING SCHEME.

THE inception of the Manchester Corporation housing schemes, to which public attention has again been drawn by the suggested alteration in the plans of the houses on the Blackley estate, may be traced back as far as 1881. In that year, says the *Manchester Guardian*, Dr. Leigh, the then medical officer of health, presented a report which aroused much interest and created an imperative demand for remedies. The Council some time later appointed a special committee, afterwards called the unhealthy dwellings committee, with instructions to go into the whole matter. The result was seen in two schemes—one the Manchester Labourers' Dwellings Scheme, 1890, and another the Manchester Dwellings Reconstruction Scheme, 1891. By these schemes provision for persons displaced by the pulling down of insanitary premises was met by the erection of Corporation dwellings in Oldham Road, Pollard Street, Chester Street, Pott Street and Harrison Street. But provision had not been made at the end of 1899 to meet the large demand occasioned by the proceedings under the local Act of 1867. Upwards of 5,965 houses had been closed under that section, and only 2,782 had been substituted, although something like 300,000% had been spent on the various schemes for the better housing of the people.

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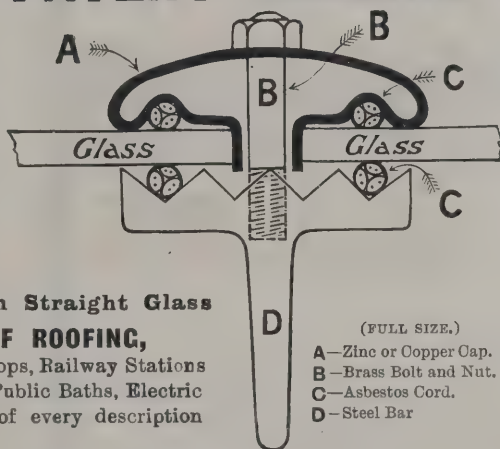
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When, therefore, an opportunity came for the purchase of an estate in Higher Blackley and within the city boundary, which a branch railway already proposed by the Lancashire and Yorkshire Company and the approaching adoption of electric tramways promised to render more accessible, the sanitary committee recommended this site as a means whereby a considerable number of people could be accommodated with suitable—not to say model—dwellings. The estate was a large one, covering about 237 acres, and it was offered to the Corporation for 36,000*l.*, or about 150*l.* an acre, including all the mineral rights. The recommendation of the committee was adopted by the Council. The Local Government inquiry into the application for borrowing powers was held in April of last year, and on that occasion Mr. Alderman M'Dougall, deputy chairman of the sanitary committee, in supporting the application, said the difficulty of the committee in dealing with insanitary dwellings would be much lessened if it were certain that houses would be provided in some degree approaching the number of houses closed or demolished. The fact that the Corporation were providing suitable houses for tenants of the working class in a healthy part of the city accessible to and from the centre by tramways and a railway would expedite and make more practicable the removal of insanitary properties. Of this land at Blackley it was intended to set apart about 50 acres for allotments, and the rest would be available for houses. The application was granted, and since that time the committee have been busily engaged with plans and schemes for making the best of their purchase. The estate will in process of time be reached from the one side by a proposed tram line, which is to begin at the top of Cheetham Hill Road, skirt Heaton Park, and probably proceed to Middleton through the village of Rhodes. On the other side a projected tram route is to join the Corporation system at Barnes Green, or rather at Blackley itself, now that the system has been extended thus far, and proceed north-west in an almost straight line to Middleton by way of Rochdale Road. At Middleton, of course, it joins on to the other line. The route by Middleton Road will pass the Blackley estate at Rhodes, and that by Blackley will skirt the other side of it for some distance. Then there are the projected Manchester and Middleton railway, with a station at Blackley, and the approach by Boothroyden Road, near Rhodes.

With regard to the laying out of the estate, two separate sets of plans have been prepared, but the full details of neither

scheme have as yet been made public. It is understood that the latest proposal, which has not as yet, however, been finally adopted, is to follow the plan of a similar scheme for the erection of model cottages at Leek, in Staffordshire. In that scheme, which finds considerable favour with the Manchester authorities, the houses are built in blocks of about ten dwellings. The exterior is of red brick, and presents a pleasant appearance. Each house has a garden behind and before about 15 feet wide, over which in the front elevation bay windows abut. The ground floor has excellent accommodation. A yard about 11 feet square contains a covered recess for coals, with outside offices. The kitchen, which overlooks the yard, is 14 feet long and 12 feet across in its widest and 9 feet 6 inches in its narrowest part. There is, too, a parlour or sitting-room, about 14 feet by 13 feet, except where the lobby for a short distance occupies 3 feet of space. The houses have a good scullery and pantry, with bath and provision for hot and cold water. The sleeping arrangements are, for cottages, commodious. There are three bedrooms, two of them about 10 feet by 14 feet and 9 feet to the ceiling. By an ingenious bit of planning the middle bedroom ceiling is raised to a height of 11 feet 6 inches, to make up for its smaller dimensions, which are slightly restricted by the stairhead. Behind the blocks there is a road for carts, 6 yards wide, whilst in front the plans show an avenue in which trees might be planted, and which is 20 yards wide. It is estimated that between 300 and 400 houses will be erected from the set of plans the committee may finally decide to adopt. Another feature of the scheme—already mentioned—is the setting apart of some 50 acres for allotments and gardens. These, of course, will prove a great boon if, as suggested, they are let at reasonable rents.

THE HOUSING OF THE WORKING CLASSES.

THE President of the Local Government Board received at Westminster a large deputation from the Association of Municipal Corporations, including representatives of Plymouth, Birmingham, Wolverhampton, Longton, Liverpool, Blackpool, Dewsbury, Leicester, Hull, &c., with regard to a series of suggested reforms in matters affecting local government.

The Mayor of Plymouth advocated an extension of the period for the repayment of loans under the Housing of the Working Classes Acts from forty to sixty years upon buildings,

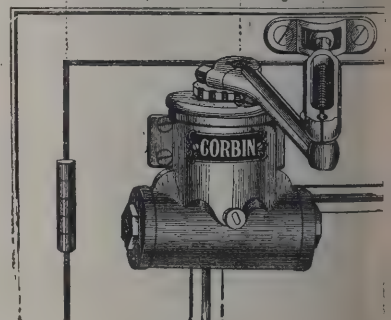
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and to 100 years for land, pointing out from the experience of his own town that under the present conditions it was impossible, without burdening the general body of ratepayers, to build cheap dwellings and let them at rents within the reach of the poorer of the working class.

The chairman of the Liverpool housing committee supported this view, pointing out that his city was considerably handicapped by the present limitation of the period prescribed for the repayment of loans for the provision of cheap working-class dwellings.

The town clerk of Wolverhampton advocated a consolidation of the Public Health Acts. He said it was more than a quarter of a century since the principal Act was passed, and since then many amending Acts had been passed; indeed, there were about forty Acts which had to be considered in the administration of sanitary work, with the result that there was a variety of conflicting decisions. He urged the amendment of the existing law in several particulars, and also that there should be an amendment of procedure in private bill legislation so as to lessen the cost and inconvenience. One desirable reform in this matter was the extension of the provisional order system and adoptive Acts.

The town clerk of Birmingham urged that the time had come for some Ministerial legislation on that question, especially as to valuation. The question had been agitated for nearly fifty years, and with the exception of an undoubted improvement in London, the country had experienced no advantage yet from a long series of commissions, committees and Bills on the subject of local taxation.

The Mayor of Hull spoke in favour of several amendments in the Lands Clauses Act, and the town clerk of Dewsbury spoke in support of a right of appeal to the Local Government Board in the event of county councils refusing to declare a road a main road.

Mr. Long, in reply, said he was in sympathy with everything that had been said in support of the consolidation of the Public Health Acts, and he hoped soon to ask the House of Commons to pass a measure with that view. He had prepared a Bill for the amendment of these Acts, dealing with many of the questions they had raised, and accepting many of the suggestions they had made. He was in favour of the compulsory registration of the ownership of slum property. The whole question of local taxation must obviously come up for consideration, and, he hoped, settlement, and in his judgment it must be preceded by a measure dealing with the question of

valuation. He had a Bill in preparation to deal with that subject. The question of trust investments was outside his jurisdiction, resting with the Treasury and the Lord Chancellor. Next, with regard to the housing of the working classes, he thought there was not sufficient positive evidence yet to show that if the period for repayment of loans was extended, that the alterations thereby effected in the rentals would be such as to bring the houses within the reach of the very poor; nevertheless, he had every desire to shorten the time and to lessen the cost of initial proceedings in connection with the housing question. He and the officials of his department would welcome any practical means of giving greater freedom to the action of local authorities. The officials of the Local Government Board were animated by no narrow or restrictive or prohibitive spirit, but they had certain duties which they must discharge. He would see whether it was possible to relax some of the conditions hitherto imposed upon municipalities. He held most strongly that the time had come when the local authorities should, as far as possible, be trusted to carry out their own work upon their own responsibility. He was entirely opposed to any undue interference with them by the central authority. Parliament should not call upon local authorities to do great work and then place them in leading strings, or deny them the right to think and act for themselves. If there was any extension of the period for the repayment of loans, he doubted whether it would be possible to confine it to the housing question, but he thought it was impossible to leave this subject exactly where it now was. He was carefully examining it from a departmental point of view. If he did not feel justified in dealing with the subject on his own initiative he would ask for the appointment of a Parliamentary committee to take such evidence as might be necessary. The conclusions of such a committee would, he hoped, afford reliable guidance to this and other public departments, which were concerned with the borrowing operations of local authorities.

ELECTRICITY AND RAILWAYS.

THE first meeting of the present session of the Institution of Electrical Engineers took place in the theatre of the Institution of Civil Engineers on the 21st ult., when Mr. William Langdon, electrical engineer to the Midland Railway Company, delivered his inaugural address as president. In the course of his

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address Mr. Langdon said that, much as the world had benefited by steam, he believed that greater benefits would be derived from electricity. No one could remain insensible to the fact that our present mode of locomotion was destined in the near future to undergo great modifications. Our railways were becoming congested and the streets of our main towns were year by year becoming more blocked with traffic. Looking at the streets of Glasgow, which one might say were made for the electric tramcar, but in which congestion was still rife at times, he doubted whether electric tramways would deliver us from the latter difficulty. Their field in the larger towns was doubtless local traffic only, and the traffic between the city and more distant residential districts would have to be supplemented by a more direct, rapid and extensive means of transit. Short suburban lines of railway, radiating from one or more centres and supplemented by local tramways, would, it appeared to him, prove the solution of the impending changes associated with city-life locomotion. He next discussed the question whether electric traction would prove of service to our railway systems. Could it be at once adopted many improvements in the mode of dealing with the traffic would appear feasible. For example, trains—smaller in size, but travelling faster—might be despatched at more frequent intervals. He was convinced that great advantages would follow if it were possible to lessen the enormous difference that now characterised the speed of passenger and goods trains. Wherever the traffic was of a mixed character, and involved the movement of trains at speeds varying, say, from 20 to 60 miles an hour, time must be sacrificed, even when the scheduled times were observed; and this loss must be increased by the shunting of the heavy trains for the passing of those of a preferential character. But if by shortening these slow and heavy trains they could be run at a speed of not less than 40 miles an hour, there would be no shunting, except for the express trains, and, as all the trains would be moving at about the same speed, the capacity of the line would be practically doubled. Such a result would avoid that duplication of lines which was now unavoidable, and which was adding so many millions year by year to capital account. The operation by electrical means of the passenger traffic as it was conducted to-day would appear to offer no difficulty, but to reap the full advantages of an electrical service the entire traffic of the railway, both goods and passengers, must be worked by the same means. The only satisfactory way to prove the power of electricity to meet existing conditions was

to impose upon it the work to be done. To do so on a suitable section of line would not be a great tax on the resources of any one of our great railway companies, especially as it need not in any way, for the time being, derange the steam-worked traffic passing over that section. If electric propulsion should be found inapplicable to main-line traffic as a whole—a conclusion which few would accept even at the present time—it would unquestionably lead to the establishment of high-speed electric traction on independent lines between the chief commercial centres. Whatever success might attend such competitive electrical enterprises must be to some extent prejudicial to established systems, but the railway engineer would not be deterred from constructing railways by any consideration of the injury his work might inflict on existing interests. The only way to prevent him was to make it clear that there was no profitable need for any such addition. Railways had thus to face the fact that electricity as a motive power was before them, and that if it was not applied to existing systems it would come independently and in competition with existing interests. Mr. Langdon went on to mention some of the ways in which electricity was already employed in British railway service, giving in a tabular appendix a number of details of what the leading companies are doing in this respect. Finally he remarked that electricity was only treading on the edge of the vast domain it was destined to serve. It was only now, with the establishment of power-schemes destined to serve large areas, that we were approaching the economical conditions which would confer upon the commonwealth its fullest advantages. Electrical development in England had not been so satisfactory as it should have been. Over-legislation—that great desire to protect the subject, often at the cost of what he had to look to as his means of support—had no doubt retarded it, and with it the production of electrical machinery. The cry was for education, but of what avail was education without experience? It was experience that had gained for American engineers and manufacturers the position they had attained. But experience could only be obtained by actual work, and that had been, by those to whom power was assigned to put it in operation, delayed till the last moment, when much of it had perforce to be entrusted to those who were prepared to provide promptly the necessary parts. Thus work had been delayed, experience had been sacrificed, and much that should have enriched British industry had passed into other channels. What was needed was greater liberty, greater freedom and less restraint, for if electrical science was serving the community with

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advantage, was it desirable that statute limitations should interfere to preclude or prejudice its progress? Nothing could be easier than to restrain its use, if it were found injurious or undesirable, but to do so in anticipation was to deprive the country of its value.

The proceedings terminated with a vote of thanks to the President, proposed by Sir William Preece and seconded by Mr. R. K. Gray.

BUILDING REGULATIONS.

THE tribunal of appeal, consisting of Messrs. A. A. Yates (chairman), J. Grimput and A. H. Hudson have sat to consider an appeal against the decision of the County Council in reference to buildings at Brixton. The appellant was Mr. A. G. H. Brown, the trustee of the estate of Mr. J. J. Brown, who was represented by Mr. McIntyre. Mr. T. P. Andrews (of the Solicitors' Office) appeared for the Council. It appeared that Mr. Brown rebuilt the premises 400 and 402 Coldharbour Lane, Brixton, in the metropolitan borough of Lambeth, within the prescribed distance of the centre of the roadway. The County Council took proceedings, and the builder applied for consent under section 22 of the Building Act. The Council consented to the buildings being erected on condition that the height did not exceed 34 feet 6 inches. In September the appellant desired to build another storey to the height of 11 feet 6 inches; but the Council refused to permit this, and against the refusal the appeal was lodged. After argument, the Chairman said the tribunal were of opinion that their rules, which had been approved by the Lord Chancellor, should be strictly adhered to. They had no jurisdiction to sanction a departure from these rules, and in that case there had been no sufficient compliance. They must dismiss the appeal, and allow the Council ten guineas costs.

NEW HOSPITAL FOR LEEDS.

THE new buildings which will form a women's and children's hospital in Leeds are now proceeding rapidly, the committee having decided to go on with the work, although the whole of the necessary funds are not yet in hand.

The existing buildings, near the infirmary and St. George's Church, are now so inadequate, not to say obsolete, that the

duty of providing better and larger accommodation has become imperative. The new hospital will, it is hoped, provide all that is necessary, on the most approved and up-to-date plan, for a long time.

The designs are those of Messrs. Chorley, Cannon & Chorley, of Leeds, with Mr. A. Graham, of London, as consulting architect.

The building will be divided into three departments—the out-patients' block, the hospital block and the administrative block. The last mentioned will be the existing building until such time as the generosity of donors enables the committee to provide a new building for administrative purposes in keeping with the rest of the hospital.

The out-patients' department is planned entirely on the ground floor, and will be quite independent of the hospital proper. The communication will be for the convenience of the staff only. The accommodation here comprises a large and well-lighted out-patients' hall, shelter for perambulators and so on, rooms for consulting, examinations, registration, the dispensing of medicines and other purposes.

The hospital proper is on four floors. The basement will be used for storage purposes, and on the ground floor there will be a large entrance hall, board-room, secretary's office, waiting-room, porter's room and other rooms. A wing, approached by a corridor, will comprise a large ward for twenty beds, one of three beds and a single bed ward, together with the necessary bath-rooms, lavatories and other offices. A special feature of all the wards will be that everywhere, walls and ceilings, the angles will be curved, the aim being to get rid, as far as possible, of every angle or corner in which infectious dust might accumulate. On the floor above will be other wards, similarly arranged, the whole providing for forty-eight in-patients on the two floors. Here also is accommodation for the resident surgeon, whilst a wing for operations will embrace an anæsthetising room, a sterilising recess, a recovery room and a cloak-room. A special feature of the operating-room will be the method of lighting adopted.

The second floor will be devoted to a complete suite of small wards for isolation and other purposes. The wards will be heated by open fireplaces in the centre of the rooms, steam coils being also provided for very severe weather. All the ward windows will be double, so as to avoid draughts. At the same time adequate ventilation will be provided.

Lastly, outside will be a mortuary, fitted specially with a view to pathological and autoptical examinations.

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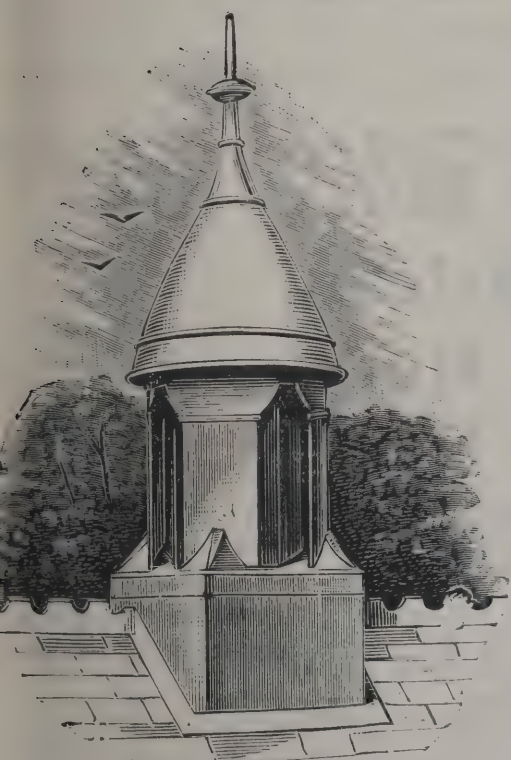
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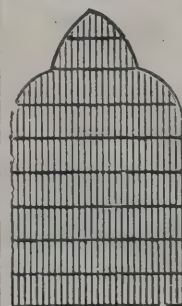
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The whole cost will be about 24,000*l.*, and of this about 6,000*l.* are still required. Without this sum the building cannot be efficiently and properly equipped. So valuable is the work done by the hospital, and so steadily is it increasing, that there is little doubt that the generosity of Leeds and its neighbourhood will provide the funds necessary to enable the hospital to carry on the good work it has done in the past in an extended form, and under conditions more favourable to the patients than has been the case hitherto.

ADMIRALTY CONTRACTS.

ON Monday an appeal was heard in the House of Lords before the Lord Chancellor, Lord Shand, Lord Davey, Lord Brampton and Lord Robertson (the Attorney-General *v.* Stewards & Co., Ltd.), which casts a light on the methods of Government officials when dealing with contractors. It was an appeal, says the *Times*, from the order of the Court of Appeal (the late Master of the Rolls and Lords Justices Collins and Stirling), dated December 4, 1900, dismissing an appeal from a judgment of Mr. Justice Day's dated January 23, 1900. The respondents on December 29, 1898, presented a petition of right to Her late Majesty praying for payment of 27,386*l.* 17*s.* 4*d.* as damages in respect of the breach of an alleged contract entered into by the Admiralty with the respondents to purchase stone from the respondents at 4*d.* per ton. Judgment was given by Mr. Justice Day for the suppliants on the question of liability, the question of the amount of damages being allowed to stand over, with liberty to apply. In May 1895 the Admiralty were engaged in erecting a breakwater at Portland, known as the Portland new breakwater, and for the purpose of forming the said breakwater they required large quantities of rough stone. They therefore entered into communication with the respondents, who were stone merchants and quarry-owners in the Isle of Portland, and Mr. Macfarlane, who was the Admiralty's superintending civil engineer, at Portland, and, acting with the authority of the Admiralty, had several interviews with Mr. Crabtree, who was the manager of the respondent's quarries, on the subject of the stone which would be required for the purposes of the formation of the breakwater, and Mr. Macfarlane visited the respondents' quarries, and eventually requested the respondents to write to him as to the terms upon

which they would be willing to supply the Admiralty with the stone. The respondents thereupon, on July 30, 1895, caused the following memorandum to be written and sent to Mr. Macfarlane:—

"Memorandum. D.W. 6,427. From Stewards & Co., Ltd., stone merchants, Portland. Quarry Office: July 30, 1895. To the Engineer, Breakwater, Portland. Dear Sir,—We are willing to supply the cap and roach stone now lying in rough stacks in our quarries to the Admiralty for the new breakwater works at the rate of 4*d.* (fourpence) per ton. The Admiralty to provide all necessary plant and bear all expense in loading and removing same so as not to interfere with our quarrying operations. The net weight of stone to be taken by passing waggons over Admiralty weighbridge.—We are, yours very truly, for Stewards & Co., Ltd. R. H. CRABTREE."

In August 1895 the respondents received the following communications from the Admiralty:—

"D. W. 7333. Reference Sheet. From Supertg. Civil Engineer, Her Majesty's Breakwater at Portland, August 26, 1895. Information required or notified. Portland New Breakwater, Supply of Cap and Roach Stone.—You are invited to submit a tender for the supply of the above stone, particulars of which are enclosed. The tender to be made on the enclosed form and forwarded to the address stated thereon, so as to be received in London by noon of Tuesday, September 10, 1895.—D. MACFARLANE, Suptg. Civil Engineer."

The enclosed form was headed "reference sheet," and was described in the arguments and judgments as the "specification":—

"From Supt. Civil Engineering, Her Majesty's Breakwater, Portland. Dated August 26, 1895. Portland New Breakwater.—Tenders are invited for the supply of cap and roach stone now lying in rough stacks in quarries, in such quantities and at such times as may be required by the Admiralty. Price to be stated at per ton, which is to include all necessary wayleave with permission to lay railways or other roads over or under existing railways between the stacks and through any lands belonging to other quarry-owners, to open up direct communication between contractors' stone heaps and Admiralty lands. The Admiralty will lay their own railways, provide all necessary plant for loading and transporting stone. Stone will be paid for at weights ascertained by passing loaded waggons over Admiralty weighbridges. Contractors to mark on tracing provided the site of their stacks and indicate the route along which the stone can be transported to Admiralty depot."

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"Pressed" and "Wire Cut"

Red Facing Bricks.

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Red and Buff Terra-Cotta, Moulded Bricks, &

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Contractors to state the approximate quantity of stone they are able to supply."

The respondents filled up the following form of tender, of which the outlines were printed:—

"Director of Works' Department.—We, the undersigned, do hereby agree to deliver (see plan annexed) cap and roach stone (rough) approximate amount two million tons, in accordance with specification for the sum of 4*d.* per ton. (It is believed that a considerably larger amount is obtainable, but as the amount required is not stated we have not verified this.) Dated this 7th day of September, 1895. Signature of Contractor—Stewards & Co., Ltd. Trade or Profession—Stone Merchants and Quarry-Owners. Address—Isle of Portland. The Director of Works, Admiralty, 21 Craven Street, London, W.C. Note.—This tender must be delivered, addressed as above, sealed and marked 'Tender for cap and roach stone for new breakwater,' by noon on September 10, 1895, and no notice will be taken of it if received afterwards."

On October 2, 1895, the Admiralty, through their Director of Works, wrote and sent to the respondents the following letter:—

"Director of Works, Royal Navy, No. 8272-6409. Admiralty, 21 Craven Street, Charing Cross, W.C., October 2, 1895. Gentlemen,—I have to acquaint you that your tender, dated September 7, 1895, is accepted for the supply for the new breakwater at Portland of about 2,000,000 tons, or such quantity as may be required, of cap and roach stone (rough), in accordance with specification at the rate of 4*d.* per ton, on the understanding that the stone be taken in such quantities and from such positions as may be considered by the Admiralty superintending officer the most desirable for the Admiralty works. Your claim should be made out on the attached Form D. 146, and forwarded with the goods to the officer in charge of works for his certificate.—I am, your obedient servant, C. COLSON, for Director of Works, D. Macfarlane, S.C.E., No. 1236. Messrs. Stewards & Co., Ltd., Stone Merchants and Quarry-Owners, Quarry Office, Portland."

Afterwards the Admiralty, in pursuance of the above tender and acceptance of tender, laid their own railways through and upon the respondents' lands in the Isle of Portland in order to open direct communication between the respondents' stone heaps and the Admiralty lands, and the respondents commenced supplying cap and roach stone to the Admiralty for the purposes of the breakwater in accordance with the above tender and acceptance of tender, and continued to do so until

January 15, 1898, and the Admiralty accepted the stone so supplied, and paid for the same in accordance with the said tender and acceptance of tender. On December 23, 1897, Mr. Macfarlane, on behalf of the Admiralty, and with their authority, wrote and sent to the respondents a notice as follows:—

"From Suptg. Civil Engineer (Works Loan), Her Majesty's Breakwater, No. 1336 at Portland, December 23, 1897. Gentlemen,—As the Admiralty have entered into a contract with Messrs. W. Hill & Co. for the completion of the new breakwater works, will you please note that the Admiralty will cease to draw stone from your stone heaps after January 15 next. From that date all work will be carried on by the contractors subject to any arrangement they may make with you.—Yours faithfully (Sgd.) D. MACFARLANE, Superintending Civil Engineer. Messrs. Stewards & Co., Ltd., Portland."

After January 15, 1898, the Admiralty ceased to draw stone from the respondents' stone heaps, and refused to receive any further supply of cap and roach stone from the respondents, and the Portland new breakwater works have ever since been and are now being carried on by Messrs. W. Hill & Co. The respondents had supplied to the Admiralty 254,928 tons 8 cwt. and 2 qr. of the cap and roach stone required for the purposes of the breakwater. At the trial the appellants contended that there was no contract at all, or, at any rate, no contract to take what was required for the breakwater up to 2,000,000 tons, or at all; that the Admiralty were at all times at liberty to procure their supply of stone for the breakwater elsewhere, and that if there was any contract there was no breach of such contract. The respondents contended that there was a contract and a distinct breach of such contract. The case was argued on Thursday and Friday last by the Attorney-General (Sir R. B. Finlay, K.C.) and Mr. R. B. D. Acland for the appellants; and by Sir R. T. Reid, K.C., Mr. Cyril Dodd, K.C., and Mr. T. J. Bullen for the respondents. Their lordships gave judgment, allowing the appeal.

The Lord Chancellor said that it was matter of regret that the burden should be imposed on the Courts of interpreting such irregular and inappropriate documents as those in the present case. The difficulties which pressed upon their lordships in the construction of these three documents were so great that either side of the question might be plausibly argued. Their lordships were asked to spell out the intention of the parties, not from any concluded contract, but from a number of papers, all of which must be examined and read together for

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the purpose. There was a quantity of material of so inferior a quality that the owners wished to get rid of it. On the other hand, the Admiralty wanted to get as cheaply as possible the kind of stone which they needed, that stone not being of a superior quality. The Department accordingly sent a circular to ascertain at what price they could buy the stone "at such times and in such quantities" as they required. The contractors were also requested to state how much they could supply. Up to this point the matter was free from doubt. Then came the form of tender, which was partly written and partly in print. There in this form the contractors gave the approximate amount which they could supply as 2,000,000 tons. In the acceptance of the tender there was no undertaking to accept 2,000,000 tons. In his lordship's opinion in these two instruments there was no contractual obligation to take 2,000,000 tons, but only to take stone in such quantities and at such times as the Admiralty might require; that was, that the contractors were to supply the stone in the quantities specified from time to time when the Admiralty demanded it. There was at no time an undertaking to take a definite quantity. The Master of the Rolls and Lord Justice Stirling arrived at a different conclusion, but expressed some misgiving. But for the reasons which he had stated, though with some reluctance, his lordship came to the conclusion that the decision of the Court of Appeal should be reversed, and he so moved their lordships.

Lord Shand gave a short judgment to the same effect.

Lord Davey said that the construction of the three documents on which the decision of the appeal depended was undoubtedly difficult. The learned judge who tried the petition of right and all the judges of the Court of Appeal had taken one view, and all their lordships had arrived at a different conclusion. For himself his lordship owned that his mind had fluctuated, and that the conclusion at which he had arrived was at variance with his first impression. The first document was called a specification, though it was really nothing more than an invitation to the public concerned to supply the material wanted. The words were "tenders are invited for the supply of cap and roach stone now lying in rough stacks in quarries;" not, it would be observed, for any particular quantity, but "in such quantities and at such times as may be required by the Admiralty." Grammatically the words "in such quantities," &c., must be read in connection with the word "supply." Then there were the words "contractors to state the approximate quantity of stone they are able to supply";

not, it would be again observed, "which they are willing to offer to supply," but "able to supply." The object was obviously to enable the Admiralty to ascertain the extent of the supply upon which they could rely from any particular quarry. It was a crucial point that persons were not asked to supply any particular quantity. His lordship then read the tender of the respondents, which he thought might be paraphrased thus:—"We agree to supply stone in such quantities and at such times as may be required by the Admiralty not exceeding the approximate amount of two million tons at 4d. a ton. We believe we can supply more if required, but we have not thought it worth while at present to verify this." His lordship then read the answer of the Admiralty, which was the third document in question. The argument had turned on the words "as may be required." The Attorney-General maintained that they meant "as may be required by the Admiralty"; the respondents read the words to mean "as may be required for the purposes of the breakwater." If he read the tender and acceptance alone he should probably be in favour of the respondents; but there were difficulties in either construction. If the respondents' construction were adopted, they would be bound to supply more than 2,000,000 tons, though they had expressly guarded against committing themselves to a larger quantity. On the Attorney-General's construction, it was not an acceptance of the offer, which read alone was a tender for a definite supply of 2,000,000 tons more or less. Reading the three documents together, he had come to the conclusion that the words meant "or such less quantity as may be required by the Admiralty from time to time." He agreed with their lordships that the appeal should be allowed, and would only add that he did not dissent from the general observations which the Lord Chancellor made at the beginning of his judgment, and that it was to be lamented that a public department should not succeed in making its contracts in words on which there could be no question.

Lord Brampton read a judgment to the same effect.

Lord Robertson was of the same opinion, and after reading the three documents—the specification, the tender and the acceptance—pointed out that although the specification was headed "Portland New Breakwater," nothing was said about the nature and extent of the works or as to the amount of stone likely to be used in the breakwater. The argument had really turned on the words "as may be required" in the acceptance; and these he took to mean as may be required by the Admiralty in the sense of demanded by the Admiralty.

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The Architect.

THE WEEK.

THE deputation of members of the Royal Hibernian Academy that was received by the Lord-Lieutenant on Monday were obliged to describe a condition of affairs which is discreditable to Ireland. The gentry of the island do not care for art, and consequently do not in any way aid in upholding the only Academy of Arts which exists. There are no subscriptions or donations towards the necessary expenses, the exhibitions are visited by a comparatively few people, and the works which are shown on the walls are not purchased. The Academy was founded at the expense of an Irish architect, FRANCIS JOHNSTON, who laid out about 14,000*l.* on it, and then presented the property to his countrymen, who were incompetent to appreciate the gift. Judging by the way the Irish people have acted, they must believe that, as the Academy was created without any cost to them, it can continue to exist without their aid. It is assumed by the Academicians that as the street in which the building is placed is now outside the fashionable area the public refrain from going to the exhibitions on that account. But considering how numerous are the means of communication in Dublin, the belief, if not fear, only a fallacy. So long as the Irish people continue to be indifferent to art the exhibitions will be deserted regardless of the part of the city in which they are held. The question is therefore whether it is the duty of the Government to support an institution which is more advanced in its teaching than the ordinary art schools, in the hope that at a future time more interest will be taken in art than at present. The contribution from the Treasury has been given amounts to no more than 300*l.* a year, and it has been an open secret that South Kensington was in favour of the withdrawal of that modest aid. It may have been considered that when deprived of support the people would be forced to come to the rescue of the Academy, but it is a vain hope. The Lord Lieutenant sympathises with the Academicians and is disposed to support the project for the removal of the Academy to some other place. That would be an experiment which may be worth trying, though it is very doubtful whether it would be a means to success.

LAST week we referred to the action brought by Messrs. EDWARDS & CO. against the Admiralty, and which turned on the expression "such quantity as may be required." The plaintiffs were unsuccessful, and, as we remarked, "the case should serve as a warning, for it shows the necessity of precision in the phraseology of contracts relating to materials." Another case, which turned on phraseology as well as on quantities expressed by figures, was decided on Tuesday by Mr. Justice WALTON. It related to the Baker Street and Waterloo Railway. The plaintiffs, Messrs. ELBOURNE & CO., sued Messrs. PERRY & CO. for damages because they were not allowed to remove the entire quantity of material they had contracted to cast away. It was agreed between the parties that the plaintiffs were to remove the excavated material from the Oxford Street Piccadilly shafts at 3*s.* 10*d.* a load. During the progress of the works there was a change in the manner of driving the tunnel, and instead of the material excavated being sent to the Piccadilly shaft it was sent to a shaft by the side of the river. In consequence the quantity carried away by the plaintiffs was reduced. According to the contract deed, plaintiffs were to provide necessary horses, carts, men and plant for the removal of the whole of the surplus earth, clay or rubbish from the sites or shafts at any rate, quantity, or number of loads required by the contractor. The plaintiffs claimed that they were entitled to remove 138,000 cubic yards of stuff, an approximate quantity which was stated in the application for a quotation for carting, while the defendants said they were only bound to allow the plaintiffs to cart the material which it was convenient to remove through the shafts. Mr. Justice WALTON came to the conclusion that there was nothing in the contract binding the defendants to do the work in any particular manner, or giving the

plaintiffs the right to have any particular quantity of material removed at the Piccadilly and Oxford Street shafts. Judgment was accordingly given for the defendants with costs. The litigation, in our opinion, could have been avoided if in the contract-deed the approximate quantities, 85,000 and 53,000 cubic yards, had been inserted, with the proviso that the same rate would be charged if the quantities were increased.

THERE is some commotion among architects, archaeologists and the numerous Germans who are proud of Strasbourg Cathedral about the propositions which have been made for heating the building. There seems to be no opposition among the different authorities, secular and ecclesiastical, who share in the responsibility for the safety of the minster, and it is moreover recognised that the heating of so vast a space is a difficult scientific problem. But as there is a general impression that the building has been very delicately constructed—for it is all supposed to be in keeping with the pulpit, which does not seem strong enough to support a preacher—there is an apprehension that any weakening of the stone might bring about a collapse. So acute are the anxieties of some enthusiasts, they are confident that even the dust which may arise from one system of heating will have a most injurious effect on the masonry, and that sooner or later serious consequences must be looked for. It is also feared that if other systems are employed there may be slight accumulations of soot which will be no less dangerous. In fact, it may be said that every system that has been proposed has given rise to opposition. Among officials there is a belief that the difficulties can be overcome by hot-water heating, but how that is to be accomplished without the erection of unsightly apparatus is not evident. The Germans know more about the theory of heating than most people, but it must be allowed that in their practical applications of science for warming buildings they have not been as successful as Englishmen or Americans.

At the French Ministry of Public Instruction and Fine Arts the subject of an exhibition of ancient Persian work is now under consideration. During the past few years M. DE MORGAN, who distinguished himself as an explorer in Egypt, has been engaged in investigations in Persia. Over 200 large cases containing the spoils of his excavations have been sent by him to the Louvre. In addition to bricks bearing cuneiform inscriptions are bas-reliefs in stone and bronze, bronze arms and other instruments, slabs, several varieties of ceramics, statuettes of clay, alabaster, ivory and jewellery mostly of massive forms. The treasures are conjectured to date from a period antecedent to the invasion of Persia by ALEXANDER THE GREAT. There are other works which belong to a still earlier time, and some inscriptions are said to have been produced 6,000 years ago. The new discoveries, added to those which were made by M. and M^{me}. DIEULAFOY, will enable the authorities of the Louvre to give an adequate representation of ancient Persian art which will far exceed in interest any other in Europe.

THE London, Brighton and South Coast Railway Company having announced their intention to erect new workshops, received applications from many towns in Sussex, and sites were offered on terms that were supposed to be advantageous. After long deliberation Lancing has been selected. As the place lies between Worthing and Shoreham it is not remote from the terminus at Brighton. The land acquired is of sufficient area to allow of future extensions. At present it is proposed to erect workshops for the production of carriages and waggons only. Locomotives will continue to be made at Brighton. Probably between three and four hundred men will be employed, and the number may be increased hereafter. As many of the artificers live at Brighton and may not care to remove from that watering-place, it is proposed to run special trains in which the men will be conveyed backwards and forwards without payment.

THE ADMINISTRATION OF ROADS.

THE condition of the English highways was a constant subject of complaint by travellers in the eighteenth century, as well as by ordinary letter writers. No doubt it was constantly referred to in conversations. It was only with difficulty a carriage could travel at the rate of six or seven miles an hour. In some districts two carriages could not pass on a main road. So unsatisfactory an obstacle to freedom of motion was undoubtedly caused by the peculiar system adopted for constructing or, rather, for repairing roads, as new means of communication were not favoured. Although the king's highway was not always easily defined, it was a generally accepted opinion among lawyers that once a road was so recognised it could not change its character unless through the operation of a special writ granted after an inquiry. The maintenance of highways was by common law the duty of the occupiers of lands or tenements within a parish or township. That system was not always found to work efficiently, and in 1653 a Turnpike Act was passed in order to lighten the burden on the parishes by making those who used the roads contribute to the expense of keeping them in a fitting condition. There were drawbacks to the new method, but it continued in force until a very recent period.

It is, however, dangerous to interfere with authority in England, and the administration of the highways still recalls the old days when the character of the miry roads depended on parish labour that was grudgingly exercised. The parish may no longer in all cases be accepted as the normal area, but there is a littleness about the existing divisions which has the parochial impress. For example, Lancashire has 151 highway districts, each with its authorities. The road from the City of London to Uxbridge, *i.e.* the old Oxford road, in the course of twenty miles comes under the control of twelve legally constituted bands of guardians, and the Bath road between Piccadilly and Slough admits of ten authorities within twenty miles. It may be contended that these are exceptional cases; but there is no doubt that in England and Wales there are 1,879 regularly elected bodies who exercise sway over the roads in their districts, and who can have the works executed in any way that is considered best, or, in other words, on the most economical terms for the local area. It is no wonder, therefore, that so much variety is to be seen in the nature of the highways, and that reparations are carried out at very varying rates.

One disadvantage of the present system is that expenditure is only regarded, as it were, by fractions. There is grumbling periodically at meetings of county or divisional councils about the sums which have to be forthcoming for work on roads. Few care to realise what the outlay is when treated as a whole. It may surprise many of our readers when they learn that in the year 1898-99 no less a sum than 8,434,000*l.* was expended on the maintenance of streets and roads in England and Wales, including scavenging and watering, and exclusive of 2,127,000*l.* spent out of loans. Whether the ten and a half millions have been wisely laid out is a question about which there is diversity of opinions. Anyone who has lived in the provinces must often have been amused at the election of men for road surveyors who could not claim to have possessed any technical training. Cases are recorded of agents, clerks and gardeners having received such appointments, which they courageously undertook without any misgiving about their fitness. In some places the salary given is not sufficient to attract qualified surveyors. When we hear that a sum of 62*l.* 10*s.* a year, which is to include all travelling expenses, is offered as remuneration for taking charge of 114 miles of road, it is not to be expected that an efficient surveyor will accept the appointment, or, if one is secured, that he will devote all his energies to the promotion of economy and satisfactory work.

A statement has been prepared and laid before the President of the Local Government Board by the Roads Improvement Association which describes the shortcomings of the existing system from other sides, in addition to that of expense. It is said, for instance, that as there is no authority to determine the width of main roads or those "leading out of the great towns, the building line has been permitted to approach far too near the centre of the road, with the result that as the town grows and the traffic in-

creases, the buildings will have to be set back at enormous expense—an expense which would have been rendered quite unnecessary had a central authority existed with power to prescribe the minimum width of main roads to prevent encroachments." The traffic on roads has become of a heavier character than formerly, owing to employment of traction engines, motor-cars and rollers of various kinds. The old-fashioned masonry bridge can in most cases withstand the increased weight, but it is pointed out that "no machinery appears to exist at the present time for compelling the authorities who are responsible for the upkeep of bridges to strengthen them in order to carry traffic which can now be considered normal, and in the majority of cases the spirit of parochialism which exists with regard to roads has been equally apparent with regard to bridges." Of much less importance are sign-posts and mile-stones, but everyone who has made journeys on bicycles is aware of the imperfect condition in which those indicators are generally to be found. At road junctions one or more arms of a post will be absent, and often quite evident from the state of the wood that the inconvenience has endured for many years.

At the present time several industries have to suffer through defective roads, and agriculture perhaps most of all. French centralisation may have its disadvantages, but it can be no question that it has intersected the country with an admirable network of roads. An American official, reporting to his Government a few years ago, wrote:—"The road system of France has been of far greater value to the country as a means of raising the value of lands and putting the small peasant proprietors in easy communication with their markets than have the railways. It is the opinion of well-informed Frenchmen who have made a practical study of economic problems, that the superb roads of France have been one of the most steady and potent contributions to the material development of the marvel of the financial elasticity of the country. The far-reaching and splendidly maintained road system has distinctly favoured the success of the small landed proprietors, and in the prosperity and the ensuing distribution of wealth lies the key to the secret of the wonderful financial vitality and prosperity of the French nation."

The pressing problem of housing the humbler classes is also related to road-making, for with good roads it is easier to make arrangements by which working men and women will be conveyed more expeditiously to and from their place of employment. When dealing with this subject we ought also to remember that in a country like England some thought should be given to the connection between roads and national defence. If, as Napoleon said, the art of war consists in having more forces than the enemy at the point where he attacks or is attacked, the result depends in a large measure on the character of the roads along which the troops must pass. A great number of battles had, consequently, for their object the possession of roads, and, according to the Association's statement, the coast road in this country "along which men and guns could be rapidly moved to any threatened point would be one of the cheapest and most effective protections against invasion."

The aim of the Association is to form a central authority that would be supreme, and that would have power to take action in cases where the local authorities have failed to do so. It is declared that it would not be necessary to supersede the existing local authorities any more than the School Boards have been displaced by the Education Department or Poor Law Guardians by the Local Government Board. It is believed that in many instances an advantage would be gained if there existed a central authority able to treat the subject of road construction, maintenance from all points of view, and that would prescribe rules and regulations which would be the outcome of experiments and inquiry. A department of this kind usually means grants out of Imperial taxation, and it is proposed by the Association that one-half of the cost of maintenance of main roads of England and Wales, one-half of the salaries of road surveyors and municipal engineers, should come out of the Imperial taxes. Highway authorities would be constituted, who would have jurisdiction and rating powers over large areas. A Metropolitan Highway Authority, for example, would

to control all the main roads within a radius of miles of St. Paul's. There would be only one authority Lancashire, which has now 151, or one for Lancashire and Cheshire united. The new highway authorities would have power to vary and to determine the direction of all new roads and to be under obligation to draw up schemes for the development of the districts under their control, to which all those engaged in building operations and the planning out of building estates would be required to conform, so that as the cities develop new main roads parallel to and alternative to the existing ones would be formed.

It is needless to say that such an arrangement as is proposed by the Roads Improvement Association would be nothing less than a revolution of the English system of government. Parochialism or vestrydom has no doubt its shortcomings, but it has enabled a large body of men to take an interest in the public service, and it cannot be said that those unpaid authorities think mainly of their individual gain. The surveyors and officers they elect are men untrained when they begin their duties, but practice makes an excellent teacher, and it is no difficult task to master the mysteries of road-making in a limited period. It must also be allowed by those who are acquainted with the instruction that at the present time there are no more earnest students of engineering and no more ardent advocates of improvements than borough surveyors and county surveyors. The volumes of proceedings of the societies of municipal engineers contain more information on subjects connected with highway administration than is to be found in special treatises. That information is published in various forms, and we suppose there is not a road surveyor in the kingdom who has not benefited by it, though it may only come before him in an abstracted form. Whether the money is always obtainable for the production of improvements is a different question, but it is not apparent how a more liberal expenditure is to be secured by any change in administration. The taxpayer's power of endurance is necessarily limited, and his burdens cannot be lightened by being labelled local taxation and imperial taxation. Whatever the title, the cost of road-making is not likely to be diminished.

Nor is it evident that a more perfect system of construction and maintenance, or more definite information about materials, will be at the disposal of the country by the creation of a new and central authority. Long experience has shown that in no department of engineering has superior information been issued by a Government department. It has usually been experienced that officials believe it is a duty to check improvements by putting obstacles to their adoption. The action of the Board of Trade in regard to steel was enough to reveal the spirit in which high officials act. It had been resolved that the use of steel in structures was to be prohibited and that wrought-iron alone was safe. The Board of Trade could not have acted in any other way, it may be said that the general adoption of steel is in defiance of official regulations. The system adopted by the Post Office in respect of telephones is another example. With such precedents before them, all who have to do with roads must hesitate before yielding supreme control to a department that in a short time would be likely to follow the usual custom of impeding improvements rather than promoting them. The present system is imperfect, but unless officials could be discovered of a class unlike the potentates who now exercise authority in the name of the State, it would be better to allow the old-fashioned highway authorities to muddle through their task.

The sub-committee of the Glasgow Town Council appointed to deal with the decayed stonework of the Municipal Buildings report that the work of restoration is being satisfactorily carried out by Mr. Alexander Muir. Some parts of the building are much further decayed than others that it will be requisite in a number of places to remove some stones and replace them with new masonry, in order to preserve the architectural character of the different façades in accordance with the original design. In view of the expert advice they have received, the sub-committee have every cause to believe that the methods adopted by Mr. Muir will effectually arrest the decay of the external surfaces of the building, and leave it in a good and presentable condition.

THE FORTIFIED PRIORY OF EWENNY.*

THERE are churches in England which are as old as St. Michael's, Ewenny, and some which are as interesting in an historical sense, but it may be doubted whether there is another to be found which is so striking an example of the fortified church which became indispensable in some districts after the Norman Invasion. The CONQUEROR had subjected Wales and compelled the princes to acknowledge his suzerainty, but after his death the Welsh crossed the English Border and devastated the country. About the same time the Prince of CAERMARTHEN or DINEVOR quarrelled with the Prince of GLAMORGAN. The latter engaged ROBERT FITZHAMON of Gloucester, with his Norman followers, to take his part. The Prince of CAERMARTHEN was attacked, defeated and slain. The Normans were then sent back to England, but a Welshman named EINEON, who had negotiated for the strangers' interference, found himself unrewarded. He therefore persuaded FITZHAMON to come again, and eventually Glamorgan became subjected to the Norman knight, and after the manner of his sovereign lord, WILLIAM, he divided the country among his followers. The Welsh were not, however, satisfied with the foreign system of feudalism which was introduced. There was an outbreak, and FITZHAMON was surprised in Cardiff Castle by the natives, who were commanded by DE TURBERVILL, of Coity, who was also a Norman. For a time the foreign rule was jeopardised.

In order to secure their position, castles were erected to defend the new frontier or marches. Even when a church like Ewenny was founded it assumed a warlike character. The priory owed its origin to MAURICE DE LONDRES, who was among the liegemen of the FITZHAMONS. In one of the old records of Glamorgan it is stated that, "In the year 1141 MAURICE DE LONDONIA, the son of WILLIAM DE LONDONIA, gave to the church of St. Peter of Gloucester the church of St. Michael of Ewenny, the church of St. Bridget with the chapel of Ugemore de Lansey, the church of St. Michael of Colvestone, with the lands, meadows and all other things belonging unto them, freely and willingly (quite) in free alms, in order that it might become a convent of monks." As the buildings must have required several years to construct, WILLIAM, the father of MAURICE, probably had a share in the undertaking. MAURICE may have resembled many of the knights who were his contemporaries, and who erected churches as an atonement for misdeeds. In 1128 he was threatened with excommunication by the POPE for seizing ecclesiastical property, and a few years before he assigned Ewenny to the Abbey of Gloucester, he had captured a Caermarthen princess, and in defiance of all law or courtesy she was beheaded in the courtyard of his castle. The family did not long endure, for the last of them, HAWISE, died in 1274 and a portion of her tombstone is to be seen in Ewenny Church. A branch of the family followed STRONGBOW to Ireland, and in 1219 one of them, HENRY DE LONDRES, was Archbishop of Dublin, and constituted the collegiate church of St. Patrick into a cathedral, and thus gave the city its unique distinction of a pair of cathedrals. It is worth noting that in a deed of 1126 PAGANUS DE TURBERVILL appears as co-witness with MAURICE DE LONDRES, and the connection of the family of the former with the locality is of old date.

It is remarkable that although Ewenny was constructed, as E. A. FREEMAN says, "as a shrine for men who performed the most solemn rites in fear and trembling amid constant expectation of hostile inroads," there is no record that the resistance of the outer walls was ever tested by an attacking force. For nearly two centuries the Welsh were constantly invading the district. Treaties were entered into but were never respected by either side. Ewenny was somehow held as a sacred place, and the only explanation Colonel TURBERVILL can offer for the phenomenon is that "possibly the religious feeling of the Welsh may have induced them to spare a monastery even when it was combined with a castle."

As it was erected early in the twelfth century Ewenny

* *Ewenny Priory: Monastery and Fortress.* By Colonel J. P. Turbervill. London: Elliot Stock.

exemplified the Norman style, and few or no alterations were made to bring the building into keeping with any or all of the Gothic variations. The part which still remains is the church of the priory. Evidently the building was intended to be used from the first as a parish church as well as a priory chapel. FREEMAN, who took much interest in the building, and in fact directed some reparations, draws a comparison between it and Dunster Church:—

Dunster, of which we have the history, gives the key to Ewenny in Glamorganshire. Here, unlike Dunster, part both of the monastic and parochial church has been destroyed, but enough is left to show the distinction in the most marked way. The western limb of a cross-church forms the parish church, fenced off by a solid reredos across the western arch of the tower. The monks' choir is fenced off by another open screen across the eastern arch, just as at Dunster. The transept and crossing are, as they once were at Dunster, neutral. Since the "restoration" of Dunster, Ewenny—unless that too has been "restored" out of its historical value since I was last there—remains the most perfect example of churches of the class.

MALLARD TURNER found his way to Ewenny between 1790 and 1800, and made a drawing of the church as it then was. If it were not for the light screen, which is Gothic, the semicircular vaults might be assumed to have been derived from some colossal Roman work. But the scale of the building was magnified by the painter. The condition of the church at the time is suggested by the pigs and fowls and their attendants. TURNER could also have introduced cattle, for a part of the building was used as a cowshed, and there are cuts in the screen that were worn in the wood by the ropes with which the cattle were secured. As the chapel was restored in 1895 under the direction of Mr. MICKLETHWAITE, it is now in a more becoming state, and retains as much of its ancient character as was possible. The lighting is peculiarly dim and religious, for the windows were made of very small size by the Norman builders. The tower is low and massive, and is surmounted by stepped battlements, each of which is pierced with a cross eyelet.

The present aspect of the church differs greatly from what was seen by those who went to Ewenny a century ago. Captain GROSE, the admired of ROBERT BURNS, who visited the church in 1775, wrote:—"It is at present horribly defaced by a filthy custom which prevails in many parts of this country, namely, the making of raised graves on the floor of the churches, and strewing flowers and herbs over the graves; these flowers soon decay, become like dung, which, with the bones and pieces of broken coffins thrown about, afford a very disgusting sight, and must be extremely unwholesome." DONOVAN, writing in 1805, prophesied the downfall of the whole roof within a short time. "The nave which was used for Church service betrayed," he said, "every symptom of neglect as well as of innovation, and as a place of worship nothing could be more disgraceful." He continues:—"For the want of a few score tiles on the broken roof the congregation when assembled are exposed in all weathers to the open day, and, what must prove still more disgusting, to the filth occasioned by a busy swarm of pigeons kept about the priory, whose dung falls at intervals into the church, where it accumulates through neglect and is suffered to soil the furniture of the pulpit, the pews, the floor and even the communion table in the most unbecoming manner." While the church was in that state a costly house was in course of erection for the owner behind the old priory house.

Colonel TURBERVILL has traced out the fortifications as they were. The enclosure was almost a parallelogram having an area of nearly 5 acres, the length being 190 yards and the breadth 130 yards. An impending danger was on the north side, where the hills stood from which the Welsh descended. There was an outer court with a round tower at one angle. The principal tower guarded the entrance from the river side. There were in connection with it a triple portcullis, iron doors and provision in the walls for the insertion of huge beams. There were also several other towers, but it is said that "the greatest difficulty which presents itself when considering the defensive power of the place is the great number of men-at-arms which it would have required to defend so great an extent of wall against an active and numerous besieging force."

It is impossible to ascertain what number of monks was provided for in the establishment. So solitary position called for the aid of numerous auxiliaries, and the part of the church which was for the use of the monks measures 42 feet 7 inches by 22 feet 2 inches, there likely to have been accommodation for several. When in 1534 the community gave a unanimous consent to King HENRY's headship of the English Church, and declare that the Bishop of ROME had no more authority in England than any other foreign bishop, there were only two monks and the prior at Ewenny. Colonel TURBERVILL says that one must wish that the closing scene had been of more glorious nature, for it is with a feeling of shame and sadness that one reads the deed of submission. The priory, with all its belongings, was leased for ninety-nine years to Sir EDWARD CARNE, who was to provide a prior and keep the buildings in repair. In 1546 he bought the property for 727*l.* 6*s.* 4*d.* By the grant CARNE was made absolute owner, and could, if he pleased, have demolished all the buildings and sold the materials. He was one of the clever time-servers who contrived to hold office in the hazardous period. He was employed by HENRY VIII. to visit Rome and serve as agent in the divorce case. He took a profitable share in the dissolution of the monasteries. He was made Chancellor of Salisbury. Queen MARY held him in much in favour as her father did, and he was appointed ambassador to Rome by Queen ELIZABETH. He died in that city, and was buried in the church of San Gregorio, a representative of Catholicism. He founded a family which held Ewenny until 1734; then the property was inherited by the TURBERVILLES, from whom it passed to the PICTON who assumed the name of TURBERVILL according to the conditions of the entail. It may not be known to all that the fiery warrior, Sir THOMAS PICTON, who passed through the Peninsular campaign, and was killed at Waterloo, was brother of the owner of Ewenny. The property now belongs to the WARLOW family, descendants by the mother's side, and the author of the present history is Colonel JOHN PICTON (WARLOW) TURBERVILL, who served for twenty-eight years in the Madras army. He is evidently proud of his property, and in narrating its history has set an example which might often be followed with benefit to archaeologists. To many readers the subject he treats will be novel, and whatever may have been the faults of Englishmen, they have always wished to identify their churches with peace, and it was only under extraordinary compulsion and through confusion of thought that the vandalism of the Puritan army was performed. With all their wildness and bitterness against invaders, the Welsh people did not molest the priory of Ewenny, for, in spite of the fortifications, it would not have been difficult for hordes of hairy mountaineers to have demolished every stone in the enclosure. As a rare example of architecture, the descriptions of the buildings cannot fail to be interesting.

LIVERPOOL CATHEDRAL.

A CONFERENCE of the clergy and lay representatives in connection with the rural deanery of Liverpool North was held last week. Mr. R. A. Hampson, secretary of the cathedral committee, read a paper on "The Cathedral Scheme" in which he said that he accepted the invitation to address them on the subject with pleasure. With the exception of London and Rochester, the diocese of Liverpool was the most densely populated in England and Wales, numbering about 1,200,000 persons. Except London, it was the wealthiest diocese in the country. Yet it was the only bishopric that had no cathedral. There could be no doubt that all classes of people should assist in getting a cathedral worthy of this great city, and so remove the one great stumbling-block to the work of the diocese. If they wanted a scheme to be successful, they must not only appeal to the rich, but to everybody. They must kindle enthusiasm that would appeal to rich and poor alike. The cathedral was meant for everybody who resided in the diocese, and that was the reason why subscriptions should be obtained from every class of citizen. The cathedral would be a church for all people irrespective of position in life, and it was intended that it should be useful to the rich as well as to the poor. Mr. Hampson gave a brief history of the bishopric of Liverpool since its formation in 1880, when Bishop Ryle was appointed to the see. Soon after that appointment a new cathedral was suggested, and Mr. Hampson dealt with the development of the various

schemes that had been propounded, and which led to the adoption of St. James's Mount as the site for the proposed cathedral. Speaking of the suitability of this site, he said that mount, the cemetery, and the space covered 22 acres. The whole space across was 660 feet, length 1,450 feet. St. James's Mount was 250 feet wide and 1,100 feet long. The area of the mount was 22 acres. The 22 acres in question formed the only site in the middle of the city that was practically unbuilt upon and available for the purpose. In order that they could better estimate the site, he compared it to that on which St. George's Hall was erected. The land surrounding that building, from Lime Street station on the Haymarket on one side, and from the Library on the north to Ryland's shop on the south, combined with the space occupied with the hall, was only 17 acres. St. James's Mount was 250 feet wide from east to west, and from north to south it was 1,100 feet long. Comparisons were next made with Lichfield Cathedral and St. Luke's Church, Liverpool, and Mr. Hampson contended that the accessibility of St. James's Mount was to be commended. Taking the Church House as the centre of Liverpool, they were three minutes nearer St. James's Mount than to Monument Place. The electric tramcars running in this direction were also very convenient, and would probably be improved. The place was also quiet, and there was no possibility of its peacefulness being very much disturbed. Mr. Hampson made some interesting allusions to the history of St. James's Mount which he gathered from the work of Sir James Picton, and had also been assisted in this respect by his friend Mr. George Bradbury. The committee were desirous of approaching the matter of building a cathedral on the broadest and grandest lines, one which would be representative of the spirit of the age, and should yet compare with buildings of bygone days. They intended to ask the architects to design a building estimated to cost not less than half a million of money. To-day, however, they could only start the great work, and future generations must do the rest. It was expected that a million of money would have to be expended, and half a century gone before the cathedral was finished. The committee intended to act under the best professional advice with regard to selecting an architect or architects to prepare final plans. They were impressed with the importance of adopting the very broadest views with the object of obtaining, if not in our time, a glorious cathedral which should compare with any other in the country, and be a monument of love, labour and sacrifice on the part of the members of the Church and diocese. It was proposed to have two competitions—first a preliminary one, out of which a number of architects would be selected to compete in the final competition. There would be no restriction as to style or character of drawings, which were not to be sent in before June 30 next. It would be at least two years before the foundation-stone could be laid. The committee wished to express their indebtedness to the Liverpool Architectural Society for very valuable suggestions, and they wished to promote a spirit of unity and co-operation throughout the diocese. This great work of building a cathedral, he felt sure, would do more than anything else to encourage a feeling of unity and co-operation among the members of the Church, both laity and clergy. It was only by being united and by consenting to make some sacrifice for the common good, and to promote the common object in view, that this great labour could be accomplished. In conclusion he appealed to all their friends to make not only sacrifice of money, time and labour, but of opinion as well.

CELTIC GOLD ORNAMENTS.

THE following letter from Mr. George Coffey, keeper of Irish antiquities in the Dublin Museum, has appeared in the *Times* :—

With regard to the resolution passed by the Society of Antiquaries of London, November 28 (the *Times*, November 29), as to certain gold ornaments in the British Museum, lately found in Ireland and claimed by the Royal Irish Academy as trustees for our national collection at Dublin, I am surprised to observe that the Society has committed itself to an opinion on an archaeological question concerning which archaeologists are not agreed. The resolution states :—"As remains of the art of the ancient Britons, and having only an accidental connection with Ireland, these relics could be placed nowhere more appropriately than in the British Museum."

This contention was first put forward by Mr. C. H. Read, of the British Museum, the secretary of the Society of Antiquaries, in a written statement to the Treasury commission of inquiry as to these ornaments. I extract the following passage from the printed evidence (page 8) :—

"There is nothing in the character of the work that is specially Irish. On the contrary, the closest analogy for the most particular feature—viz. the gold chains—is seen in an English discovery of the same period—two brooches from Lancashire; and Mr. A. J. Evans, in his paper on the dis-

covery, finds the nearest analogue to the highly ornamental gold collar in a shield from the Thames. Nor even if it be granted that the boat is a model of a coracle—this form of boat was fully as English as it was at a later period Irish—I do not consider that there is any proof, archaeological or otherwise, that this hoard has any but an accidental connection with Ireland."

Here is a most inadequate representation of Mr. Evans's views. Mr. Evans was not of opinion that the collar is of British origin. On the contrary, he was positive that it is Irish work. He does not say in his paper on the discovery that the nearest analogue to the collar is a shield from the Thames. He says that the "nearest approach" to the "snake-like coils" of the ornament is found in a shield from the river Witham. He compares other features with details on objects from England, from Scotland and from Ireland. The compass work of the collar, he points out, is illustrated best by objects from a tomb in the county Meath. The "fine repoussé reliefs" of certain well-known bronze discs found in Ireland, he writes, "suggest more than one analogy with those of the gold collar." Some decorative scrolls on a collar in the collection of the Royal Irish Academy furnish "a distinct indication that both were made in Ireland." Reviewing the whole evidence of the "find," Mr. Evans states, in conclusion, "there is at least no question as to the indigenous Celtic character of the most important relic contained in the Ulster hoard. The hollow gold collar, with its bold repoussé designs, is undoubtedly an ancient Irish fabric, and it is at the same time the finest example existing of this class of work." (*"Archæologia,"* vol. 55, pp. 402-7.)

Thus does an authority so high as Mr. Evans express his distinct opinion that the most important object in the "find" is an Irish fabric. Yet on this question of origin the Society of Antiquaries, with unscientific rashness, has not hesitated to commit itself by resolution to the positive statement, as of an indubitable fact, that the antiquities have but "an accidental connection with Ireland."

The assertion implied in the resolution that late Celtic ornament in Ireland is derived from Britain is as yet a mere assumption. There is no reason why it may not have come, at least in part, direct from the Continent in the same way that, at an earlier period, the Hallstatt style (better represented in Ireland than in Britain) appears to have reached our island. Since the publication of Kemble's "*Horæ Ferales*" many additional objects of the late Celtic period have come to light in Ireland, and the evidence no longer stands where that work left it. In any case local adaptations of late Celtic ornament—for instance, a certain form of late Celtic fibula, hitherto not found outside Ireland—tend to show that the style was in use in Ireland. And whatever be the final judgment on the subject, when more evidence shall be forthcoming it is certain that late Celtic ornament left a marked impression on the early Christian art of Ireland, as seen in the treatment of scrolls, called by Margaret Stokes and others the trumpet pattern.

The preservation in the Irish national collection at Dublin of antiquities of the late Celtic period found in Ireland is, therefore, of no little importance for the history of decorative art in Ireland.

The resolution of the Society of Antiquaries has the following noteworthy passage:—"The Society is of opinion that the cause of archaeology will be best served by the retention of these interesting objects in the central museum of the Empire, where they are accessible to a greater number of students than would be the case elsewhere"—an example of confusion of thought arising from the use of words which do not represent facts. Adopting for the moment the point of view of the Society, I reply that the Museum of Irish Antiquities for the Empire is the National Museum at Dublin. The British Museum can never hope to equal the collection there, either in completeness of series or importance of examples. Students of Irish antiquities must of necessity go to Dublin, and the science of archaeology will be best served by making the collection there as fully representative as possible. This is true generally, and in particular with regard to Irish students, to whom other countries must look for the working out of the archaeological materials of Ireland.

Any attempt to draw a distinction between the movable and the fixed antiquities of a country is unscientific. The logical conclusion from the position taken up by the Society of Antiquaries is that the ancient monuments of Ireland should be removed to London.

The Liverpool Architectural Society's second members' meeting will be held at 6 P.M. on Monday next, the 16th inst., in the Law Library, 41 Castle Street, Mr. C. J. Andersson in the chair. A paper will be read by Mr. C. Brien (of Messrs. Waring & Gillow's) on "Wood Staining and Veneering," illustrated with specimens of woods and stains, and after the paper Mr. James Cook will show with a lantern some slides of French cathedrals.



CATHEDRAL SERIES, No. 376c.- CHICHESTER: SACRISTY, NOW SINGING CHOIR.



CATHEDRAL SERIES No. 376.—CHICHESTER: TURRET STAIR TRIFORIUM.

NOTES AND COMMENTS.

MANY artists in Paris are now looking forward with eagerness for the conditions of a competition in signboards of various kinds which M. EDOUARD DETAILLE, the military painter, has proposed. The Prefect has accepted the suggestion in principle, but the conditions have yet to be formulated. The programme will, of course, include hanging signs. M. DETAILLE will put himself in the place of an ordinary artist and prepare designs. It is expected that the majority of his fellow-members of the Institute will also join in the competition. M. DETAILLE thinks his scheme will be advantageous, not only by the improvements which would be effected in the streets of Paris by the new signs, but also by the extent of the employment which would be given to most classes of artists, such as painters, sculptors, metalworkers and others. M. GÉRÔME, it is well known, condescended to paint one of the signs which were seen in the Old Paris section of the International Exhibition, and the names of other eminent artists are to be found on such panels. Paris was in old days remarkable for the number of signs which hung above the footways in the narrow streets, and the revival, if it could be accomplished, would add to the picturesqueness of the modern city.

It is pointed out by a writer in the *Polytechnic*, one of the American magazines, that the number of large contracting firms in the United States composed partly or wholly of civil engineers has been largely increased during recent years. The writer says that ten times more ability and common sense are required to carry out a design—and to make money by it—than is needed for the designing. The remarks are characteristic of the American spirit. Ingenuity is not greatly prized unless it brings money, and when a man has practical skill he sees no reason why he should not derive from it the utmost advantage. It is not, however, suggested that the engineer-contractor has an easier life than the engineer who confines himself to designing. It is the contractor, it is said, who lies awake at night worrying about disasters, and who sees clearly the impending dangers of fire, storm and flood. Then the labour question is more of a danger in America than in England. A story is told of the erection of a bridge in the Southern States. The men who were engaged were happy until some dispute arose far away in New York. The bridge was nearly completed when a telegram was received from the trades union. The steelwork was left hanging over a treacherous mountain stream, and remained in that position till men who were not in thrall to the union could be discovered. That incident changed a profitable contract into a loss. Considering the peculiar character of American engineers and the ease with which they transform themselves into contractors, it is not surprising that the French Government contemplate sending some of the selected students of the Ecole Polytechnique to study the American ways of doing business. A school, it is said, could be established in New York which would serve French engineers in the same way as the schools in Athens and Rome serve artists and scholars.

THE Petit-Palais in the Champs-Élysées was generally considered by visitors to be one of the most interesting buildings in the last Paris International Exhibition. It has to maintain a comparison with the larger palace of art which was erected on the opposite side of the new road. But there has been no question about the result. After the close of the Exhibition the fate of the Petit-Palais became doubtful, and a great many propositions were made about the best way of utilising it. At length it has been determined that the building is henceforth to be called the Fine Arts Palace of the city of Paris. The title is a sufficient indication of its future use. For many years past the Municipality of Paris have been purchasing works of art from the Salon and other exhibitions. Some of the pictures were used to adorn rooms in the Hôtel de Ville, but the majority have been stowed in various storehouses. The whole of the paintings, statues and etchings will be examined by a commission consisting of the following

artists as members :—MM. BONNAT, BENJAMIN CONSTANT, DETAILLE, CAROLUS-DURAN, FRÉMIET, GÉRÔME, JEAN PAUL LAURENS, MERCIÉ. They will select the work best adapted to represent the good taste of the Municipal Council. Paris will therefore be able to present next year to visitors a collection of examples of the best modern French art which will vie with those to be seen in the Luxembourg Gallery.

THE forty-eighth annual general meeting of the Society of Engineers was held on December 9 at the offices of the Society, 17 Victoria Street, Westminster. The chair was occupied by Mr. CHARLES MASON, president. The following gentlemen were duly elected by ballot, as the Council and officers for 1902, viz.:—President, Mr. PERC GRIFFITH; vice-presidents, Messrs. JAMES PATTEN BARBER, DAVID BUTLER BUTLER and NICHOLAS JAMES WEST; ordinary members of Council, Messrs. JOSEPH BERNAYS, G. A. PRYCE CUXSON, GEORGE A. GOODWIN, W. H. HOLITUM, R. ST. GEORGE MOORE, HENRY SHERLEY-PRICE, JOSEPH WILSON and MAURICE WILSON; hon. sec. and treasurer, Mr. GEORGE BURT; hon. auditor, Mr. SAMUEL WOOD, F.C.A. During the scrutiny the President addressed the meeting bringing before the members the salient points of the work of the past year. He referred to and commented upon the papers which had been read, and announced that the following premiums had been awarded by the Council for papers read during the past session, viz.:—The President's gold medal to Mr. H. ALFRED ROECHLING for his paper on "The Sewage Question during the Last Century," the Bessemer premium of books to Mr. ROGER G. HETHERINGTON for his paper on "The Main Drainage of Ilford," a Society premium of books to Mr. ARTHUR T. ALLEN for his paper on "Concrete Subways for Underground Pipes," a Society premium of books to Mr. SYDNEY A. HOLLIS for his paper on "Preliminary Investigations for Water Supply," and a Society premium of books to Mr. J. FREEBAIRN STOW for his paper on "Irrigation Works in South Africa." The President also alluded to the visits which had been made to works of professional interest during the year. These were:—On June 12 to the engineering works of Messrs. FRASER & CHALMERS at Erith, and to the air-compressing station of the Shone system of sewage ejection at the same place; on July 18 to the works of the Staines reservoirs, and on September 25 to the School of Military Engineering at Chatham.

SEVERAL Bills relating to London will be brought before Parliament in the ensuing session. Although it may not be considered the most important, if gauged by the outline involved, not one of the Bills will be accompanied with so much approval and sincere wishes for its success from the inhabitants of the Metropolis as that promoted by the Corporation in order to control the breaking up the streets. One section proposes that notices shall be required of not less than three months before the opening of any street together with plans and sections. The notice is to be published in the thoroughfares affected. The Corporation are to prescribe the sequence in which streets may be opened and the conditions under which the work may be performed. The reopening of any street is to be prohibited for a period of nine months from the completion of any previous work in it without the consent of the Corporation or except in cases of emergency. There will be penalties for infringement of the regulations, and in case of disagreement there is to be power of arbitration by the Board of Trade. The effect of the regulations will be to cause more foresight than is now exercised by gas, water and other privileged companies who have the privilege of operating on the streets whenever they please.

ILLUSTRATIONS.

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THE LONDON AND COUNTY BANKING COMPANY,
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CATHEDRAL SERIES.—CHICHESTER: THE NAVAL NAVAL ARCHES

ROYAL HIBERNIAN ACADEMY.

A DEPUTATION representing the Royal Hibernian Academy waited on the Lord-Lieutenant at Dublin Castle on Monday for the purpose of urging their claim to increased State support, and pointing out certain reforms which are considered essential in the interests of the Academy. The following report of the interview is taken from the *Irish Times*.

The deputation consisted of the following members and associates:—

Sir Thomas Drew, president; S. Catterson Smith, secretary; P. Vincent Duffy, treasurer; Nathaniel Hone, James Brennan, Bingham M'Guinness, Henry C. Tisdall, Alfred Grey, R. T. Moynan, Joseph M. Kavanagh, Henry Allan, R. S. Shore, Charles Russell, Geo. C. Ashlin, Alex. Williams, J. Butler Yeats and J. Howard Pentland, members; Thomas Manly Deane, Fred. Batchelor, A. E. Murray, Nassau B. Browne, associates.

Sir Thomas Drew said the statement which he was about to make was intended to correct some misapprehensions about the Academy in the public and the official mind. The Academy was an institution on the lines of the Royal Scottish Academy, and its main purpose was the holding of exhibitions of living and contemporary art. There was some reason for pressing this point. There had been an impression for years that the Academy had not been as well supported by the State as it might be, and that it was not altogether popular with the authorities. He knew, as a matter of fact, that that impression really existed, because it had been conveyed to him officially that several times it was in contemplation to withdraw the small grant of 300*l.* a year which it now enjoyed. Last year it was in contemplation to withdraw the grant, and when he made inquiry as to the reason he was informed that it was reported that the Academy was not doing good work. The impression, it appeared, had got abroad in Government departments and in official quarters during the last 30 years that the Academy was a mere teaching school, whereas its first and main object was to hold exhibitions of living and contemporary art which no other institution in the country did or could hold. That purpose was fulfilled by the Royal Scottish Academy, the Royal Academy of London, and the great municipalities which were doing the same work. Continuing, Sir Thomas Drew read the following statement:—On assuming responsibility as President of the Royal Hibernian Academy a year ago, I had the honour to submit to your Excellency, as its vice-patron and representative of Her Most Gracious Majesty, a statement of the affairs and financial position of that institution, which had been under the grave consideration of myself and colleagues as representative of the artists of Ireland. Our assurance of your Excellency's consideration and sympathy was not misplaced. It was evidenced by a friendly Commission of inquiry, directed by your Excellency, into the affairs of the Academy, undertaken by no less a distinguished servant of the Crown than Sir William de W. Abney, K.C.B. We take this opportunity to express our personal gratitude to your lordship, and our appreciation of the sympathetic spirit and painstaking patience with which Sir William brought his great administrative experience to bear upon the affairs of the Royal Hibernian Academy. His report not only dealt with the main issues vital to the existence of the Academy, with which we have to occupy your Excellency's attention to-day, but offered suggestions as to details of administration, to be recalled and considered by our members with respect, should it be their fortune at a future time to debate details of internal management in a reformed and prosperous Academy, under conditions which differ from the present ones. We have to thank your Excellency for raising the condition of the Hibernian Academy to the position of a public question. In that aspect we desire but to address ourselves on this occasion to the broader question of the relation of the Academy of Arts of Ireland as a State institution to the Government of the country. In England, in the sister kingdom of Scotland, and it may be said in every State in civilised Europe, it has been fully recognised for half a century back, that the nurture of art education is the duty of the State, and the agencies by which it is promoted are three. 1st. By State-aided system of primary and general art instruction in public schools and schools of art. 2nd. By establishment of art museums, under which comes primarily the institution of a national gallery of painting and sculpture, distinctly illustrative of past art of various schools, and being the works of deceased artists. 3rd. By the institution and grant of privileges by charter to a guild of artists, a national academy of arts, fulfilling the circle of art education, primarily by its public charges of maintaining exhibitions of living and contemporary art; and, secondarily, of encouragement of native artists and advanced art instruction to students adopting art as a profession, given by its artist members. Such is the acknowledged circle of art education in most countries, and which has successfully and harmoniously achieved a vast advance in the art culture of the British people in the last half century in England and Scotland. Each of the three divisions defined

is the complement of the others, and indispensable. Such, your Excellency, was the conception, as we know, of those who first designed a comprehensive scheme for a liberal establishment of art education and culture in Ireland about the year 1876. It was understood then that (as in the like establishment in Scotland in 1858) there would be given to the Royal Hibernian Academy, considered as the representative of the artists of Ireland, its due position in reference to the promotion and teaching of the fine arts. There was an assurance among the artists of Ireland that in the scheme was contemplated the rehabilitation and extension of usefulness of the National Academy of Arts, founded and somewhat endowed by a private citizen in 1823, but chartered and recognised in its relation to the State by a subsidy, however small, for more than fifty years preceding 1876 and up to the present date. It would be useless now to inquire through what influences, whether through narrow misunderstanding of the scope of national art education in some quarter, or mere vicissitude, the Academy was simply dropped out of its place in the whole scheme, or the time indefinitely postponed for its inclusion in the consolidation and grouping of the art institutions to be located near Leinster House. No reason or explanation has ever reached the President or members of the Academy, who awaited an assured place and were willing to accept new conditions in taking part in the art culture of the country. No such omission had been made in a like establishment of grouped art institutions in Scotland, where a principle had been emphatically laid down by the Lords of the Treasury in a final minute of February 25, 1858, the objects of which were stated as:—(1) "The giving to the Royal Scottish Academy, which must be considered as the representative of the artists of Scotland, its due position in reference to the promotion and teaching of the fine arts;" and (2) "The securing to the inhabitants of Edinburgh by annual exhibitions of modern art, and by the foundation of a national gallery opportunities, which cannot be over estimated, of rational amusement, mental cultivation and refinement of taste." We can assure your Excellency that the postponement in calling the Royal Hibernian Academy to its proper co-ordinate place of usefulness for twenty-five years has been a serious misfortune to the art progress of this country, however liberally and nobly and successfully, as the Academy must admit, the State provided in 1877 for primary and general art teaching and a museum of industrial art and national gallery of works of past masters, in itself an estimable benefit to the artists of Ireland. It is true that the Academy has not failed in these twenty-five years to fulfil its trust in providing annual exhibitions of living and contemporary art for the people of Dublin, nor has it been unsuccessful in nurturing some artists of a native school, but with straightened and wholly inadequate means, drawn from a slender and dwindling private endowment and a State subsidy of 300*l.* per annum, of which less than 50*l.* in any year has been applicable to its general maintenance.

It was with no discontent and no extravagant dream that the Royal Hibernian Academy should ever remotely approach the affluent state of the Royal Scottish Academy, that we informed your Excellency in a former statement that the latter institution, as shown by record of its financial establishment in 1858, enjoyed an endowment which might be estimated at an annual value of 2,285*l.* By official courtesy we are enabled to verify that statement as correct in respect to 1858, and to state authoritatively that in 1901 the annual value of its endowments is not less than 2,000*l.* per annum, and its capital pension fund has increased to 27,866*l.* We are well informed of its history, and of the fortunate concatenation of circumstances to which it owes its splendid and well-used endowments. We are informed of the history that the basis of its good fortune was a considerable sum of money somehow accruing and cumulative under the Scotch Treaty of Union. We know that a wealthy municipality of Edinburgh was able to make a munificent contribution. We know that the artists of Scotland themselves were able to be contributors by bringing into the scheme valuable pictures as a nucleus of a National Gallery, and it was not unreasonable that the Treasury, stimulated by such encouragements, should bring in 30,000*l.*, of which 15,000*l.* was particularly to be credited to the Academy. How well and wisely Scotch academicians have used their means for forty-eight years, and the noble school of Scottish art which they have nurtured, can but command unqualified admiration of Irish artists, unalloyed by any other feeling. Returning to the Royal Hibernian Academy, the fact which we have to recognise and disclose to your Excellency and the public is that we can but little longer fill even a limited sphere of usefulness with a yearly diminishing endowment, the net annual value of which has come to be no more than 116*l.* The claims which we have to advance to rehabilitate the Academy, and place it with the grouped institutions of Leinster House, are, as a financial consideration, of the most moderate character. They involve no great or immediate capital concession from H.M. Government. We now claim rather some assistance at a present juncture which some public departments

might lend, if authorised and willing, under practicable and economical conditions. The urgent wants of the Academy may be stated as follows:—(1) A site and new galleries for its exhibition of modern and contemporary art in the vicinity of Leinster House. Of the vital necessity to the Academy of such a change of location from Lower Abbey Street your Excellency is well informed by us and the concurrent testimony of Sir William Abney. The site required for such buildings would be an area but about 700 square yards. The buildings themselves, for the requirements of recurrent temporary exhibitions, are the least expensive of those in the whole circle of art institutions, consisting but of a series of apartments giving a sufficient wall space for hanging pictures, and top-lighted, without architectural pretension or expense. (2) A new charter—the Academy has recognised the impracticability of reforms in various details of its constitution and membership under obsolete and injudicious restrictions of its original charter of 1823 and subsequent one of 1864. It desires a reformed charter, as nearly as circumstances will permit assimilated to the charter of the Royal Scottish Academy. In its impecunious condition it cannot command the funds for the usual considerable fees payable to Crown departments for obtaining a charter, and the members would ask for your Excellency's influence in facilitating the free grant of such a charter essential to its reconstitution and vitality. (3) The Academy claims that the small fund realisable out of past private endowment should remain vested in it, giving a small margin of assured annual income absolutely essential to carrying on its work for the public benefit. It would desire to make what property it possesses in its library and prints, &c., more usefully enjoyed for public advantage than heretofore exclusively for members of the Academy. 4. It would further desire to maintain its autonomy and reasonable independence, under which alone, with many difficulties, its members disinterestedly have been able to discharge the Academy's duty to the Irish public for eighty years, and which constitute the essence of vitality of every academy of fine arts. In conclusion, we do not desire to be assumed to press for any immediate financial grant from His Majesty's Government at an inopportune time, but we do earnestly desire, in the period that remains of your Excellency's influence in Irish affairs, to secure, through your lordship's goodwill, an official recognition and record of acknowledged claims to State consideration in course of future time. With such hopeful assurance gained, it may be possible to prolong the existence of the Royal Hibernian Academy until, by gradual reform, it takes its practical and useful place in culture of art education in Ireland. It is desired that I should add that this statement, which your Excellency has been so considerate as to accept at the desire of the Royal Hibernian Academy through its President, is the entirely unanimous one of its members. It has been formulated with anxious consideration by repeated conferences of the whole body of members in full attendance and with absolute agreement. As such I was deputed to present it by unanimous vote at a special full general assembly held on November 7, 1901.

The Lord Lieutenant then replied to the deputation. He said:—Sir Thomas Drew and gentlemen, I am afraid that I shall not be able to make any promises or to give any details which can materially assist the object which you have so eloquently and so clearly brought under my notice. The object of a deputation such as this is generally twofold. In the first place it consists in affording an opportunity of making statements publicly, and making known publicly the views of those who represent their colleagues on those occasions, and in the second place it affords the member of the Government who receives it an opportunity of giving some hope of amendment, or of giving an adequate reply to the complaints which might be made. In this instance, as in many others, I must say that the first of these objects is one which, I think, will be most fully accomplished. I ought at once to say that I do not think it is possible for me to make any promises or give any pledges to the members of the Hibernian Academy here present as to any changes which may be brought about, or as to any further assistance which may be given to the Academy, especially in the absence of the responsible member of the Government, viz. the Right Hon. Horace Plunkett, who, I had hoped, would have been able to be present on this occasion. He, however, is absent. He has gone to America, and I have been unable to communicate with him, and we shall miss his presence here, but I shall take care that every word said, and that may be said here, will be brought to his attention. Gentlemen, I fully sympathise with the position in which the Hibernian Academy feels itself now, and has felt itself for some time past. I agree with what Sir Thos. Drew has said as to misapprehension of the objects of the Academy. These objects undoubtedly are not merely and simply for the sake of providing an exhibition of paintings annually, but they also include teaching, both in the art school and also in the examples and models which they afford, and we hope will afford, in future in your museums, in the assemblage to which

Sir Thomas Drew has alluded of pictures of artists of a gone day, which shall serve as examples to students as they come; but the great difficulty, as it always seemed to me under which you labour, probably the one most apparent, which appears most prominently to the Irish public, is inadequacy of the building in which your exhibition is held. I cannot gauge myself as to how far the inadequacy of the building has influenced or, rather, injured the condition of the art school of Ireland, but I am quite sure that the building is inadequate, and I am sure that the exhibition is not held in circumstances likely to facilitate your task or to be beneficial to the art welfare of this country. I therefore think your claim for something should be done to assist the removal of your exhibition-room, and that quarters should be given to the Hibernian Academy in the centre in which all the other scientific and artistic buildings have been, or are about to be erected, is a most reasonable one, and it is one which I should certainly press on my colleagues, and which I have every hope may be acceded to. Then the other requests which have been made in this paper I must say I can only characterise as extremely moderate and most reasonable. You ask also for a charter, which charter you very naturally wish should be granted free of cost. That does not appear to me in itself to be a request which can be characterised as in any way unreasonable. It is one that quite evidently would increase your powers of usefulness, and result in great benefit to your art, and it is one also which I should have very great pleasure in discussing with the Treasury and with those with whom the decision more immediately rests. There is a paragraph in the statement which has been read, the meaning of which I do not quite catch. It is that the Academy claims that the small fund realisable out of past private endowment should remain vested in it? Can you give me an idea of what is meant by that?

Sir Thomas Drew: Yes, your Excellency. It means that the only private endowment which the Academy has is an endowment in the shape of its old buildings in Abbey Street, an asset we value at 7,000*l.*, and we should be anxious to keep that capital when it becomes realised money, and that the small interest accruing from it should be constituted a small fund to meet the annual expenses. It has been one of our difficulties up to the present that we have had no margin whatever.

The Lord Lieutenant: Is not the property now vested in the Hibernian Academy?

Sir Thomas Drew: Oh yes, it is; but we took it into consideration as to whether the sale of the premises should be to the establishment of new premises, and there was an impression amongst many that that would not be reasonable, and that the private endowment of Francis Johnston should be retained by the Academy. It is a small amount of 7,000*l.* 8,000*l.*

The Lord Lieutenant: I shall see that that also is represented. The last request you make I see is for autonomy and for reasonable independence, under which alone, you say, with many difficulties, its members disinterestedly have been able to discharge the Academy's duty to the Irish public for eighty years, and which constitute the essence of vitality of every academy of fine arts. Am I to conclude from that that you believe that the administration wish to have a voice in and control over the department?

Sir Thomas Drew: We wish to run precisely on the lines of the Royal Scottish Academy and the Royal Academy in London. It is a matter of history that attempts were made to bring the Royal Academy of London under the control of the Treasury and of Parliament, and time after time that Academy resisted any claim of domination over it, and it successfully asserted its position. The Royal Scottish Academy were again and again concerned in negotiations over an attempt to make them subservient to some public department, and the Scotchmen resisted the attempt, and it is a matter of fact that the great vitality of both those academies is due to the utter independence of departmental control, an independence enjoyed by most great guilds.

The Lord Lieutenant: If the Royal Hibernian Academy changed their quarters and took up their abode near the other buildings, the museum buildings or science and art buildings, am I to understand that they would wish, although being contiguous to them, to be entirely independent of them?

Sir Thomas Drew: A difference has to be drawn between teaching and exhibiting colleges. I don't think it unreasonable that the teaching should be under departmental control.

The Lord Lieutenant: You don't object to that?

Sir Thomas Drew: No; it would be unreasonable to do so.

The Lord Lieutenant: I should also like to hear something more about the teaching. There is a school at the Academy and also a school of art and science. Is it the view of the Academy that the teaching of art at the Academy school should be set apart from all other art schools and departments?

Sir Thomas Drew: As to that, I think the view among the majority of artists is that the teaching of the Scottish Academy or the Hibernian Academy to those going for art is a profession is somewhat different to that given to pupils who

going for a primary art education. Our students, both male and female, who advance to maturity study from the nude figure, and free themselves from the rules of the primary school. The opinion is that this is the best plan, and in every centre in Europe it takes that form, and there is an advanced school for those who are going to study art as a profession. It has been stated and reported within the last few years that the Academy has not been doing good work in that direction. That is a very old story which has arisen from time to time, but we can assure your Excellency that never at any period in the history of the Academy have the schools been better attended than at the present both by male and female students. Although this is only a secondary purpose of the Academy we consider that we are exceedingly prosperous with regard to it.

The Lord Lieutenant: What is the average attendance?

Mr. S. Catterson Smith: Twenty altogether. Eight or ten has been the average attendance for some years.

The Lord Lieutenant: Has not the attendance increased of late years?

Mr. Catterson Smith: It has.

The Lord Lieutenant: From how many?

Mr. Catterson Smith: We have twenty altogether, but the average attendance is from eight to ten.

The Lord Lieutenant: How could you secure the attendance of more students?

Mr. Catterson Smith: We have had several applications from students during this session. The number is increasing considerably.

Sir Thomas Drew: The number mentioned—ten or twelve—appears large in proportion to the limited number of students going on for the profession of art in Ireland. That average presents a large attendance.

The Lord Lieutenant: I don't know, gentlemen, that I have anything further to add, except that I shall be glad if any gentleman present has anything to say in regard to any subject that may have been accidentally passed over. It is hardly necessary for me to say that I take a very sincere interest in the progress of your Academy, and I wish that the representation you give of your own position were more satisfactory, and such as to reasonably lead one to hope for greater success in the immediate future. If anything can be done in the direction you wish, I shall do all in my power to bring it about. I have myself felt, I am sorry to say, that the Academy does not occupy quite as influential a position as it should, and I am bound to say that I do not think the Irish public sufficiently appreciate the necessity of encouraging your art by attendance at the exhibitions and so forth; but I can only hope that with the change of quarters alluded to, and public attention having been called to the existing state of affairs, that the Academy shall receive support from those of the Irish public who take an interest in your profession and the aims it encourages. I don't think that I can say anything more, except to thank you gentlemen for coming here, and I hope that if there are any further suggestions or statements that you or your President have to make you will not fail to make them, and I will do all I can to meet your wishes.

The deputation then withdrew.

LORD KELVIN AND THE LATE P. Q. TAIT.

AT the last ordinary meeting of the Royal Society of Edinburgh, Lord Kelvin, the president, read an appreciation of the late Professor Tait. After referring to his early life he said:—In 1860 Tait was elected to succeed Forbes as Professor of Natural Philosophy in the University of Edinburgh. It was then that I became acquainted with him, and we quickly resolved to join in writing a book on natural philosophy, beginning with a purely geometrical preliminary chapter on kinematics, and going on thence instantly to dynamics, the science of force, as foundation of all that was to follow. I found him full of reverence for Andrews and Hamilton, and enthusiasm for science. Nothing else worth living for, he said; with heartfelt sincerity I believe, though his life belied the saying, as no one ever was more thorough in public duty or more devoted to family and friends. His two years as "don" of Peterhouse and six of professorial gravity in Belfast had not wholly polished down the rough gaiety nor dulled in the slightest degree the cheerful humour of his student days; and this was a large factor in the success of our alliance for heavy work, in which we persevered for eighteen years. "A merry heart goes half the day, a sad one tires in a mile o'." The making of the first part of "T and T" was treated as a perpetual joke, in respect to the irksome details of interchange of drafts for "copy," amendments in type and final corrections of proofs. It was lightened by interchange of visits between Greenhill Gardens, or Drummond Place, or George Square and Largs, or Arran, or the old or new College of Glasgow; but of necessity it was largely carried on by post. Even the postman laughed when he delivered one of

our missives, about the size of a postage stamp, out of a pocket-handkerchief in which he had tied it, to make sure of not dropping it on the way. One of Tait's humours was writing in black chalk on the bare plaster wall of his study in Greenhill Gardens a great table of living scientific worthies in order of merit. Hamilton, Faraday, Andrews, Stokes and Joule headed the column, if I remember right. Clerk Maxwell, then a rising star of the first magnitude in our eyes, was too young to appear on the list. About 1878 we got to the end of our "Division II." on "Abstract Dynamics;" and, according to our initial programme, should then have gone on to "properties of matter," "heat," "light," "electricity," "magnetism." Instead of this we agreed that for the future we could each work more conveniently and on more varied subjects without the constraint of joint effort to produce as much as we could of an all-comprehensive text-book of natural philosophy. Thus our book came to an end with only a foundation laid for our originally intended structure. Tait's first published work was undertaken in conjunction with a Peterhouse friend, Steele, who was his second in the University both as wrangler and Smith's prizeman. They commenced their work together immediately after taking their degrees; but Steele died before more than two or three chapters had been written, and Tait finished it alone and published it four years later under the title "Tait and Steele's Dynamics of a Particle" (1856). It has gone through many editions, and still holds its place as a text-book. Tait's second published book, "Elements of Quaternions," was commenced under the auspices of Hamilton; but in deference to his wish not published till 1867. It has gone through three editions, and is, I believe, the text-book for those who wish to learn the subject. Tait also produced several valuable treatises, short, readable, interesting and useful on various subjects in physical science:—"Sketch of Thermodynamics" (1867), "Recent Advances in Physical Science" (1876), "Properties of Matter" (1885), "Light" (1884), "Thermodynamics" (1888), "Dynamics" (1895). In the Royal Society of Edinburgh we all know something of how Tait has enriched its proceedings and transactions by his interesting and varied papers on mathematical and physical subjects from year to year since 1860, when he came to Edinburgh to succeed Forbes as Professor of Natural Philosophy in the University. Nearly all of these are now collected, along with a considerable number of other scientific papers which he brought out through other channels, arranged in order of time, from 1859 to 1898; one hundred and thirty-three articles in all, republished by the Cambridge University Press in two splendid quarto volumes of 500 pages each, a worthy memorial of a life of laborious whole-hearted devotion to science. The "Scientific Papers" collected in these two volumes abound in matter of permanent scientific interest, and literary interest, too, as witness the short articles on "Hamilton," "Macquorn Rankine," "Balfour Stewart," "Clerk Maxwell" and "The Teaching of Natural Philosophy." Of all the mathematical papers in the collection, the one which seems to me most fundamentally important is Part IV. of "Foundations of the Kinetic Theory of Gases," in which we find the first proof (and, I believe, the only proof hitherto given) of the theorem enunciated first by Waterston, and twelve years later independently by Clerk Maxwell, asserting equal average partition of energy between two sets of masses larger and smaller, taken as hard globes to represent the molecules of two different gases thoroughly mixed together. The collection contains also papers describing valuable experimental researches made by Tait through many years on various subjects—thermo-electricity, thermal conductivity of metals, impact and duration of impact, pressure errors of the *Challenger* thermometers, compressibility of water, glass and mercury (contributed originally to the "Physics and Chemistry" of H.M.S. *Challenger*). His work for the *Challenger* report was a splendid series of very difficult experimental researches carried on for about nine years (1879-88), with admirable scientific inventiveness, and no less admirable zeal and perseverance. One little scientific by-product of extreme interest I cannot refrain from quoting. Referring to a hermetically sealed glass tube under tests for strength to resist great water pressure:—"I enclosed the glass tube in a tube of stout brass, closed at the bottom only, but was surprised to find that it was crushed almost flat on the first trial (when the glass tube broke). This was evidently due to the fact that water is compressible, and therefore the relaxation of pressure (produced by the breaking of the glass tube) takes time to travel from the inside to the outside of the brass tube; so that for about one-tenth thousandth of a second that tube was exposed to a pressure of 4 or 5 tons weight per square inch on its outer surface and no pressure on the inner. The impulsive pressure on the bottom of the tube projected it upwards, so that it stuck in the tallow which fills the hollow of the steel plug. Even a piece of gun-barrel, which I substituted for the brass tube, was cracked, and an iron disc, tightly screwed into the bottom of it to close it, was blown in. I have since used a portion of a thicker gun-barrel, and have had the end welded in. But I feel sure that an impulsive pressure of 10 or 12 tons

weight would seriously damage even this. These remarks seem to be of interest on several grounds, for they not only explain the crushing of the open copper cases of those of the *Challenger* thermometers which gave way at the bottom of the sea, but they also give a hint explanatory of the very remarkable effects of dynamite and other explosives when fired in the open air. (It is easy to see that, *ceteris paribus*, the effects of this impulsive pressure will be greater in a large apparatus than in a small one.) The Keith Medal of the Royal Society of Edinburgh was awarded to Professor Tait in the year 1869, and again in 1874; and one of the royal medals of the Royal Society of London was awarded to him in the year 1886. The Gunning Victoria Jubilee prize of the Royal Society of Edinburgh was awarded to him in 1890. Enthusiast as he was in experimental and mathematical work, he never allowed this to interfere with his University teaching, to which, from beginning to end of the forty years of his Professorship, he devoted himself with ever fresh vigour and with unremitting faithfulness as his primary public duty. With not less devotion and faithfulness during all these years he has worked for the Royal Society, of which he was elected a Fellow when he came to Edinburgh as Professor. At the commencement of the following session he was elected a member of Council, and in 1864 he became one of the secretaries to the ordinary meetings. In 1879, in succession to Professor Balfour, he was elected to the general secretaryship, and he held this office till the end of his life. His loss will be felt in the Society not only as an active participator in its scientific work, but also as a wise counsellor and guide. It has been put on record that "The Council always felt that in his hands the affairs of the Society were safe, that nothing would be forgotten, and that everything that ought to be done would be brought before it at the right time and in the right way." In words that have already been used by the Council, I desire now to say on the part, not only of the Council, but of all who have known Tait personally, and of a largely wider circle of scientific men who know his works:—"We all feel that a great man has been removed, a man great in intellect and in the power of using it, and in clearness of vision and purity of purpose, and therefore great in his influence, always for good, on his fellow-men; we feel that we have lost a strong and true friend." After enjoying eighteen years' joint work with Tait on our book, twenty-three years without this tie have given me undiminished pleasure in all my intercourse with him. I cannot say that our meetings were never unruffled. We had keen differences (more frequent agreements) on every conceivable subject—quaternions, energy, the daily news, politics, "Quicquid agunt homines," &c. We never agreed to differ, always fought it out. But it was almost as great a pleasure to fight with Tait as to agree with him. His death is a loss to me which cannot, as long as I live, be replaced. The cheerful brightness which I found on our first acquaintance forty-one years ago remained fresh during all these years, till first clouded when news came of the death in battle of his son Freddie in South Africa, on the day of his return to duty after recovery from wounds received at Magersfontein. The cheerfulness never quite returned. The sad and final breakdown in health came after a few weeks of his University lectures in October and November of last year.

ROYAL ACADEMY SCHOOLS.

ON Tuesday evening Sir E. J. Poynter, president of the Royal Academy, announced the prizes obtained by the students in the recent competition, as follows:—

Historical Painting (Saul and the Witch of Endor—1. Samuel xxviii. 7-14).—Gold medal and travelling studentship (200*l.*), George Murray; *proxime accessit*, Fred Appleyard.

Landscape Painting (One of the Bridges over the Thames in London).—Turner Gold Medal and Scholarship (50*l.*), Osmond Pittman.

Landscape Painting (Cumulus Clouds over a Fen Country).—Creswick Prize (30*l.*), Osmond Pittman.

Painting of a figure from the life (open to male students only).—Silver medal—1st, Frank Samuel Eastman; 2nd, Jas. P. Sidney Streatfield.

Painting of a head from the life.—Silver medal—1st Gertrude Lindsay; 2nd, Frederick Dallas Barnes.

Painting of a draped figure (open to female students only).—Silver medal—1st, Lizzie Hands; 2nd, Annie Margaret Page.

Cartoon of a draped figure (A Mourner).—Silver medal and prize (25*l.*), Elsie Gregory.

Design in monochrome for a figure picture (The Sacrifice of Manoah—Judges xiii. 19-20).—Armitage Prizes—1st (30*l.*) and bronze medal, Ernest Board; 2nd (10*l.*), Alfred William Sangster.

Design for the decoration of a portion of a public building (The Maske of Cupid—Spenser's "Faërie Queene," Book iii. Canto 12, v. to xxvi.)—Prize (40*l.*), Frank Samuel Eastman; *proxime accessit*, William Ewart Gladstone Solomon.

Set of six drawings of a figure from the life (open to male students only).—1st prize (50*l.*) and silver medal, Walter Ernest Webster; 2nd (25*l.*), William George Simmonds; 3rd (15*l.*) Jas. P. Sidney Streatfield; 4th (10*l.*), Frederick George Swaish (Mr. Streatfield and Mr. Swaish were disqualified owing to having received a superior prize in the same competition before.)

Drawing of a head from the life.—Silver medal—1st, Walter Percy Day; 2nd, John Hodgson Lobley.

Drawing of a statue or group.—Silver medal—1st, John Hodgson Lobley; 2nd, Arthur Bentley Connor.

Perspective drawing in outline (open to painters and sculptors only).—(The Entrance-hall of the Royal Academy).—Silver medal, Ada Gladys Fuller.

Composition in sculpture (Boadicea urging the Britons to avenge her outraged daughters).—Gold medal and travelling studentship (200*l.*), Stanley Nicholson Babb.

Model of a design (The Expulsion of Adam and Eve from Paradise).—1st (30*l.*), Frederic Charles Chrisfield; 2nd (10*l.*), Frank Ransom.

Set of four models from the life (open to male students only).—1st (50*l.*) and silver medal, Alexander James Leslie; 2nd (20*l.*), Arthur Charles White.

Design for a medal (in commemoration of the Death of Queen Victoria, with a head of the Queen on the obverse).—Silver medal, George Gilbert Walker.

Model of a bust from the life (open to female students only).—No competition.

Model of a statue or group.—Silver medal—1st, Louis Richard Garbe; 2nd, Elsbeth C. P. Rommel.

Design in Architecture (a Town Hall for one of the new London Borough Councils).—Gold medal and travelling studentship (200*l.*), Bernard Hugh Webb.

Set of Architectural Drawings (The Trinity House).—Silver Medal—1st, Charles Thomas Palmer; 2nd, Percy Ion Elton.

Set of Architectural Designs (Upper School).—Prize (25*l.*), Francis Winton Newman.

Set of Drawings of an Architectural Design (Lower School).—Prize (10*l.*), Thomas Gerard Davidson.

Plan of a Building (A Casino and Pleasure Grounds on the borders of a Lake).—Prize (10*l.*), Lionel Upperton Grace.

Original Composition in Ornament.—No competition.

Perspective Drawing in outline (open to architects only) (Lord Burlington's Villa at Chiswick, published in Kent's book).—Silver Medal, Alfred Charles Bossom.

The Landseer Scholarships in Painting and Sculpture, of 40*l.* a year each, tenable for two years, have been awarded—in Painting, to Frank Samuel Eastman, Alfred William Sangster and Frederick Dallas Barnes (extra); in Sculpture, to Charles James Pibworth and Frank Ransom.

The President said that in his last address he endeavoured to impress upon them that, although original genius was a gift granted to very few, it was within the power of all who had the artistic faculty to arrive at excellence—even at eminence—in their art by study and the determination "to neglect nothing." It was to be observed that Leonardo da Vinci when he would judge of the disposition of a young man for painting said nothing about gifts or talents or original genius, but referred to a capacity for perseverance as affording the best test. Love for his work was truly the best equipment for an artist, far better than brilliant qualities, or what was called cleverness, a gift of no value in itself without the perseverance which would turn it to good account. Cleverness and technical facility were only useful as a means to an end; unless the result was worth attaining they served only as a display of vanity, the most contemptible use to which the artistic faculty could be put. The desire to be original was a constant besetment of the young artist, but unless founded on a solid base of knowledge and study it was apt to lead to mere eccentricity and to show a desire to astonish rather than to command that legitimate admiration which sensible people would give to all well-considered and thoughtful work; and there was perhaps nothing more distressing to the intelligent observer of a work of art than an evidence of the desire to be original at all costs and where there was neither genius nor knowledge to support it. Novelty, in fact, was not necessarily originality; and respect for tradition was a far better groundwork for a young artist than the cultivation of novelty of ideas or treatment, with the aim of showing his independence of tradition. Every artist, in so far as his individuality differed from that of every other, might be said to possess some degree of originality; it was only by assiduous study of nature, of course, under guidance, but more especially of the great works of past times, works which were stamped by the consensus of admiration of all thinking and studious minds, that it could be developed. Least of all could the artist be original by refusing to follow the traditions of the great masters. "Study nature assiduously," said Reynolds, "but always with those masters in your company," not, he meant, for an imitation of their manner, but for study of their methods of seeing and rendering nature. "Art for art's sake," to use a cant phrase of to-

ay, had no meaning for them. That was not to say that the artists of old time did not take an exquisite pleasure in their work; it was not to be supposed that Raphael or Rembrandt did not consider their art a sacred object on which to lavish their utmost powers to bring it to perfection, each according to his peculiar endowments; but that with them their art, consummate as it was, was always a means to an end, a vehicle for expression. With Raphael a divine sense of form clothed those ideas with a beauty inexpressible; with Rembrandt consummate mastery of technical skill was subordinate to a profound and poetic insight into the mysteries of nature and humanity; with neither was the display of the art which they had mastered an object in itself. He had made those few preliminary remarks, not because he thought that in the works which were exhibited in those rooms, and which were the result of their year's studies, there was to be noticed a prevalence of the faults against which he had been warning them, but because there could be no question that at the present time in the example set by many clever men, especially among the French, whose brilliant qualities were apt to lead too frequently to a desire for notoriety, there was a tendency to exalt technical skill and novelty of invention as in themselves an aim, and superior to the sober study of art as a means of expression. They were not their greatest men who did this, but the example was nevertheless dangerous and the tendency was catching. There was nothing more calculated to mislead the young artist than to be told that cleverness and originality were sufficient in themselves, that the methods of the great masters were "played out," and that to follow in their lines was academical and not worthy of the gifted genius. He had before combated the very prevalent idea that genius was dwarfed or fettered by the study of what was traditionally received as great; the idea was not new, and he did not know that he could say anything new upon it. What Reynolds had said was good for all time:—"The more extensive your acquaintance is with the works of those who have excelled, the more extensive will be your powers of invention, and what may appear still more paradoxical, the more original will be your conceptions." The highly false idea that it was necessary to discard the old in order to produce something new took different forms at different periods, and what was now called in cant phrase and bad English "modernity" or "the modern note" was held to be a distinguishing feature of the original genius. There was no need, however, to affect any such quality, it was sure to appear in whatever they did; the spirit of the time could not but impress itself on the art of the day in some form or other, and it would show itself in spite of all efforts to hide it. Moreover, he failed to see that to adopt the pattern of design or colour, or the startling methods of execution of some eccentric painter in vogue, showed one whit more originality in the imitator than to follow in the steps of the great men of the past. Such aping of eccentricity might be good for the comic journals, but for serious art never. It was often not originality that the artist was deficient in, but the power of bringing it out, and that power, as Reynolds had said, was only to be acquired by the study of nature in company with good examples. When by assiduous cultivation by those means they had mastered the power of expressing their ideas, they would be able to devote themselves to the composition and treatment of a subject. If, then, they thought of the most forcible and vivid way of expressing it in conformity with what was most probable under the conditions given; if they endeavoured to realise not only its external and pictorial aspect, but the spirit of the actors, what originality they had would find its way without their having to force it. Let them get at the heart of their theme, and they would find that they had been original without knowing it. After referring in some detail to the subjects of the more important competitions and to the work of the students in connection with them, the President said that he looked upon as unworthy of their imitation those productions of art which, in accordance with a prevalent fashion, depended on a display of technical skill and the rendering of "values," to use the phrase of the day, as the highest qualities which would occupy the painter. Those qualities were in themselves admirable, so admirable that no painter could do without them. They were the elementary necessities of his art, but there was nothing new in them. They were to be found in the works of all the great painters, but to make them the end and object of art was to invert the right order of things, to put the cart before the horse. It was indubitable that a brilliant display of technical powers had a great fascination, but if the artist had nothing better he should display it, as the Dutch painters did, in the rendering of still life, not degrade to it the loftier themes in which human action and human passion and human portraiture came into play. There were painters, no doubt, whose qualities in that respect made us often forget their faults. Franz Hals, with his daring, if vulgar, execution, was one; but if they were tempted to rival his brilliant diversity in brushwork they should remember that, like those great masters of the brush, Rembrandt, Vandyke, Velasquez,

he too began with a careful and dry method of study, and that his amazing skill was only developed by degrees. He desired to warn them against certain schools of painting which placed method before the higher demands of the art. It was not that among the exponents of those schools there were not many gifted men, but that their example was dangerous to follow. When we saw beauty, character, form, design, invention, poetry, story, expression—he might almost say, judging from some much-lauded examples to be seen on the walls of foreign exhibitions, humanity itself—ignored in a work of art, and certain qualities of mere method exalted; when the human form and face were made merely the vehicle for an exhibition of the artist's skill in the lower forms of the art, accompanied, as it often was, by an apparently voluntary degradation of all that was noble in man and nature, we felt ourselves at a loss for any expression which would classify such work in the domain of art. To say that it was clever or displayed talent was not to the point. Talent in itself was nothing; it was the result that sprang from the proper cultivation of it that was of value. Surely the business of the artist was to seek for what was noble in humanity, to discover its character and beauty, and to render them with whatever of poetry was in his own nature, and with workmanship as perfect as his studies and practice could make it. When an artist painted a sandbank against a sky, the special qualities of light and tone and colour, the sense of "values," in fact, were perhaps the only qualities we looked for; but when the human face and form were treated in the same way as a mere exercise for the painter's skill in tones, or worse, as a mere copying of the squalid characteristics of some casual model posing as a goddess, or even, as he had seen, the Saviour Himself, we rebelled at the ignominious use to which they were put. Character, beauty, form, colour, expression were what we desired first; the rest was to be used for arriving at these results. "These ought ye to have done, and not to have left the other undone."

WORCESTER ARCHÆOLOGICAL SOCIETY.

THE first winter meeting of this Society was held on Tuesday evening, at the Worcester Shire Hall. Earl Beauchamp presided, and the attendance included Lady Mary Lygon, Canon the Hon. H. Douglas, Canon and Mrs. Porter, &c.

A letter was received from Messrs. Longmans, Green & Co., stating that Mrs. Creighton was about to publish a volume of essays and letters of the late Bishop Creighton, and wished to know if the Society would permit her to include a paper on "The Italian Bishops of Worcester," which appeared in the report of the Society. On the motion of Earl Beauchamp, seconded by Canon Porter, it was agreed to grant the request.

The librarian (Mr. A. B. Pinckney) alluded to the books now being placed at the Shire Hall, and moved that their thanks be tendered to Mr. Willis Bund and the County Council for the way in which they had met the Society.

Canon Porter seconded, and Earl Beauchamp said it was appropriate that at their first meeting they should pass a vote of thanks to the County Council, and Mr. Willis Bund in particular, and the motion was carried.

Mr. Willis Bund said the County Council were only too glad to be of any use to the Society so long as they had space to place at the use of the members for the benefit of the county and the Society.

Earl Beauchamp then read a paper on "The Coronation Service of the Sovereigns of England," describing the ceremony in Westminster Abbey, and quoting many parts of the service.

At the close a vote of thanks to Earl Beauchamp was proposed by Mr. Willis Bund, seconded by the Rev. J. B. Wilson, and heartily carried.

ST. MARY, CHATHAM.

IN taking down the nave of the parish church of St. Mary, Chatham, for the purpose of rebuilding, some beautiful old Norman arches in the west wall have been brought to light. The work has been temporarily stopped in order that a special fund may be raised to preserve these and other remains of the old Norman church. The recovery of this monument of the past has excited much interest among archæologists, and one local antiquary has offered to contribute 200*l.* towards the extra cost which will be necessary if the Norman remains are utilised and preserved in the rebuilding scheme. From the resemblance of the work to portions of Rochester Cathedral, it is believed that it dates back to the years 1130-40, and evidence exists that the Norman church of which it formed part remained standing until the second half of the eighteenth century. Some blocks of tufa have also been exposed to view during the demolition, and these are believed to be remains of the original Saxon church.

ARCHITECTURAL CRAFTSMEN'S SOCIETY.

AT the Glasgow Technical College on Friday, 6th inst., a paper was read by Mr. C. Ernest Monro, vice-president, entitled "Hotel Planning and Construction." The question of site, aspect and prospect was discussed, and following this, the position on plan and general treating of the various public rooms effectively illustrated. Among these the coffee-room was important, and should possibly have bay windows, ceiling of good height—say 14 feet—the floor of parquetry, and musicians' gallery provided if desired; the lounge situated conveniently to coffee-room and designed in a sumptuous if not luxuriant manner. The drawing-room also should be ready of access from coffee-room and have good outlook. The lecturer recommended the use of double sashes to these rooms, as also to the reading and writing apartments, to insure the exclusion of outside sounds. The matter of prospect was also to be considered regarding the bedrooms, as good outlook is desirable to these. The various other rooms, including kitchen, servery and offices with the sanitary treatment necessary, were each in turn treated of, and the lecture was illustrated by means of plans of several of these buildings erected in Scotland.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE associate section of the above Association met on the 4th inst. in the rooms, 117 George Street, Mr. J. Stuart Syme in the chair. Mr. John Ednie read a paper on "The applied art of to-day and yesterday." The paper dealt with the Classic and with the new school of design and decoration, and strongly advocated the adoption of originality as against imitation. The suburban villa came in for strong condemnation, and a suggestion was made that a committee of competent artists should be empowered to act as censors to prevent the amenity of beautiful districts being ruined by the wholesale multiplication of such monstrosities. A discussion followed.

TESSERÆ.

Photography and Architecture.

PHOTOGRAPHY, which has already achieved wonders, can render many most essential services to architecture. Its delineations of buildings are incomparable, and must cause the ablest draughtsman to despair of emulating them. No amount of skill and diligence could possibly attain to such perfect similitude. This fidelity, quite apart from the beauty of the productions, is of inestimable value. Excellent as drawings may be for their pictorial merits, there is always more or less doubt of their truthfulness. The better the artist, the more is he apt to indulge in the *furberia dell' arte*—putting in captivating effects which are not to be seen in the original. Deception to a practised eye is frequently written upon the pretended portrait, as when, in order to enhance the majesty of a building, the staffage or figures are made so much too small that the edifice appears considerably larger than it is. Falsehood is falsehood, however stated or expressed, and what good end is answered by this particular species of it we are unable to perceive, while it has the obvious disadvantage of causing disappointment when the original comes to be seen in its actual dimensions.

Stained Glass.

Ancient painted glass may be divided into three epochs corresponding with the three styles of Pointed architecture, save that the first also includes the days of Romanesque. The first style is remarkable for its profusion of bright and strongly-contrasted colours, arranged in arabesque patterns, the historical groups and single figures being mostly confined to small medallions of various forms. We need not say how barbarous the drawing of the glass of this age is. The finest specimens which England can afford are found in Canterbury Cathedral. In the middle period the use of single figures of larger size and of architectural canopies first came into vogue, and the wearisomely gorgeous grounds of the former period were replaced by transparent glass of a most delicate green tint, relieved by diapered patterns drawn with single lines. Beautiful glass of this period is found in the side windows of Merton College chapel, Tewkesbury Abbey Church, Wells Cathedral, SS. Peter and Paul, Dorchester, and (of late date) Bristol Cathedral. The third style of glass, by gradual declensions from the middle type, at length assumed the form of large pictures, or even landscapes, where subjects, nay single figures, were expanded with an utter contempt of the monials and to the great detriment of architectural effect. This style has never really been extinct. The Dutch glass painters of the seventeenth century propagated it with great activity, among whom we may mention the Van Lings, of whose works there are so many specimens at Oxford; and those monstrosities, the west window of New College chapel, the library

window of Trinity College, Cambridge, and the east window of Salisbury Cathedral may be referred to it.

The Gothic Principle.

The outline of Gothic in its widest sense is confessedly pyramidal. It is a tapering off, an extenuating of a substantial mass into nothingness; and it has been demonstrated in the case of several buildings that a triangle drawn from the ground to the highest point would actually include the entire edifice by its prominent points falling in accurately with the lines of the sides. In this respect Gothic is, of course, entirely different from the grovelling parallelogramic form of Grecian temples, which present the same extended horizontal outline against the sky that they exhibit on first starting out of the earth. They lose nothing in breadth by being "tossed up" to a height like the Gothic spire and sloping roof. But this pyramidal form is not gained by abrupt steps and horizontal stages, like the Elizabethan or debased Gothic and embattled gables. The diminution is gradual, by sloping ascents, by imperceptible fallings away; and it follows that in every point of declension from the wide to the narrow which the vertical wall receives, the outline presented to the eye is such as has been described. In chamfers and splays the same line will be found to be the external angle formed by the base of a right-angled triangle. The removal of any square edge will show this, which is the principle upon which the planes of mouldings in their most perfect development were mostly arranged.

The Phœnicians in Spain.

The first benefactors of the Peninsula were the Phœnicians, those English of antiquity, who wafted everywhere on the white wings of their merchant fleets the blessings of commerce and civilisation. Emphatically "workers in timber," the primitive meaning of an architect, they constructed the ships and ceilings of the wisest of kings, and all Europe to this day cannot compete with the gorgeous wood-carvings of Moro-Hispano art. The Phœnicians were welcomed by the natives of Tarshish—the south of Spain; men of peace not war, they settled on the coasts, and reared quays, factories and temples. They were, however, ousted by the Carthaginians, who, when deprived of Sicily by the arms of Rome, turned exclusively to the Peninsula, and, urged by a fierce spirit of conquest, penetrated into the interior, where they erected cities, citadels, arsenals and palaces, on which the simple Romans gazed with awe. All this strength and beauty has passed away like the fabric of a vision, scarcely a wreck has been left behind, save some colossal masonry at Tarragona, which still perplexes antiquarians. The very ruins of this remote period have disappeared, to which the sites at least of those hill forts that caught the military eye of Cæsar must be referred. But indeed some such castles are still perched on the eminences which guard the gorges and frontiers of southern Spain; they are decidedly Oriental in position, design and construction, being built with a concrete rubble *tapia*, a sort of cob, which, originating doubtless with the children of Tyre, has been continued down to the present time on both sides of the straits of Gibraltar, and without any change.

Cyclopean Work in Mexico.

There are numerous rock-hewn monuments scattered throughout Central America which the natives call Granaries of the Giants, but which in every respect resemble the cyclopean fabric near Argos, in Greece, called the Treasury of Atreus. The form of these structures is generally dome-shaped: a gallery leads to a central room, which is lighted by a cavity from the dome. In some cases the doorway to this gallery resembles in its cyclopean structure the Gate of Mycenæ; but there are some singular exceptions in which a knowledge of the arch and of the keystone (and the same thing has been proved by Rossellini and Belzoni to have existed anciently in Egypt) is clearly assignable to these architectural barbarians. Again, sepulchres have been found constructed on the very same model as those of Cyprus and Asia Minor, which probably preceded, but were at all events contemporary with, the most ancient monuments of Egypt. They are generally in the form of the Egyptian cross. A sloping passage, intended to be closed, leads to a vestibule, supported by a single column and ornamented with the matwork scroll, out of which branch sepulchral chambers to the right and left. In the "Antiquités Mexicaines" rock-built fortifications are exhibited which precisely resemble similar cyclopean structures at Tiryns and Perugia. The walls of their cities and fortresses are built of rough stones irregularly fitted into each other, and arranged in irregular courses precisely as all the walls of known cyclopean origin discovered in Greece and Italy are constructed. There is another and still more remarkable instance of the architectural identity which we are endeavouring to demonstrate. Some of their palaces, but more especially the combined temple, palace and city of Palenque, are characterised by the well-known cyclopean arch, consisting of receding steps of stone in a triangular form. At Palenque a rectangular square

is surrounded by cloisters built in this manner, being lighted by windows bearing the exact form of the Egyptian tau.

Expression in Architecture.

Every kind of construction, when carried out in the simplest manner, is productive of some peculiar expression, which may or may not be one and the same with the truth of construction. Thus, the literal fact of the balance of supporting and supported members is the natural expression of the unadorned Greek "hut," and this expression, heightened immeasurably in emphasis, is the fundamental expression of the Erechtheion and the Parthenon. Again, the semblance of ascendant energy, which is a violent contradiction of the literal truth of stones and mortar, is the unassisted expression of the nave walls, rising out of the aisle roofs, in the barest of the "temporary churches" on the outskirts of London. This expression was seized on by the inventors of the Northern Pointed, and was repeated and heightened and illustrated by them in a hundred different ways. The Lombard architects, who built according to the same leading form, which was that of the Roman basilica, wanted the groined roof, the pointed arch and the buttress system, and were consequently greatly limited in the power of developing its chief fundamental expression; they therefore devoted themselves, like the early Greek architects, to emphasising, by various appeals to the imagination, the simple constructive truth. Walls of enormous and uniform thickness were required to support the arched roof, and, accordingly, the strength of the wall is the theme of a most interesting and elaborate system of decoration. The Romans made an attempt to develop a system of expression out of a construction based upon the semicircular arch; they almost wholly failed. The attempt was renewed by the Byzantines, with little better success. It was reserved for the Arabian architects to found upon the mechanical properties of the arch an expression which emulated and even surpassed the Northern Gothic in the extent of its departure from obvious constructive reality. The Egyptian builder continually laboured to give expression to that preponderance of mass, the existence of which was a condition imposed upon him by his materials and his want of science in using them. The architecture of the Renaissance, in its best monuments, confuses rather than reconciles the three principles of the wall, the arch and the entablature. Other styles are modifications, combinations, or degradations of these, and respectively owe their claims to be regarded as styles to their development of one or more of these orders of natural expression.

The Original Ordnance Survey.

A general survey of the British Islands, under the direction of the Master-General of the Ordnance, was begun in 1791, and has been continued to the present time. The first conductors of this national undertaking were Colonel Williams and Captain (afterwards General) Mudge, of the Royal Engineers, and Mr. Dalby, who had previously assisted General Roy. They began their operations by remeasuring General Roy's base on Hounslow Heath with two steel chains of 100 feet in length, which had been very carefully prepared by Ramsden. The result was stated to differ from General Roy's only by $2\frac{1}{2}$ inches, but it has been remarked ("Ency. Brit.," art. "Trigonometrical Survey") that the two results were given in terms of different scales, and that, when reduced to the same standard, the real difference was 1 foot, at least, if reliance is placed on the comparison of the standards by Captain Kater. For the measure of the angles a new theodolite by Ramsden, of 3 feet in diameter (originally intended for the East India Company), was purchased by the Board of Ordnance. No general plan of operation appears to have been followed with respect to the triangulation, which was first carried along the southern coast westward for the purpose of determining the geographical positions of the principal headlands and harbours, and has gradually been extended over the whole kingdom. Four other bases, besides that on Hounslow Heath, were measured in England, namely, on Salisbury Plain, King's Sedgmoor, in Somersetshire; Misterton Carr, in Lincolnshire; and Rhuddlan Marsh, near St. Asaph. For the determination of the geographical positions the direction of the meridian was determined at five intermediate places between Dover and Land's End, namely, Beachy Head, in Sussex; Dunnose, in the Isle of Wight; Black Down, in Dorsetshire; and St. Agnes's Beacon, in Cornwall. In 1801 and 1802 the arc of the meridian extending from Dunnose to Clifton, in Yorkshire, was determined by Mudge. The two places were connected by a chain of twenty-two triangles, by which the terrestrial distance was computed from the bases on Hounslow Heath and Misterton Carr, and their astronomical latitudes were determined by a zenith sector by Ramsden, carrying an 8-foot telescope. The latitude was likewise observed at Arbury Hill, near the middle of the arc. By means of this intermediate observation and the intersections of the arc by the parallels of the Greenwich Observatory and

the Duke of Marlborough's Observatory at Blenheim the whole was divided into four partial arcs. In 1806 the meridian was extended to Burleigh Moor, in Yorkshire, rather more than a degree to the north of Clifton. With the view of fixing a scale of longitudes for the great map of England, an arc of a parallel circle was determined by means of reciprocal observations of azimuth at Dunnose and Beachy Head and the geodetical distance concluded from the triangulation. The result gave the length of a degree of longitude on the parallel of Dunnose, namely, $50^{\circ} 37' 7''$, equal to 232,914 feet, which is longer by about 748 feet than the degree on the spheroid deduced from the best determined arcs of meridian. But this method of determining the difference of longitude is liable to some uncertainty, as the result is considerably affected by small errors in the determination of the azimuths. It is now known that all the longitudes on the southern coast given in the Survey are erroneous to the extent of several seconds.

Canopies in Monumental Brasses.

The introduction of a canopy appears to have been coeval with that of the brass itself, and indeed we might naturally expect it to be so if we consider this kind of monument to have arisen from the effigy sculptured in relief, to which it was preferred, either from the greater convenience of its form, or from the want of stone suitable for carving figures. The latter supposition may perhaps account for the prevalence of brasses in the eastern counties. Of the earliest canopies scarcely any have remained to the present time, but the matrices from which they have been taken may give us some information of their character, and should never be passed by without inspection. They were frequently pyramidal in form, with crockets, finial and pinnacles, and supported by slender shafts. A beautiful example of this kind formerly surmounted the brass of a cross-legged knight in St. Andrew's, Gorleston, Suffolk. It was about the date of 1320. A little later we find a foliated arch introduced below the pediment, and the spandrel filled with a trefoil, as was originally to be seen at Holy Trinity, Bottisham, Cambridgeshire; the finest remaining example of this description occurs at Elsing, Norfolk, in the once rich and magnificent brass of Sir Hugh Hastings; here the place of shafts is supplied by niches filled with armed figures, and the spandrel contains a foliated circle, with a knight on horseback in the centre. From this time the ogee, more or less curved, became the common form of the canopy; the arch was filled with a row of small four-leaved flowers, and supported by half-shafts with capital and bases, and to these were added buttresses, surmounted by crocketed pinnacles. A peculiarity deserving of notice, which sometimes occurs in canopies of this century, and chiefly in those dating from 1330 to 1360, is the termination of the cusps by foliage in the shape of a trefoil; an instance of this may be seen in the brass of a priest at All Saints, Fulbourn, Cambridgeshire (circa 1360); and it is interesting to observe these ornaments repeated in the curious sedilia of the same church. The magnificent and well-known Flemish brasses of this period exhibit peculiarities of their own which it is not necessary to mention here. At the close of this century, and indeed throughout the next, the variety in the canopies was endless, and may be better understood from experience than from description; figures of saints are found in separate niches in all parts and sometimes supported on the finials, as in the splendid brass of Prior Nelond; sometimes, though but rarely, the soul of the deceased is represented as carried by angels into Abraham's bosom, as at Holy Trinity, Balsham, Cambridgeshire; and there are instances of other religious subjects in similar places, such as the Holy Trinity, the Annunciation, the Nativity and the Resurrection. Of this kind the cathedral of Old St. Paul's, which was rich in sepulchral memorials, contained some very fine examples. Single or triple canopies are sometimes enclosed in another of a circular form; the central circles are often filled with heraldic badges or short legends, and the figure supported by a basement ornamented with tracery, &c. A gradual change seems to have taken place at the commencement of the fifteenth century; the numerous spandrels are filled with more elaborate tracery, each member of which frequently contains foliage of three, four or five leaves, a peculiarity almost always to be found in canopies dating from 1410 to 1430. A beautiful example occurs in the brass of Judge Londyngton, at St. Peter, Gunby, Lincolnshire (1419), and another at St. Mary's, Great Shelford, Cambridgeshire (1411). This distinguishing feature may be found worth remembering, as it is readily known with a little practice, and usually decides the brass to be of this date. From about 1460 we may perceive a debasement in the design of the canopies, though they are still very beautiful and frequently rich and elaborate; more regard was now paid to perspective, groining was more generally used than it had hitherto been, the crockets were less simple and graceful, and the finials often of a clumsy form. This may be well illustrated by comparing the brass of the Duchess of Gloucester (1399) with that of Abbat Esteney (1498), both in Westminster Abbey.

In the sixteenth century the canopies appear to have fallen into disuse; those which remain to us of this period are comparatively heavy in design and coarse in execution; for as the architecture of the time was itself much debased it could not be expected that the architectural enrichments of brasses and stained glass would be exempted from the same fate. Probably one of the latest examples of this canopy was that of Bishop Goodrich in Ely Cathedral (1554). Of this, however, the figure and part of the legend are all that remain.

Paintings in Churches.

There is no aid more capable of creating religious sentiment or calculated better to convey such, or any other, information than a proper application of coloured and pictured representation. Such were the horn-books of religious instruction among our forefathers. Durandus calls pictures "the lessons, or scriptures, of the laity, or laic or unlearned, as distinguished from the cleric of his time;" and St. Gregory, with acute wisdom, remarks that "paintings appear to move the mind more than descriptions; for deeds are placed before the eyes in paintings, and so appear to be actually carrying on. But in description the deed is done as it were by hearsay, which affecteth the mind less when recalled to memory." And again on the same point—"what writing supplieth to him which can read, that doth a picture supply to him which is unlearned, speaking to the mind through the sense of sight." This principle is almost universally admitted and applied in other places; national galleries and museums are opened to foster a taste for and inculcate a knowledge among the million, to use a prevalent modern phrase, of worldly history and the wonders of nature and art. Why should not the walls of our churches be devoted to the teaching by similar means of heavenly things? Thousands would look upon a picture here displayed who, if in respect to capability were competent, would be careless to read, or if they did would imbibe less readily the sacred events recorded in a less direct or enticing medium. The mistaken zeal of Puritanism never did worse for religion than by so indiscriminately whitewashing our churches, while, artistically considered, the blow they gave has been a grievous and "a great discouragement" even to the present day; leaving our churches for the most part little better, and far less cared for as respects proper adornment and exposition of their purpose than almost our meanest rooms.

GENERAL.

The King has approved a site in Windsor Castle precincts for the erection of a statue of Prince Christian Victor, who died and is buried in South Africa. The cost of the statue, which will be executed by Mr. Onslow Ford, R.A., and placed in a canopied niche, will be 1,200*l*.

The Prince of Wales has purchased from Mr. Charles Sainton's exhibition the new silver point drawing *Puck Contemplative*, which has been on view for a few days at the Continental Gallery in Bond Street.

M. Loubet was expected to be present at the ball of the Société Centrale of French Architects in the Hôtel Continental on the 5th inst. He was, however, unable to attend, but he sent instead the sum of 500 francs to the treasurer.

The Late Mr. James Brooks, architect, has left property which is valued at 5,771*l*. 7*s*.

The Egyptian Government invite tenders, which will be received up to January 3, for the supply and erection of a lift bridge at the Razah Behera head of the Nile barrage.

Mr. Patrick Duncan, M.I.C.E., who has died in Persia, served for twenty-seven years in the Indian Public Works Department, mostly in connection with State railways. He became an executive engineer in 1883, and was employed on the Madura-Pamban railway survey in 1894. He retired from the service in October 1900.

A Petition signed by Birmingham medallists and others asking that the stamping should be enforced of the country of origin of each coronation medal has been submitted to the King. By His Majesty's command the document has been referred to the Board of Trade for consideration.

The Portsmouth Corporation have resolved that a sub-committee should make arrangements with the Local Government Board for a meeting in London to discuss various amendments in the borough by-laws as laid down by that body.

The Cuckfield Rural Council have adopted plans and specifications for two blocks of three houses each, at Lindfield, for the Council's workmen.

Boilly's Painting, the *Reunion of Artists in the Atelier of Isabeau*, has been bequeathed to the Louvre.

The Statue of Alphonse Daudet, the novelist, which is to be erected in the Champs-Élysées, Paris, at the desire of his widow, will not be unveiled until next spring. The statue is the work of M. de Saint-Marceaux.

The Building in Chancery Lane of the Incorporated Law Society is to be enlarged at a cost of 45,000*l*.

The Camberwell Public Baths competition has resulted as follows:—First premium, No. 18 (Mr. Harding Payne); second premium, No. 7 (Messrs. S. B. Russell and C. E. Mallows); third premium, No. 32 (Mr. Dighton Pearson). There were fifty-two designs, and Mr. A. Saxon Snell acted as assessor. Mr. Harding Payne has been appointed architect to the building, which is estimated to cost 50,000*l*. The whole of the designs will be on exhibition at the Camberwell Public Baths, Church Street, Camberwell Green, S.E., up to and including Wednesday next.

The London County Council have granted the Westminster Council a loan of 24,000*l*. for alterations, &c., to the town hall. The loan is to be repayable in three years, out of the proceeds of any sale of disused vestry halls or other recoupments.

The Meeting of the Institute of Architects fixed for Monday, December 16, will not be held, as Mr. Arthur Evans has, for reasons of health, been obliged to postpone his paper on "The Palace of Knossos in Crete."

The Ancient Church of St. Cecilia, in the Trastevere of Rome, has been reopened for service. It was closed for three years to allow of restoration, which is being carried out partly at the expense of the Italian Government and partly at Cardinal Rampolla's. Several interesting archaeological finds were made.

The Garden City Association have passed the following resolution:—"That the housing problem can be solved and the congestion in crowded centres relieved by a concerted movement of manufacturers, co-operators and others to new areas, arrangements being made for securing to the migrating people the whole of the increased value which their presence will give to the sites, and the areas being carefully planned so as to make adequate provision for the individual and social needs of the people, especially with a view to securing for all time the combined advantages of town and country life."

A Sketch of the *Ludus pro Patria* by the late Puvis de Chavannes, which was reproduced in *The Architect* a few years ago, has been sold in Paris for 40,000 francs.

The Archbishop of Canterbury consecrated on Friday the district church of St. Augustine of Canterbury at Margate. The church, erected from the designs of Mr. Dalby Reeve at a present cost of 5,000*l*., is of brick with Bath stone facings, and consists of nave and aisles, to which it is intended to add an apsidal chancel at a further cost of 2,000*l*.

The Site for the Federal capital of Australia has yet to be determined. So many have been proposed by various authorities, the commissioners are embarrassed in finding time to examine them. One of the principal difficulties is a water-supply that can be relied on.

The Westminster City Council having considered a recommendation by the improvements committee, that the London County Council be informed that the City Council approved the amended scheme for the widening of Piccadilly from Hyde Park Corner to a point opposite or a little to the east of Down Street, and that they would undertake the maintenance of the footway and carriageway of the widened thoroughfare on the completion of the works, have referred the recommendation back to the committee.

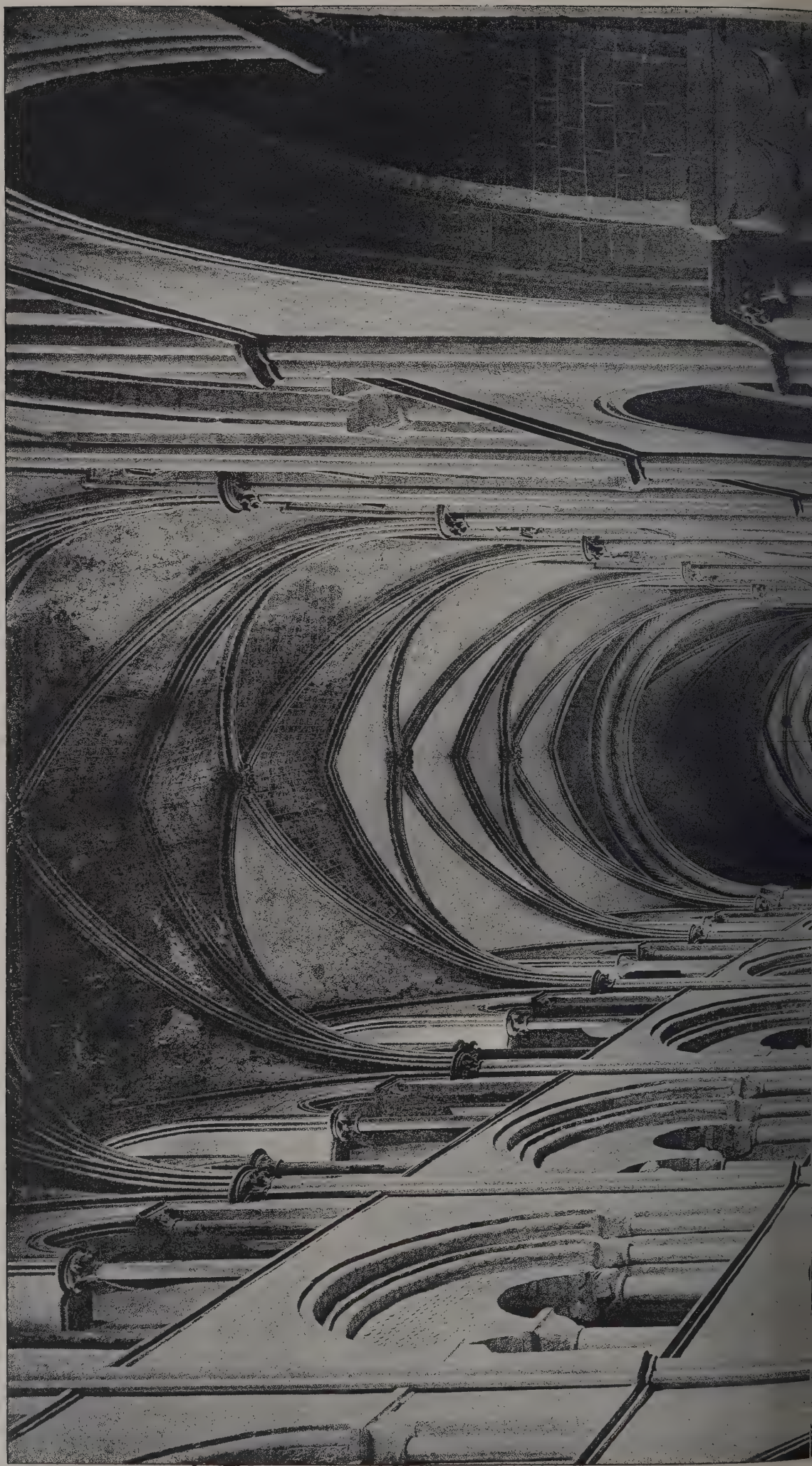
M. Roty has prepared a medal which is to serve as a memorial of the centenary of the foundation of the Bank of France.

The Hall of St. Winifred's Unsectarian Mission, at Rotherhithe, has been redecorated by the Kyrle Society. The paintings are the work of Mr. Audley Mackworth, who has presented them to the mission. The central picture, which measures 9 feet by 7 feet, represents the *Mayflower* carrying the Pilgrim Fathers to New England.

The Khedive inspected the great dam at Assuan on Monday, the works being explained by Mr. Webb, director-general of reservoirs. There were also present Sir Benjamin Baker, consulting engineer to the Egyptian Government, and Mr. Fitzmaurice, chief engineer, while the contractors were represented by Sir John Aird and Mr. Blue. The Khedive has conferred the second class of the Order of the Medjidieh upon Mr. Fitzmaurice, who is now on his way to England to take up the duties of engineer to the London County Council.

The Brighton Town Council have approved a clause for inserting in contracts for public works prohibiting contractors working on Sundays, pursuant to the resolution of the Council of November 9 last, viz.:—"The contracts shall not cause or permit the execution on any Sunday of any work in connection with the contract, except in special cases where the execution of such work is necessitated owing to accident or other circumstances rendering delay dangerous, or in cases in which the Corporation or their engineer shall think such work absolutely necessary, in which cases the execution of Sunday work shall be permitted to such extent only as shall be necessary for the purpose of temporarily remedying any defect in the work, or of making good or preventing damage, or as shall be sanctioned by the Corporation or their engineer."

The Architect, Dec 13th 1901.





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Die Architektur. Der 13^{te} 1901.





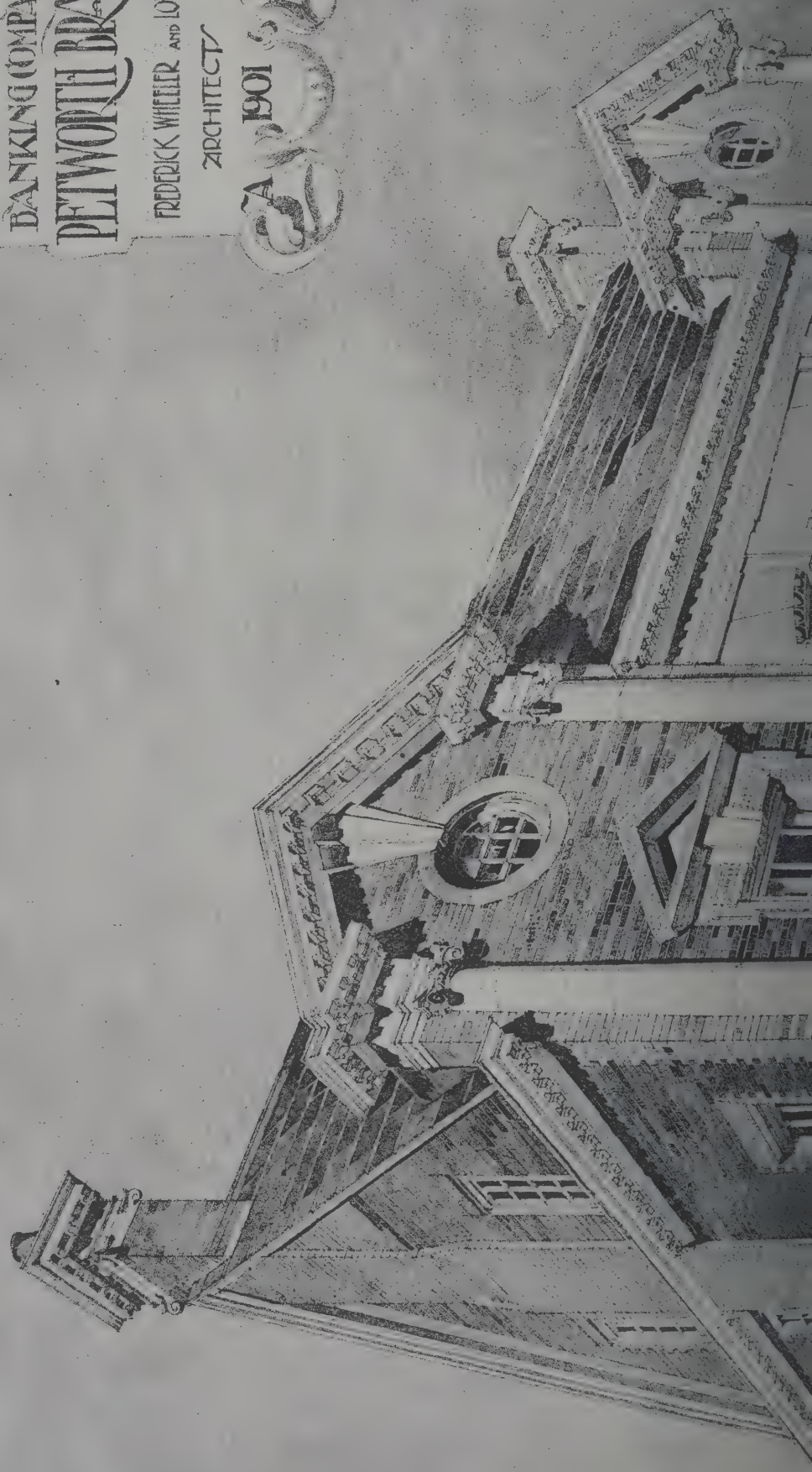
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CATHEDRAL SERIES, No. 376.—CHICHESTER: NAVE ARCHES.

The Architect, Dec 13th 1901.

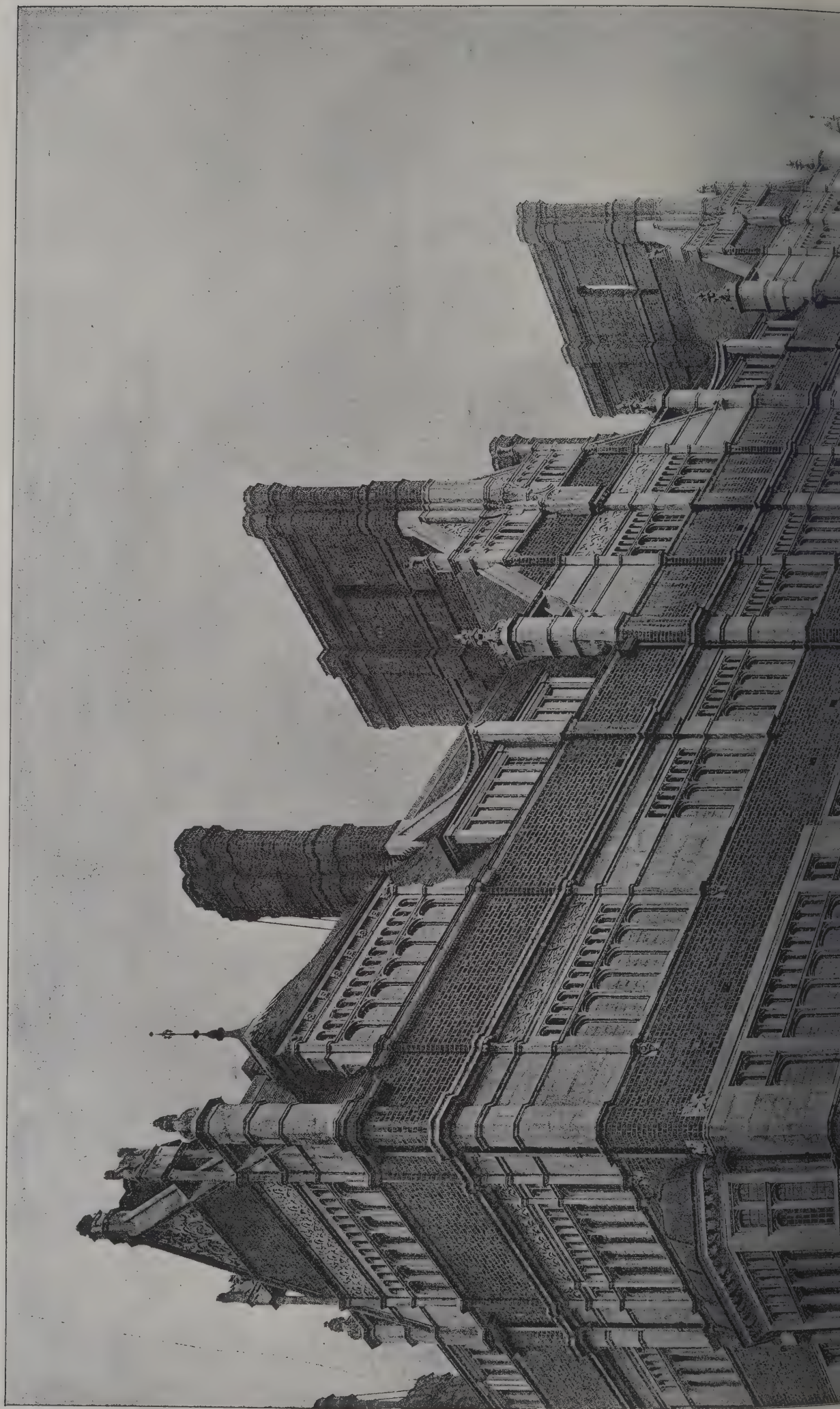
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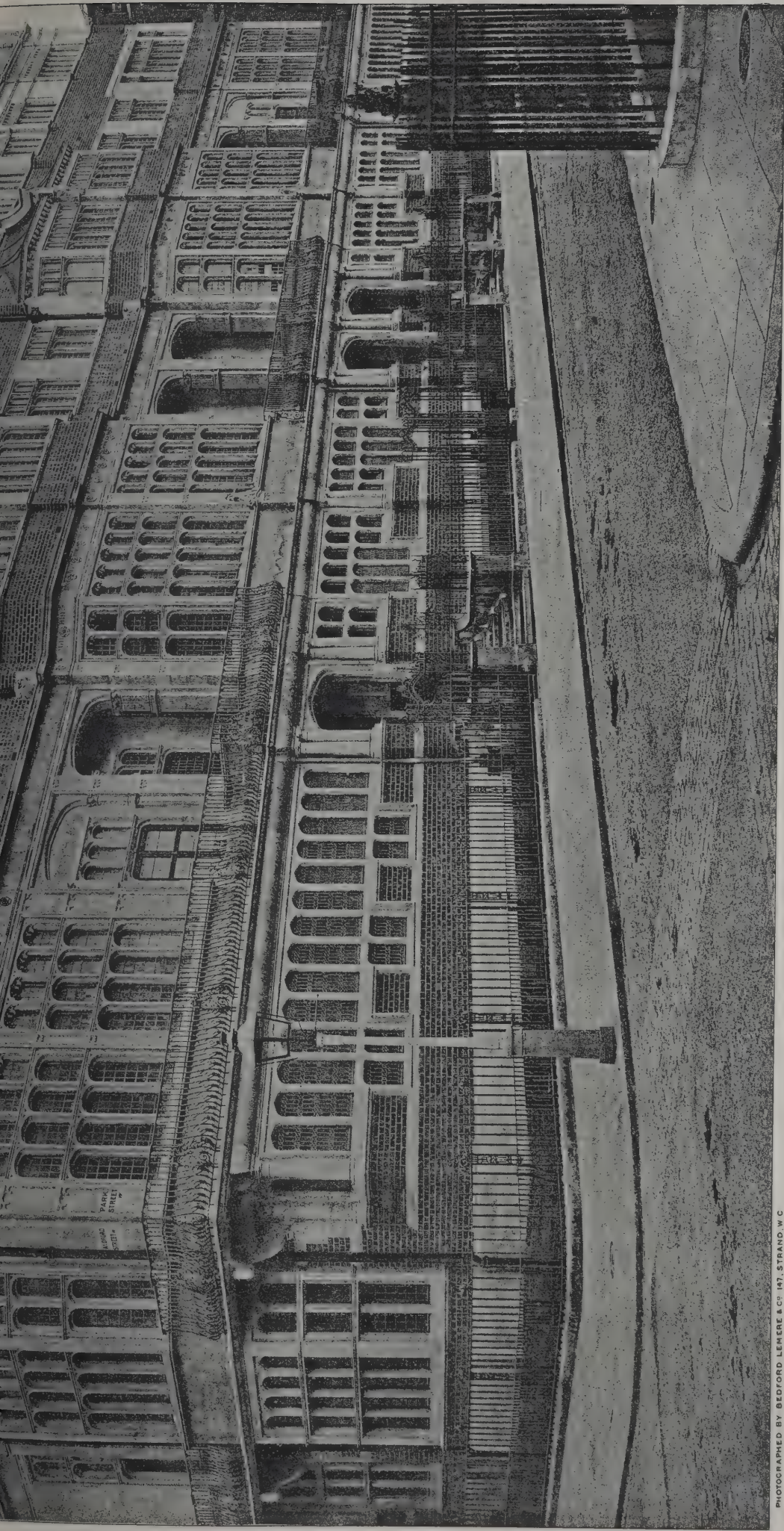




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RESIDENCES, PARK STREET, W.

A. H. KERSEY, Architect.

THE

Architect and Contract Reporter**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, all Advertisements, Tenders, &c., for the issue of December 27, must reach the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 p.m., on Tuesday, December 24.

COMPETITIONS OPEN.

AUSTRALIA.—May 1.—Designs are invited from sculptors for a memorial statue of Her late Majesty in marble or bronze. All information can be obtained at the office of the Agent-General for the State of Victoria, 15 Victoria Street, Westminster.

BURSLER.—Dec. 20.—Competitive plans are invited for an isolation hospital. Premiums of 100*l.* and 50*l.* will be awarded to the designs placed first and second respectively. Mr. Arthur Ellis, town clerk, Burslem.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes

upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

IRELAND.—Jan. 20.—Plans, &c., are invited for drainage of Howth and Sutton, Dublin (and an alternative system for the latter). A premium of 50*l.* is offered. Mr. John O'Neill, clerk, board-room, North Brunswick Street, Dublin.

ISLE OF WIGHT.—Jan. 31.—Designs are invited for a suitable monument as a memorial to Her late Majesty, to be erected in St. James's Square, Newport, Isle of Wight. A premium of 25*l.* is offered for the accepted design. The Secretary, Isle of Wight Queen Victoria Memorial Committee, 20 Holyrood Street, Newport, Isle of Wight.

KENT.—Jan. 1.—Competitive designs are invited for laying-out about 16 acres of land, near Canterbury Road, Gillingham, as a recreation-ground. Premiums are offered of £20, £10 and £5. Mr. F. C. Boucher, clerk, Gardiner Street, New Brompton, Kent.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

SCOTLAND.—Jan. 15.—The Kirkcaldy Burgh School Board invite competitive plans for a technical and science and art school to accommodate from 400 to 500 pupils, and an elementary school to accommodate about 400 pupils. Mr. Alexander Beveridge, clerk to the Board.

CONTRACTS OPEN.

AXBRIDGE.—Dec. 19.—For laying about 9½ miles of cast-iron socket water-pipes, Axbridge, Somerset. Mr. A. Powell, engineer, 3 Unity Street, College Green, Bristol.

BAKEWELL.—Jan. 3.—For construction of a circular water-tight concrete reservoir to hold about 115,000 gallons, in the parish of Hassop, and the construction of a circular covered water-tight concrete service tank to hold about 50,000 gallons at the Headstones Head, in the parish of Ashford, and other works in connection with the proposed water-supply. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

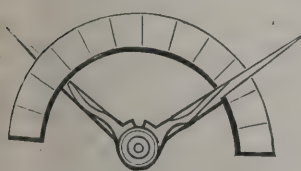
BILSTON.—Dec. 20.—For supply of electric plant to the substation at Bilston, Staffordshire. Mr. G. Sales, secretary Midland Electric Corporation, Pearl Assurance Buildings, St. John's Lane, Liverpool.

BIRMINGHAM.—Dec. 30.—For erection of pavilions, boiler-house and other works at the workhouse, Erdington. Messrs. C. Whitwell & Son, architects, Temple Row, Birmingham.

BISHOP AUCKLAND.—Dec. 19.—For erection of a branch store, with butchery department, slaughter-house and stables, at Coundon. Mr. F. H. Livesay, architect, 107 Newgate Street, Bishop Auckland.

BLACKBURN.—For extensions to Norfolk Street (C.E.) schools, Mill Hill. Messrs. Stones & Stones, architects, 10 Richmond Terrace, Blackburn.

BLYTH.—For erection of large steam drying shed, for the Blyth Brick Company, Ltd, Links Road Works, Blyth,

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BRISTOL.—Dec. 16.—For enlargement of the Easton school. Mr. J. Mackay, architect, Kingswood, Bristol.

BROMLEY.—Dec. 17.—For construction of strong rooms. Mr. F. H. Norman, clerk, District Council Offices, Bromley, Kent.

BROMSGROVE.—Jan. 8.—For sinking or boring to obtain a water supply for the new Barnsley Hall asylum. Mr. George T. Hine, architect, Westminster.

BURGESS HILL.—For taking-up of the present floors and relaying with wood-block flooring at the London Road boys' school. Mr. C. Botham, architect, 128 Queen's Road, Brighton.

BURY.—Dec. 17.—For construction of sewage-disposal works, comprising circular precipitation tanks, bacteria beds, channels, sludge tank and roads at Livsey Fields. Mr. John Haslam, town clerk, Corporation Offices, Bury.

CARDIFF.—Dec. 14.—For supply, delivery and laying of electric cables. Mr. Arthur Ellis, The Hayes, Cardiff.

CHATTERIS.—Dec. 23.—For erection of a Board school at Chatteris, Cambs. Mr. John Edwin Seward, clerk to School Board, Chatteris.

CHELMSFORD.—Dec. 18.—For construction of a filter at the waterworks in Mildmay Road. Mr. Thos. Dixon, town clerk, 16 London Road, Chelmsford.

COVENTRY.—Dec. 18.—For alterations and additions to Spon Street school. Messrs. George & Isaac Steane, 22 Little Park Street, Coventry.

DEWSBURY.—Dec. 31.—For erection of a covered market in Crackenedge Lane. Mr. G. Trevelyan Lee, town clerk, Town Hall, Dewsbury.

DINNINGTON.—For erection of seventeen cottages at Dinnington colliery, Northumberland. The Seaton Burn Coal Co., Ltd., A, Exchange Buildings, Newcastle.

DULVERTON.—Dec. 27.—For erection of a court-house and police-station at Dulverton, Somerset. Mr. William John Willcox, county surveyor, 1 Belmont, Bath.

DURHAM.—Dec. 19.—For providing and laying a 2-inch water-main from the Newbottle Board school to dwelling-houses known as Grasswell Terrace, adjoining the road from Houghton-le-Spring to Newbottle. Mr. William Morley, surveyor, Houghton-le-Spring.

EDINBURGH.—Dec. 30.—For erection of a steel latticed girder footbridge and trussed roofs in connection with the Edinburgh and Leith works at Granton. Mr. W. R. Herring, chief engineer and manager, New Street Works, Edinburgh.

FLEETWOOD.—Dec. 17.—For erection of Board schools, Chaucer Road, Fleetwood. Mr. T. G. Lumb, architect, 26 Birley Street, Blackpool.

GOSBERTON.—Dec. 17.—For enlargement of the infant classroom. Mr. R. H. Holmes Hand, 6 Double Street, Spalding, Lincs.

GRASSINGTON.—Dec. 17.—For erection of two cottages at Hebden, near Grassington, Yorks. Mr. James Hartley, architect, Skipton.

GRAVESEND.—Dec. 19.—For alterations and additions to sanatorium. Mr. C. E. Hatten, town clerk, Court House.

GREAT STANMORE.—Dec. 18.—For erection of an isolation hospital in Honey Pot Lane, Great Stanmore, Middlesex. Mr. James A. Webb, surveyor, Great Stanmore.

GREAT YARMOUTH.—Dec. 17.—For erection of a restaurant, Marine Parade. Mr. C. G. Baker, architect, Town Hall Chambers, Great Yarmouth.

HALIFAX.—Dec. 16.—For erection of an engine-house and other alterations and additions to Wellington mills, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HALIFAX.—Dec. 18.—For erection of a villa residence, &c., on the Upper Greenroyd estate, Skircoat. Mr. W. Clement Williams, architect, 22 Southgate, Halifax.

HAMMERSMITH.—Dec. 18.—For constructing a river wall and an elevated track for crane, and other works in connection therewith at the wharf, Chancellor's Road. Mr. H. Main, borough surveyor, Town Hall, Broadway, Hammersmith.

HAMPSTEAD.—Dec. 19.—For installation of an electric fire-alarm system at the North-Western Fever Hospital, Lawr Road, Hampstead, N.W. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment.

HARROGATE.—Dec. 23.—For erection of a house and stable. Messrs. Adkin & Hill, architects, 10, 11 and 12 Prudential Buildings, Bradford.

HASTINGS.—Dec. 17.—For construction of a lift station and conveniences, &c., on the East Hill. Mr. Ben. F. Meadows, town clerk, Town Hall, Hastings.

HOLYHEAD.—Jan. 7.—For erection of an infant school at Kingsland. Mr. R. E. Pritchard, clerk to School Board, Bradford House, Holyhead.

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HORNSEY.—Dec. 16.—For construction of about 1,200 feet run of 4-feet 6-inch by 3-feet egg-shaped brick outfall sewer, with side entrances, &c., and for supplying and laying of about 480 feet run of 12-inch and 18-inch stoneware pipe surface-water sewers, with manholes, &c., in Harringay Passage, between Effingham Road and Hampden Road. Mr. F. D. Askey, clerk, Southwood Lane, Highgate, N.

HORSHAM.—Dec. 17.—For supply of electric meters (direct current), cut-outs, &c. Mr. S. Mitchell, clerk, Urban District Council Offices, Horsham.

HOVE.—For erection of a mansion on the sea front at Hove, Sussex. Messrs. Clayton & Black, architects, 152 North Street, Brighton.

HUDDERSFIELD.—Dec. 18.—For erection of six dwelling-houses at Moldgreen. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—For pulling-down, existing premises and rebuilding the Tally Ho, Bond Street, Hull. Messrs. Freeman, Son & Gaskell, architects, Albert Chambers, 11 Carr Lane, Hull.

HULL.—Dec. 16.—For erection of new pavilions and alterations to the present infirmary buildings. Messrs. Thomas Worthington & Son, architects, 46 Brown Street, Manchester.

INGLETON.—For erection of a dwelling-house at Thornton-in-Lonsdale, Ingleton. Particulars may be obtained at the Wheatsheaf Hotel, Ingleton.

IRELAND.—For erection of the Laharna Hotel, Larne, Ireland (about 360,000 cubic feet). Mr. Albert Gorton, architect, 24 The Crescent, Morecambe.

IRELAND.—Dec. 16.—For erection of a viaduct for a single line of railway over the river Barrow in the south of Ireland, for the Fishguard and Rosslare Railways and Harbours Company. Mr. G. Whitelaw, Secretary of the Fishguard and Rosslare Railways and Harbours Company, Paddington Station, London.

IRELAND.—Dec. 16.—For erection of a bank at Lurgan, for the Belfast Banking Company, Ltd. Mr. Vincent Craig, architect, 5 Lombard Street, Belfast.

IRELAND.—Dec. 17.—For supplying and erecting a pump at Charlestown, Ardee. Mr. Thomas B. Dromgoole, clerk.

IRELAND.—Dec. 18.—For alterations and repairs to the Blackrock dispensary at Newtown Avenue, Blackrock. Mr. P. F. Comber, architect, 19 Lower Leeson Street, Dublin.

IRELAND.—Dec. 19.—For works to be done at the electric station. Particulars on application to the Electrical Engineer at the Station, East Bridge Street.

KING'S NORTON.—Jan. 6.—For erection of a refuse destructor at Lifford, near King's Norton, Worcestershire. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath, near Birmingham.

LANCHESTER.—Dec. 24.—For sinking a well in the workhouse grounds to a depth of about 32 feet. Mr. R. J. Waites, workhouse master, Lanchester.

LEEDS.—Dec. 18.—For erection of an engine-shed, having four turntables and accommodation for ninety-six engines, with workshops, offices, coaling stage, cabins for guards, shunters and inspectors, mess-rooms, &c., at Neville Hill, Leeds, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, York.

LEEDS.—Dec. 19.—For erection of the showyard at Roundhay Park, Leeds, in 1902, for the Yorkshire Agricultural Society. Mr. John Maughan, secretary, Blake Street, York.

LEEDS.—Dec. 21.—For reinstallation of electric bells at Hunslet and Holbeck baths. Mr. Bond, baths superintendent, Cookridge Street.

LEEDS.—Jan. 4.—For erection of about twenty-six blocks of buildings and the alteration of several others, together with roads, drains and all fittings, for the extension of the city hospital at Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LEWISHAM.—Dec. 17.—For supply of heating apparatus to the Algernon Road Congregational church. Secretary, care of chapelkeeper, 8 Algernon Road, Lewisham.

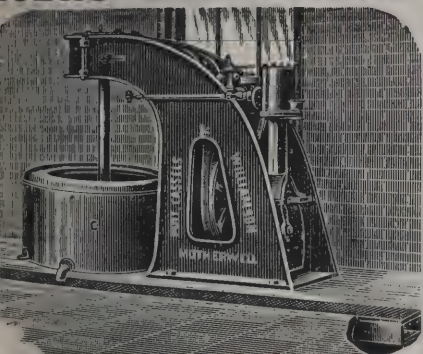
LITTLETON.—Dec. 31.—For erection of a bridge in stone, brick and iron across the river Ash at Littleton, Middlesex. Mr. H. T. Wakelam, county engineer, the Guildhall, Westminster.

LIVERPOOL.—Dec. 18.—For construction of two underground tanks at the workhouse, Smithdown Road. Mr. Walter W. Thomas, architect, 15 Lord Street, Liverpool.

LONDON.—Dec. 30.—For adapting 288 New Cross Road for use as a postmen's sorting office. Mr. J. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster.

MACCLESFIELD.—Dec. 16.—For additions and alterations to the public baths, Davenport Street. The Borough Engineer, Town Hall, Macclesfield.

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MANCHESTER.—Dec. 17.—For construction of sections 1 and 3 of a subway for electric cables in Stuart Street, Cavendish Place, and Queen Street, Bradford. Particulars may be obtained at the office of the City Surveyor, Town Hall.

MANCHESTER.—Dec. 18.—For supply and erection at the Stuart Street generating station of water-tube boilers and superheaters, economisers and feed-pumps. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MANCHESTER.—Dec. 20.—For erection of the administrative department, &c., at premises in Tame Street, Ancoats. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—Dec. 23.—For erection of a masons' shed at the Corporation yard in Little Newton Street, Ancoats. The Chairman of the Paving, &c., Committee, Town Hall.

MANCHESTER.—Jan. 7.—For laying and jointing of the southern section of the second line of pipes from Thirlmere to Manchester. Messrs. G. H. Hill & Sons, civil engineers, 3 Victoria Street, Westminster.

MARPLE.—For erection of National schools at Marple. Messrs. James Hunt & Son, architects, 4 Warren Street, Stockport.

NANTWICH.—Jan. 6.—For supply and erection of the following plant:—(Section A) boiler-house plant—one water-tube and one Lancashire boiler, fittings, steam and exhaust pipes, &c.; (B) engine-house plant—continuous-current steam dynamos, pumps, &c.; (C) switchboard, &c.; (D) underground mains, lamp-posts, &c.; (E) accumulators; (F) meters; (G) crane, &c.; (H) dust destructor. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

NOTTINGHAM.—Dec. 16.—For erection of a chapel, superintendent's house and entrance gates at the site of the proposed new cemetery, Hemphill Lane, Bulwell. Mr. Frank B. Lewis, city architect, Guildhall.

PENGE.—Dec. 17.—For alterations and additions to Ashburton House, Beckenham Road, and erecting billiard saloon and lecture hall in rear. The Secretary, 76 Beckenham Road.

PRESTON.—Dec. 31.—For construction of an underground convenience in Church Street. The Borough Surveyor, Town Hall, Preston.

RAWMARSH.—Dec. 17.—For erection of an hotel at Rose Hill, Rawmarsh; also eight houses adjoining. Mr. H. L. Tacon, architect, 11 Westgate, Rotherham.

READING.—Dec. 21.—For erection of electric power station. Mr. John Bowen, borough surveyor, Town Hall, Reading.

ST. BUDEAUX.—Dec. 30.—For erection of a school and boundary walls on the site between Honicknowle and Crownhill, St. Budeaux, Cornwall. Mr. T. R. Kitsel, architect, 1 George Street, Plymouth.

SCOTLAND.—Dec. 16.—For erection of new buildings in James Street, Lossiemouth. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SCOTLAND.—Dec. 16.—For alterations and additions to the offices at South Mains, Ardliffery. Messrs. Davidson & Garden, architects, 12 Dee Street, Aberdeen.

SCOTLAND.—Dec. 18.—For supply and erection of electric lighting, &c., plant. Messrs. Bursall & Monkhouse, engineers, 14 Old Queen Street, Westminster, S.W.

SCOTLAND.—Dec. 23.—For constructing at Lesmahagow a covered service tank, about 80 feet by 40 feet by 10 feet 6 inches deep, and other work in connection therewith, in the Upper Ward of the county of Lanark. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

SCOTLAND.—Dec. 25.—For reconstruction of Dunnottar parish church, Stonehaven. Mr. George P. K. Young, architect, 42 Tay Street, Perth.

SEVENOAKS.—Dec. 16.—For erection of an isolation hospital at Roundabout Wood, Sevenoaks. Mr. W. H. Ansell, architect, 11 Great James Street, Bedford Row, W.C.

SHALDON.—Dec. 20.—For erection of a new wing at the Ness, Shaldon, Devon, and for reroofing the main building. Messrs. Ellis, Son & Bowden, architects, Bedford Chambers, Exeter.

SOUTHEND-ON-SEA.—Dec. 23.—For erection of forty houses for the working classes. Mr. Alfred Fidler, borough surveyor, Southend.

SOUTHWELL.—Dec. 19.—For alterations at the washhouse at the workhouse. Mr. Cottam, surveyor, Church Street, Southwell.

STOURBRIDGE.—Dec. 17.—For erection of three additional purifiers, with elevator and conveyor, valves and connections on the gasworks. Mr. Wm. North, engineer, Gasworks, Stourbridge.

STRATTON ST. MARGARET.—Dec. 16.—For supply of and laying cast-iron irrigation pipes at the workhouse, Stratton

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SUNDERLAND.—Dec. 20.—For supply and erection of cast-iron condenser and water-pipes, and some copper steam-piping, valves, &c. Mr. John F. C. Snell, Town Hall, Sunderland.

SUTTON.—Dec. 17.—For erection of public baths, Sutton, Surrey. Mr. C. Chambers Smith, surveyor, Municipal Buildings, Sutton.

SWINEFLEET.—Dec. 18.—For erection of a police station at Swinefleet, near Goole. Mr. J. Vickers Edwards, county surveyor, Wakefield.

TORQUAY.—Dec. 16.—For erection of the Mallock memorial clock tower, Torquay. Mr. J. Donkin, architect, Bournemouth.

TOWCESTER.—Dec. 16.—For making a well and tank at the spring, supplying and erecting wind motor and pump, for the construction of a reservoir of 40,000 gallons capacity, and for providing and laying about 3,000 yards of mains. Mr. J. B. Williams, the Moot Hall, Daventry.

TWICKENHAM.—Dec. 23.—For building a wrought-iron bridge, with brick abutments, over the river Crane, Cole Park Estate, Twickenham. Mr. George F. Sharpe, architect, 57 Chancery Lane, W.C.

TYNEMOUTH.—Jan. 7.—For construction of a gravitation main, consisting of 12½ miles of 18-inch cast-iron pipes, from the Font to Stanington, Northumberland. Mr. Horatio A. Adamson, town clerk, Tynemouth.

TYWARDREATH.—Dec. 17.—For erection of new schools at Tywardreath, Cornwall. Mr. J. Cook, clerk to School Board, Tywardreath, Par Station, Cornwall.

UPTON-BY-CHESTER.—Dec. 24.—For erection of a cottage home at Upton-by-Chester. Messrs. Thomas M. Lockwood & Sons, architects, 80 Foregate Street, Chester.

WAKEFIELD.—Dec. 17.—For erection of fourteen lock-up shops and other premises forming additions to Jackson's Arcade, Kirkgate. Mr. G. Bolshaw, architect, 189 Lord Street, Southport.

WALES.—For erection of a house in Victoria Road, Penarth. Messrs. Seddon & Carter, architects, Bank Buildings, Cardiff.

WALES.—Dec. 16.—For alteration at the seaside mansion of St. Andrew's Hospital, Llanfairfechan. Mr. C. H. Dorman, architect, Abington Street, Northampton.

WALES.—Dec. 21.—For supplying and fixing a corrugated iron hospital, near New Tredegar, to accommodate six beds, three for males and three for females, with the necessary offices, &c. Mr. Jno. Alex. Shepard, clerk, Town Hall, Tredegar.

WALES.—Dec. 27.—For erection of Wesleyan minister's house at Coedpoeth. Mr. W. Lloyd Jones, architect, Bangor.

WALES.—Jan. 1.—For alterations and improvements to the Portmadoc market hall. Mr. J. Jones, clerk to the District Council, 20 Bank Place, Portmadoc.

WALES.—Jan. 13.—For erection of an infants' school, to accommodate 200 children, at Cwmcelyn, near Blaina, Mon, with out-offices, boundaries, playground, &c. Mr. R. L. Roberts, architect, Abercarn.

WALTHAMSTOW.—Dec. 20.—For erection of an underground convenience in St. James Street. Mr. G. W. Holmes, engineer to the District Council, Town Hall, Walthamstow.

WANDSWORTH.—Dec. 12.—For alterations and additions to the infirmary kitchen, for the Guardians. Mr. Cecil A. Sharp, architect, 11 Old Queen Street, Queen Anne's Gate, S.W.

WOODFORD.—Dec. 28.—For erection of steel tower, wind-mill pump, rising main, &c., at Woodford, Northants. Mr. Lloyd, engineer, Thrapston.

WOOLWICH.—Dec. 18.—For erection of about 550 feet of boundary wall on the south side of the union grounds at Plumstead. Mr. J. O. Cook, architect, 1A Eleanor Road, Woolwich.

WRAY-WITH-BOTTON.—Dec. 21.—For rebuilding Botton bridge, in the township of Wray-with-Botton, Lancs. Mr. John Marshall, district surveyor, Hornby.

THE contract for the extension of the Rosslare Harbour Pier has now been decided. There were a large number of tenders received, and the lowest was that of Messrs. Brand & Co., of Buchanan Street, Glasgow. Amongst the other great building firms that tendered were Messrs. McAlpine & Co., railway contractors; Messrs. Pearson & Co., railway contractors; Messrs. Jackson and others. The figures ranged between £200,000 and £250,000. The contract of Messrs. Brand & Co. was accepted. The contract is the largest that has been given away in the south of Ireland for the last twenty years. The pier is to be extended 1,000 feet, and the work is to be done within three years.

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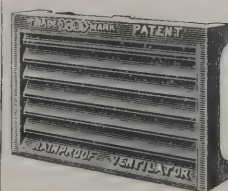
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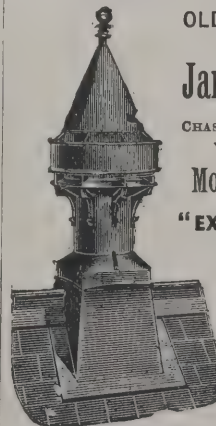
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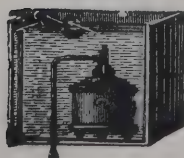
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GREAT YARMOUTH.

For erection of laundry at the workhouse.

J. D. HARMAN (*accepted*) * £1,597 0 0
* With £97 10s. extra in case Doulton's tiles are used.**HARROW-ON-THE-HILL.**

For supply of a Lancashire boiler for the Greenhill Laundry.

Mr. S. J. REYNOLDS, consulting engineer, Reigate.
Tinker & Co. £387 0 0
Taylor & Son 385 0 0
Tetlow & Son 355 0 0
Galloway & Co. 345 0 0
J THOMPSON, Wolverhampton (*accepted*) 312 10 0**HAYLE.**

For erection of new school buildings and alterations to chapel premises, reseating, &c., at the Foundry Wesleyan chapel, Hayle, Cornwall. Mr. SAMPSON HILL, architect.

Walters £3,159 7 0
Winn 2,823 10 0
W. C. Hodge 2,603 0 0
Miners 2,597 0 0
Hosking 2,551 10 0
WHITE & THOMAS, Crowan, Camborne (*accepted*) 2,489 0 0**HERNE BAY.**

For erection of twenty-five cottages in Minster Drive. Mr. ERNEST J. HAMMOND, architect, Marlborough Buildings, High Street, Herne Bay.

C. W. Welby £6,075 0 0
E T J. Adams 6,050 0 0
Berry Bros. 5,575 0 0
L. Seager 5,500 0 0
F. Griggs 5,500 0 0
J. Jordan 5,375 0 0
J. Wilford 5,125 0 0
J. F. Thompson 5,125 0 0
C. S. Smellie 4,875 0 0
A. S. INGLETON, High Street, Herne Bay (*accepted*) 4,750 0 0**LAMBETH.**

For tiling the kitchen at Prince's Road workhouse.

H. KENT, Albion Road, Lewisham (*accepted*) £175 0 0**ILLOGAN.**

For erection of the proposed girls' school at Illogan Church town, Cornwall. Mr. SAMPSON HILL, architect.

Hosking £1,415 12 0
J. Odgers 1,320 0 0
Opie & Hodge 1,310 0 0
Mitchell & Hodge 1,135 0 0
COCK & ROBERTS, Carn Brea (*accepted*) 1,058 10 0
W. H. Moyle 1,050 0 0**LEWISHAM.**

For street works in Nuding Street and Ladywell Road.

Nuding Street.

C. Pearce £396 0 0

Ladywell Road (part 2).

C. Pearce £1,089 0 0

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For extending the electric-lighting works, Cathall Road. Mr. WILLIAM DAWSON, surveyor, Town Hall, Leyton.

Foster Bros. £5,366 0 0
F. G. Minter 4,295 0 0
Viney & Stone 4,143 0 0
W. Shurmur 4,086 0 0
J. Willmott & Sons 4,000 0 0
W. Gregor & Sons 3,900 0 0
J. Chessum & Sons 3,881 7 11
Patman & Fotheringham 3,840 0 0
G. Parker 3,707 0 0
Thomas & Edge 3,497 0 0
W. Manders 3,346 9 4
J. Greenwood 3,096 0 0
F. J. COXHEAD, Leytonstone (*accepted*) 2,969 0 0**LISCARD.**

For wiring and fitting buildings in Seaview Road, Liscard, Cheshire.

MORTON & SAMPSON, Warrington (*accepted*) £330 0 0**LIVERPOOL.**

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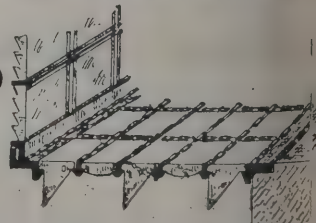
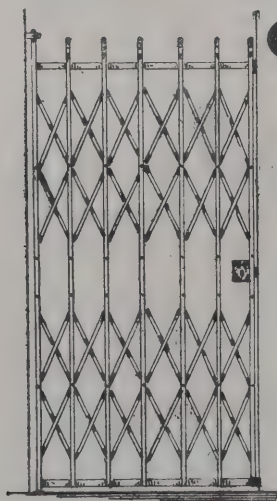
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LONDON SCHOOL BOARD.

The interiors of the following schools will be cleaned between December 14, 1901, and January 4, 1902.

Ackmar Road (all buildings).

W. Hammond	£330	0	0
J. & M. Patrick	328	0	0
W. Hornett	310	0	0
F. T. Chinchin & Co.	269	0	0
C. CURD (accepted)	220	10	0

Buckingham Terrace.

W. Brown & Sons	£270	0	0
T. Cruwys	230	0	0
W. R. & A. Hide	205	0	0
Bristow & Eatwell	179	10	0
F. CHIDLEY (accepted)	166	11	6
F. T. Chinchin & Co.	159	0	0
W. Chappell	149	0	0

Middle Row.

A. Balfour & Co.	£282	8	0
Marchant & Hirst	196	0	0
W. Brown & Sons	183	4	0
F. Chidley	162	0	0
Bristow & Eatwell	154	10	0
W. Chappell	152	10	0
F. T. CHINCHEN & CO. (accepted)	147	18	0

*Victoria (J. M. school).**

Bristow & Eatwell	£79	10	0
W. R. & A. Hide	63	10	0
W. BROWN & SONS (accepted)	55	0	0

* The work of this school will be executed between December 21, 1901, and January 4, 1902.

Ann Street.

Stevens Bros.	£223	0	0
Johnson & Co.	220	0	0
W. CHAPPELL (accepted)	158	10	0

Hanover Street.

C. & W. Hunnings	£270	7	6
Stevens Bros.	226	0	0
McCormick & Sons	222	0	0
J. Grover & Son	218	0	0
MARCHANT & HIRST (accepted)	212	0	0

LONDON SCHOOL BOARD—continued.

Worlington Road.

W. R. & A. Hide	£377	0	0
A. Balfour & Co.	358	0	0
W. Brown & Sons	293	12	0
W. Chappell	240	0	0
F. Chidley	235	10	0
Bristow & Eatwell	234	10	0
F. T. CHINCHEN & CO. (accepted)	229	0	0

Rosebery Avenue.

M. Pearson	£224	0	0
Johnson & Co.	217	0	0
Stevens Bros.	198	0	0
W. CHAPPELL (accepted)	146	0	0

Deptford Park.

W. J. Howie	£285	0	0
W. Banks	245	17	6
W. Hayter & Son	230	0	0
S. Musgrove	176	18	0
H. GROVES (accepted)	175	0	0

Earl Street.

W. J. Howie	£259	0	0
W. Banks	210	15	6
W. Hayter & Son	188	0	0
E. Proctor	178	0	0
H. GROVES (accepted)	165	0	0

Cranbrook Road.

Collis Willmott & Son	£368	0	0
W. Hornett	337	0	0
Barrett & Power	323	0	0
G. Barker	291	0	0
Corfield & Co.	265	0	0
W. SILK & SON (accepted)	253	0	0

Scarwell Street.

W. Martin	£311	0	0
J. Haydon & Sons	279	10	0
W. Shurmur	261	0	0
C. Willmott & Son	255	0	0
McCormick & Sons	247	0	0
Barrett & Power	240	0	0
G. Barker	203	0	0
G. WALES (accepted)	157	4	0

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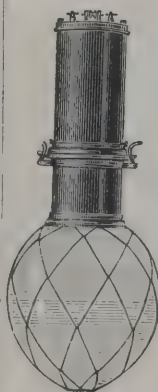
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LONDON SCHOOL BOARD—continued.

Pritchard Road.

W. Martin	£308	0	0
Barrett & Power	294	10	0
D. Gibb & Co.	196	10	0
W. Shurmur	189	0	0
J. Haydon & Sons	188	10	0
COLLIS WILLMOTT & SON (accepted)	170	0	0
W. Silk & Son	160	0	0

Flint Street.

J. F. Ford	£214	0	0
W. Downs	174	0	0
H. J. Williams	174	0	0
Rice & Son	157	0	0
W. Sayer & Son	148	0	0
Vigor & Co.	145	0	0
HOLLIDAY & GREENWOOD, LTD. (accepted)	139	0	0

Goodrich Road.

J. & C. Bowyer	£369	0	0
W. Sayer & Son	347	10	0
G. Kemp	320	0	0
Maxwell Bros., Ltd.	305	0	0
Rice & Son	304	0	0
C. G. Jones	296	0	0
H. Line	279	0	0
A. BLACK & SON (accepted)	245	0	0

Rockingham Street.

W. King & Son	£336	7	0
W. Downs	278	0	0
E. P. Bulled & Co.	234	0	0
W. V. Goad	232	0	0
Johnson & Co.	230	0	0
W. Sayer & Son	212	0	0
VIGOR & CO. (accepted)	170	0	0

Southampton Street.

W. King & Son	£284	19	0
W. Sayer & Son	257	0	0
H. Line	243	0	0
Rice & Son	226	0	0
G. Kemp	216	0	0
Maxwell Bros., Ltd.	209	0	0
Vigor & Co.	185	0	0
J. GARRETT & SON (accepted)	175	0	0

LONDON SCHOOL BOARD—continued.

Belleville Road.

R. S. Ronald	£270	0	0
Martin, Wells & Co.	265	0	0
W. Johnson & Co., Ltd.	223	0	0
E. B. Tucker	209	5	0
W. H. Lorden & Son	177	15	0
J. Garrett & Son	165	0	0
E. FLOOD (accepted)	162	0	0

Crawford Street.

Holloway Bros.	£368	0	0
W. Downs	329	13	0
J. F. Ford	304	0	0
Rice & Son	263	0	0
H. Line	243	0	0
Maxwell Bros., Ltd.	237	0	0
J. GARRETT & SON (accepted)	199	0	0

Garratt Lane.

W. Johnson & Co., Ltd.	£290	0	0
E. Flood	235	0	0
R. S. Ronald	205	0	0
E. P. Bulled & Co.	194	0	0
J. Garrett & Son	186	0	0
W. H. LORDE & SON (accepted)	166	15	0

Jessop Road (all departments).

W. Downs	£219	0	0
Maxwell Bros., Ltd.	177	0	0
Rice & Son	164	0	0
H. & G. Mallett	158	10	0
E. Triggs	153	0	0
HOLLIDAY & GREENWOOD, LTD. (accepted)	140	0	0

Aldenharn Street.

T. Cruwys	£235	0	0
C. & W. Hunnings	216	17	6
STEVENS BROS. (accepted)	175	10	0
Marchant & Hirst	166	0	0
W. Chappell	139	0	0

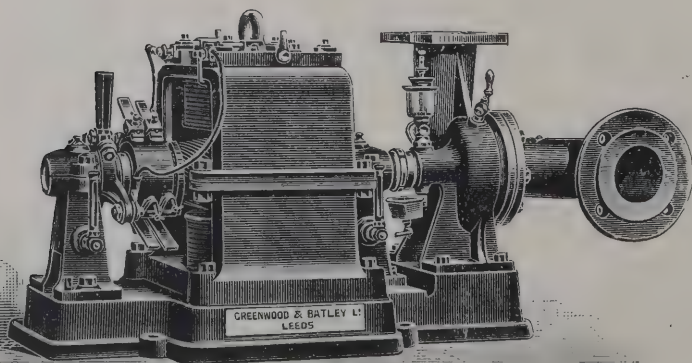
Carlton Road.

A. Balfour & Co.	£579	5	0
R. S. Buckeridge	425	0	0
H. Wall & Co.	394	0	0
Stevens Bros.	378	0	0
BRISTOW & EATWELL (accepted)	295	10	0

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LONDON SCHOOL BOARD—continued.

Great College Street.

A. Balfour & Co.	£379	10	6
R. S. Buckeridge.	226	0	0
Stevens Bros.	226	0	0
H. Wall & Co.	205	0	0
Marchant & Hirst	186	0	0
T. CRUWYS (accepted)	179	0	0
W. Chappell	178	10	0

Buck's Row.

J. F. Holliday	£178	0	0
J. T. Robey	177	0	0
J. Haydon & Sons	176	10	0
F. & F. J. Wood.	150	0	0
W. Shurmer	144	0	0
G. BARKER (accepted)	142	10	0
Vigor & Co.	142	0	0

Settles Street.

A. J. Sheffield	£332	0	0
W. Shurmer	315	0	0
J. Haydon & Sons	313	10	0
J. F. Holliday	295	0	0
Vigor & Co.	289	10	0
J. T. Robey	289	0	0
G. BARKER (accepted)	279	10	0
G. Wales	266	0	0

Woolmore Street.

A. W. Derby	£242	0	0
A. J. Sheffield	227	0	0
T. H. Jackson	219	0	0
D. Gibb & Co.	191	0	0
Corfield & Co.	185	0	0
J. T. Robey	175	0	0
G. WALES (accepted)	143	3	0

LONDON.

For supply of wrought-iron footguard fencing for Chestnuts, St. Ann's Road, South Tottenham. Mr. W. H. PRESCOTT, engineer.
W. BAIN & Co., 8 Victoria Street, Westminster, S.W. (accepted) £167 18 4

LONDON—continued.

For erection of a laundry at the Poplar and Stepney Sick Asylum.

F. Gough & Co.	£15,994	0	0
W. Lawrance & Sons	15,968	0	0
Foster Bros.	15,765	0	0
Vigor & Co.	13,979	0	0
Faulkner & Son	13,470	0	0
H. Wardrope	13,439	0	0
Yates & Co.	13,400	0	0
F. & T. Thorne	13,389	0	0
J. Smith & Son	13,259	0	0
J. H. L. Holloway	13,230	0	0
Higgs	13,137	0	0
Levy & Son	13,000	0	0
J. Greenwood	12,748	0	0
Almond & Son	12,590	0	0
WATTS, JOHNSON & Co (accepted)	11,677	0	0

For additions at King's Cross laundry, York Road, N. Mr. S. J. REYNOLDS, engineer, Reigate.

Cross & Co.	£1,427	14	2
Joselyn & Young	1,280	0	0
Richardson & Co.	1,245	0	0
Hall & Co	1,157	0	0
Kiddle & Son	1,099	0	0
AKERS & Co, South Norwood (accepted)	1,097	0	0

MALDON.

For street works in the Causeway, London Road and Wellington Road, Maldon, Essex. Mr. THOS. R. SWALES, borough surveyor.

Laying paving and kerbing Causeway and London Road.			
E B Knight	£108	7	6
Bonnett & Co.	97	16	8
Baxter & Son	91	2	6
WILDING & SON, Market Hill, Maldon (accepted)	76	14	4

Laying paving, Wellington Road.

WILDING & SON (accepted)	13	10	10
E. B. Knight	13	10	10
Bonnett & Co.	12	10	0

MANSFIELD.

For erection of a refuse-destructor, for the Town Council. HEENAN & FROUDE (accepted) £5,068 5 0

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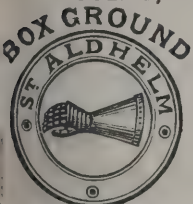
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MERTON.

For additions to Merton schools, Surrey. Mr. H. G. QUARTERMAIN, architect. Quantities supplied by Messrs. J. LEANING & SONS.

Gough & Co.	£5,200	0	0
Wall & Co.	5,123	0	0
Smith & Son	4,937	0	0
Holliday & Greenwood	4,884	0	0
Lorden & Sons	4,844	0	0
Garratt & Sons	4,800	0	0
Parsons & Townsend	4,647	0	0
Burges & Sons	4,495	0	0

NEWBOTTLE.

For extensions to the Newbottle Co-operative Society's premises.

Taylor & Welford	£410	0	0
R. D. HARRISON, Houghton-le-Spring (accepted)	305	0	0

OSWESTRY.

For extending the water-main for the Lodge waterworks to Bronygarth.

TYLER (accepted)	£560	0	0
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RIPON.

For supply of gas-mains.

STAVELEY IRON AND COAL CO., Chesterfield (accepted).

SOMERSET.

For drainageworks at the workhouse. Mr. T. H. ANDREW, surveyor, Williton.

H. W. Pollard	£1,199	0	0
E. Morse Bros.	1,062	15	0
J. CHIBBETT & SONS, Williton (accepted)	994	9	0

WALES.

For erection of a police court at Ton, Rhondda Valley. Messrs. GRIFFITHS & JONES, architects, Tonypandy. Quantities by Mr. D. PUGH-JONES, F.S.I., Tonypandy and Cardiff.

MORGANS BROS., Ton Pentre, Rhondda (accepted)	£3,355	12	8
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WARRINGTON.

For permanent way at the entrance to car-sheds.

J. A. EWART (accepted)	£1,155	0	0
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Received too late for Classification.

HORLEY.

For erection of a fire-engine station and fireman's residence in the Albert Road, Horley, for the Horley Parish Council. Mr. C. H. BURSTOW, architect, 6 West Street, Horsham, Sussex.

THOMAS WICKENS, Charlwood (accepted)	£848	0	0
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HORSHAM.

For pulling-down business premises, No. 57 East Street, Horsham, and erection of new house and shop thereon. Mr. C. H. BURSTOW, architect, Horsham.

G. Potter	£1,080	0	0
H. Lindfield & Son	960	0	0
Rowland Bros.	938	0	0
Potter Bros.	898	0	0
HILLMAN & MURRELL (accepted)	827	10	0

LONDON.

For Holy Trinity Church, Prince Consort Road, Kensington, S.W. Mr. G. F. BODLEY, architect.

STEPHENS, BASTOW & CO., LTD., Bristol (accepted)	£29,194	0	0
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For new chapel and other conventual buildings, Convent of the Visitation, Harrow-on-the-Hill. Mr. THOS. GARNER, architect.

STEPHENS, BASTOW & CO., LTD., Bristol (accepted)	£7,366	0	0
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For new chapel, House of Charity, St. Agnes, Knowle, Bristol. Mr. G. F. BODLEY, architect.

STEPHENS, BASTOW & CO., LTD., Bristol (accepted)	£3,693	0	0
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RUDGWICK.

For erection of a new residence at Snell's Farm, Rudgwick. Mr. C. H. BURSTOW, architect, 6 West Street, Horsham Sussex.

Hillman & Murrell	£975	0	0
W. Street	970	0	0
H. Lindfield & Son	940	0	0
Hull & Redford	899	0	0
ROWLAND BROS., Horsham (accepted)	893	0	0

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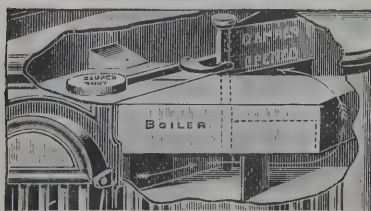
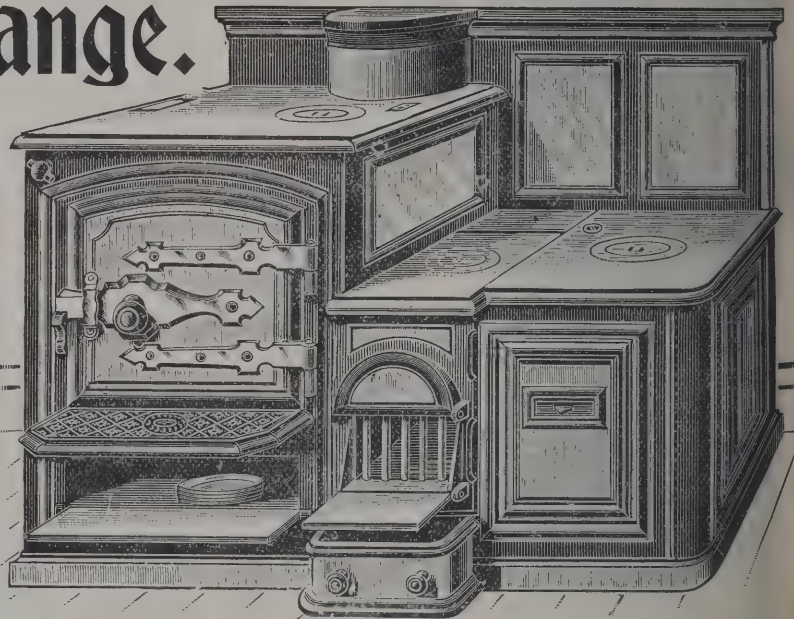
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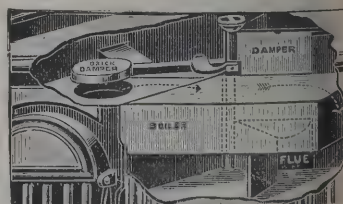
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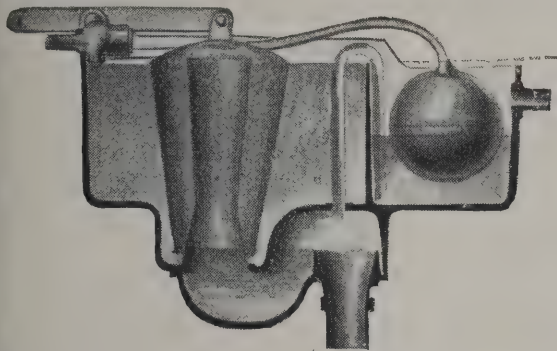
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TRADE NOTES.

A LARGE clock and quarter chimes is to be placed in the tower of Christ Church, Macclesfield. It will be constructed generally to the designs of Lord Grimthorpe, by John Smith & Sons, Midland Clock Works, Derby.

SEVERAL advantages are claimed for a new flushing cistern which Messrs. Holt's Patent Cistern Company are showing at 15 Lord Street, Liverpool; among these we may mention the following:—The supply of water available for flushing never varies; the water level is always $\frac{1}{4}$ inch off the top of stand or



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way stations in Liverpool and its vicinity for some time past, and the municipal officers have expressed themselves in such favourable terms in regard to it, that its adoption in several other towns in the north is receiving the careful consideration of their respective governing authorities.

ELECTRIC NOTES.

THE Darlington Town Council have decided to construct and work municipal electric tramways, and to borrow 100,000*l.* for that purpose. The voting for municipalisation was seventeen to three against.

AT Monday's meeting of Ayr Town Council, Mr. Fuller reported that work was proceeding in connection with the placing of arc lamps on the tops of a certain number of the tramway poles in place of the independent arc lamps along the route. He also reported that there were now 494 consumers, the number of lamps connected being 21,136. It was agreed to charge for power and heating purposes from 4*d.* per unit to 2*d.* per unit between 500 and 5,000 units, and by special agreement for quantities beyond 5,000 units.

VARIETIES.

THE new Roman Catholic church of St. Alban, Blackburn, erected at a cost of about 20,000*l.*, has been opened.

THE new mission church of the Good Shepherd, which has been erected in Spon Lane, West Bromwich, at a cost of about 950*l.*, has been dedicated. It is situate in St. John's parish, and will accommodate about 300 worshippers.

THE town hall at Ilford was opened last week. The building has been erected at a cost of about 30,000*l.*, and during the opening proceedings it was announced that some 70,000*l.* had been spent by the Council for the laying out of public parks, 60,000*l.* on drainage, 70,000*l.* for electric lighting and 100,000*l.* for electric trams.

THE new parish hall at Coalbrookdale, Shropshire, has just been completed by the contractor, Mr. T. Pace, of Shrewsbury. Due regard in designing has been paid to its surroundings of wooded hills, the materials employed being Ruabon bricks with Grinshill stone dressings and red Lightmon tiles. The main hall has a semi-octagonal roof with curved and traceried trusses. Mr. Harbottle Reed, of Exeter, is the architect.

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A NEW coroner's court at Clapham was opened last week. It has been erected by the Works Department at a cost of 5,500*l.*, with 1,500*l.* for the site, from designs by Mr. Riley, the Council's architect, and seems well adapted for the purposes it is intended to serve. It is situate in the Wandsworth Road, and although the court is not a large one, it is a great improvement on the one which had formerly to be used.

THE prospectus appears of a proposed publication on "Ye Aunciente Hospittall of ye Holye Trynitie, Croydon," founded by Archbishop Whitgift. It will comprise an illustrated and descriptive history from the earliest records, by Mr. Alfred Jones, B.A., warden, while photographs of portions of the ancient building and of the antiquities it still contains will add to the historic value of the book, the price of which to subscribers is 2*s.* 6*d.*

THERE will shortly be published a French translation of the "Methods of Industrial Remuneration," by Mr. D. F. Schloss, of the Labour Department, Board of Trade, of which a third edition was published some years ago by Messrs. Williams & Norgate. One portion of Mr. Schloss's work, that dealing with the tendency of trade unions to restrict output, is of very actual interest, for it deals with a question which has been much referred to of late in the public Press and elsewhere.

THE new station for Dalry, N.B., which is being erected in conjunction with the new line from Dalry to Johnstone, is now in a forward state. The widening at the station to permit of the four sets of rails in place of the two entailed the laborious work of digging away a steep embankment on the east side, but after about five months' work on the part of a big gang of navvies the ground has gradually disappeared, the soil so removed being used for the widening operations further to the north. On the south side of the station some heavy work in the way of cutting has been done. On the east side approaching the junction a massive retaining wall had to be built. The station, which is built of terra-cotta, and comprising spacious booking hall, ticket office, parcels office, agents' room, lavatory, &c., is a handsome structure, and will soon be ready for occupation.

AN amateur dramatic entertainment was given on Monday night at St. George's Hall, Langham Place, in aid of the Benevolent Fund established a couple of years ago in connection with the Auctioneers' Institute. Mr. W. Bennett Rogers (Messrs. Rogers, Chapman & Bennett), the president, was in

the chair. Mr. Haddon Chambers's play, "The Idler," was presented before a large audience and the characters were well represented. Mr. Percy Rogers as Mark Cross, Mr. Mordaunt Rogers as Sir John Harding, and Mrs. Ernest Renton, who was seen in the difficult part of Lady Harding, deserving particular mention. Selections of music were played by Mr. Ling-Bareham's orchestra during the evening. At the close of the performance the artistes were accorded a hearty vote of thanks for their services on the motion of Mr. H. C. Richards, K.C., M.P.

THE restored and enlarged parish church of St. Mary's West Malling, Kent, was dedicated by the Archbishop of Canterbury on the 27th ult. The alterations have been very comprehensive so far as the body of the church is concerned. The whole of the nave, with the exception of a portion of the east and north walls, has been rebuilt with the north and south aisles, and in the reconstruction an extra width of some 15 feet has been provided. Practically the whole of the fabric of the whole of the earlier church in the Italian style, built about a hundred years ago, has been replaced, what Norman work there was being retained in the chancel and tower. The work, which has entailed an expenditure of over 5,000*l.*, has been performed by Messrs. Wallis & Sons, of Maidstone, to the designs of Mr. J. T. Micklethwaite, F.S.A., of Westminster Abbey.

ST. PETER'S CHURCH, Redvales, Bury, was formally reopened on Wednesday last. On a stone tablet in the west porch is the following inscription:—"A.M.D.G. This stone, a memorial of the rebuilding of the nave and aisles, was laid by the Right Hon. the Earl of Derby on November 18, 1899. Peace be within thy walls." The church built about thirty years ago soon began to be a source of anxiety and expense. Nearly three years ago Mr. Medland Taylor, who was asked to report and advise, found that it was unsound and unsafe, and that though it was possible to save the chancel by adding massive buttresses, all the rest of the church must be rebuilt. Drawings and specifications were accordingly made, and the contract let on June 13, 1899, to Mr. Charles Brierley, a parishioner. The general outline of the church is much as before, with three exceptions, namely, the addition of a spacious western porch, the enlargement and remodelling of the vestries, and the removal of the tower to a safer and better position north-west of the north aisle. For the present the superstructure of the tower and spire waits for funds, but the arch behind the

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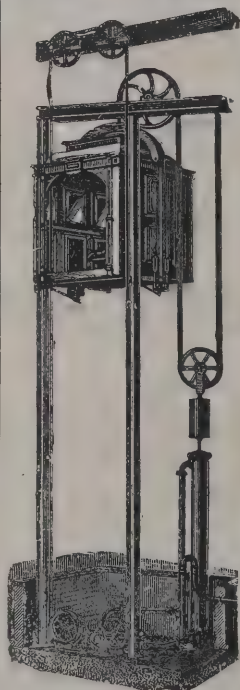
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font is the actual arch intended to remain. The church will seat about 450.

THE committee appointed to organise the sixth International Congress on the Housing of the Working Classes, which will be held from June 15 to June 18, 1902, met in Berlin a few days ago. The ex-Imperial State Secretary, Herr Herzog, was in the chair. The Congress, which meets at Düsseldorf, will be the continuation of those held in Paris in 1889, at Antwerp in 1894, Bordeaux in 1895, Brussels in 1899, and in Paris in 1900. The expenses will be covered partly by the German Government, and partly by a subscription of 10 marks from all persons and Corporations applying for membership. The English, French, or German language may be used during the sittings of the Congress, at which many foreign delegates are expected. M. Siegfried, ex-Minister of Commerce in France, and M. Lepreux, general manager of the Royal Belgian Savings Banks, are among those who are certain to attend. All questions relating to the Conference are to be addressed to the general secretary, Professor Albrecht, at Grosslichterfelde, near Berlin.

ST. EMMANUEL Church, which has been erected in the Christ Church parish, Sparkbrook, Birmingham, was consecrated recently by the Bishop of Coventry. The church, which is in the Decorated style, has been built by Messrs. Moffatt & Son, of Camp Hill, in accordance with plans prepared by Mr. W. Hawley Lloyd, architect, of Bennett's Hill, but the whole of the original scheme has not yet been carried out. The site is of sufficient extent to allow of the erection at a future time of other parochial buildings. The church is a neat brick erection, with stone dressings; it has a bell-turret for the accommodation of three bells, and is surmounted by a minaret of stone. When completed it will accommodate over 700 worshippers, but the present building, which consists of chancel, organ-chamber, large vestry, chancel aisle and two bays, the latter with lofty traceried windows, will seat about 430 persons. The present cost is about 5,000/. At the east end there is a fine traceried window and the seating is on the chair system.

PLANS for a landing-stage for steamers were laid before the meeting of the Rhyl Urban District Council. It was decided to send the plans forthwith to the Board of Trade, the work to be proceeded with when the site is approved by Parliament.

BUILDING AND BUILDERS.

BUILDING operations commenced this week in connection with the new town hall for Cheltenham, which is to cost 40,000/.

THE Ayr Town Council have accepted the tender of Messrs. Macfarlane, Strang & Co., Glasgow, amounting to 7,481/ odd, for the cast-iron pipes, &c., required in connection with the extension of the waterworks.

MR. E. A. SANDFORD FAWCETT, A.M.I.C.E., has held an inquiry at Bardney as to the sanction to a loan of 3,000/ for carrying out a waterworks scheme prepared by Mr. J. R. Elliott, A.M.I.C.E., of Nottingham.

AT a meeting of St. Andrews (N.B.) kirk-session held on the 5th inst. a committee was appointed to consider what steps should be taken with a view to the restoration of the town church. It was resolved to call a public meeting on the subject early in January.

THE growth seaward of Dungeness Point has led to the necessity for a new lighthouse there, and a Deal firm have contracted to carry out the work for 6,000/. This will be the third lighthouse erected upon Dungeness Point. The first, built about sixty years ago, is now a mile inland.

THE London and South-Western Railway Company intends considerably enlarging the Andover Junction to meet the military requirements of Salisbury Plain, and have given notice of applying for powers to take in land at Andover for this purpose.

THE memorial-stone of the new rectory at present being erected in Hope Street, Falkirk, in connection with the St. Francis Xavier's Church has been laid and consecrated in accordance with the rites of the Roman Catholic Church by the Archbishop of St. Andrews and Edinburgh.

THE Poplar Borough Council has received particulars concerning the new Bow bridge which is about to be erected by the London County Council in conjunction with the Essex authorities. It is proposed that the new bridge shall be 70 feet in width, with a headway in the centre of the span of 8 feet 7 inches above high-water level, or 2 feet higher than the present bridge.

AT a meeting of Avondale School Board Mr. Robert Sandilands, I.M., 154 West Regent Street, Glasgow, was appointed measurer for the new public school about to be

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erected in Strathaven, N.B., to meet the requirements of the Education Department. The architect, Mr. Cullen, Hamilton, was also instructed to prepare the plans for the approval of the Department. A site in Lethame Road has been agreed upon, and the cost of the school is supposed to be 12,000/.

THE York School Board spent nearly two hours on Friday evening in the discussion of a recommendation of the sites committee that plans submitted be forwarded to the Board of Education, with a view to the erection of a school on the Poppleton Road site—a matter on which the recent School Board election largely turned. The resolution was adopted by six votes to five, and it was agreed that the building be described on the plans as the Poppleton Road school.

THE Mayoress of Newcastle laid on the 5th inst. the foundation-stone of the new home of the Northern Counties' School of Cookery and Domestic Economy in Northumberland Road, Newcastle. The new building will be the first erected in the provinces for the sole use of teaching cookery and domestic economy. It will cost upwards of 10,000/., and has been planned after a careful inspection of all the more important training schools of household cookery in the country. It will provide for the simultaneous practical instruction of about 200 students in cooking, laundrywork, dressmaking, millinery and general housewifery.

AT the estate committee of the Liverpool Corporation on the 5th inst., Councillor Brownbill attended and explained his scheme for a combined central railway station near the George's Dock. His proposal is to remove the Goree Piazza warehouses and to place a station extending from James Street to Water Street under the level of the roadway, which might be used by the railway companies running into Liverpool. The committee listened with interest to Mr. Brownbill's statement, and decided to ask the city surveyor and the city engineer to consider the matter and communicate their views to the chairman of the committee, who in turn will lay them, in the form of a memorandum, before the committee.

THE foundation-stone was laid on the 7th inst. of the new National day and Sunday schools which are to be erected in Spring Gardens, Churchgate, Stockport. The site of the present schools and the building at Wellington Road South, directly opposite the Stockport Infirmary, have been acquired by the Corporation with a view to the erection of a town hall and municipal buildings. The new schools will cost about 8,000/.; they are erected on an acre of glebe land given by the Rev.

Canon W. Symonds, rector and rural dean, and will be ready for occupation in the spring of next year. The buildings occupy an elevated site; there are separate departments for boys, girls and infants; and a fine assembly-room, the accommodation being for 600 day scholars.

At a special meeting of the Bridlington Town Council, the mayor (Councillor Nightingale) presiding, Councillor Bailey (chairman of the property committee) brought forward a proposal involving the lengthening of the present Prince's Parade 223 feet, and a projection seawards 125 feet, with a pavilion upon it to accommodate 3,000 people. According to the plan submitted by Messrs. Mangnall & Littlewood, of Manchester, who will be the architects for that part of the scheme, the Victoria wooden jetty will be replaced by three terraces, with two colonnades, 80 feet and 70 feet long respectively, upon them, and in addition a carriage drive 300 yards long from the Esplanade to Beaconsfield. The total cost of the entire work is roughly estimated at 35,535/.

LORD ROWTON visited Birmingham a few days since and discussed with a number of gentlemen interested in the housing problem a proposal to establish a Rowton House in the city after the style of the establishments in London. It is intended early in the new year to raise a share capital of 40,000/., which will be sufficient to provide a home for 600 men. Lord Rowton pointed out that if the scheme was to succeed it must be a big one. He began with providing accommodation for 800 men and 200 beds had to be added. In Manchester there was a scheme for 300 beds, but it proved too small and unremunerative. He suggested that in Birmingham 700 beds should be aimed at, and he thought a 4 per cent. return on the capital was assured. At Southampton, where only 260 beds were provided and no extension was possible, there was endless trouble notwithstanding that the lodging-houses were well conducted.

BURBAGE parish church, in the heart of the Peak of Derbyshire, and within a short walk of Buxton, is about to be enlarged and, in some respects, remodelled and improved. New windows and better accommodation for the choir, together with a thorough repair of the fabric and an artistic decoration of the interior, form part of the scheme. A lady parishioner has promised a new altar, which is to be of the choicest Derbyshire marble, and it is hoped that other gifts will follow. Mr. T. W. Staniforth, the vicar's churchwarden, has taken the initiative in the matter, and hopes are being

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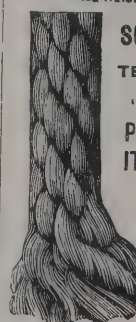
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entertained that ere long Burbage will possess a church with an interior less gloomy and depressing than as at present, and one, too, more in accord with the romantic and charming scenery which surrounds it.

THE Government are about to provide additional barracks on Salisbury Plain to accommodate eight battalions of infantry, and the contract for the work, which it is expected will entail a cost of about 1,000,000/., has been given to Mr. Henry Lovatt, builder, of Wolverhampton, who has carried out a number of important and valuable contracts in various parts of the country. The barracks are to be erected at the foot of Clarendon Hill, and will run from east to west, and extend a distance of a mile and a half. The buildings will include thirty-two double company blocks, for men's quarters, canteens, sergeants' mess, band-rooms, drill sheds, guard houses and officers' and commanding officers' quarters. It will also be necessary to build a village to accommodate the large number of men required to be employed on the works, and the location for it will be Brimstone Bottom, between Tedworth and Ludgershall, about a mile and a half away. Two railway lines have been constructed by the War Department to carry the materials from Tedworth station to the site of the new barracks. It is expected that the work will be commenced almost immediately.

In consequence of the developments that have taken place in connection with the proposed dock construction on the river Dee, it has been found necessary to make certain alterations with respect to the tunnel which is to be laid under the Dee by the Town Council to carry the sewage of the city to the outfall at Girdleness. The line of the tunnel is now to be shifted about 120 yards further east than was originally proposed, and is to be placed at a lower level, the uppermost outside surface to be not less than 41 feet below the level of high water of ordinary spring tides, or about 20 feet below the present bed of the river. With an ultimate depth in the channel of 25 feet at low water of ordinary spring tides, this will give about 4 feet of cover above the tunnel, and will, it is believed, afford sufficient protection against any damage to the structure. The estimated cost of constructing quay walls, with provision for protecting the tunnel, amounts to 5,900/.. Of this outlay the Town Council will pay 2,500/., in consideration of the extra cost to which the Commissioners will be put for works required to protect the tunnel, this sum to be increased or reduced proportionately as the actual expenditure warrants.

THE housing sub-committee of the sanitary committee of the Manchester City Council have decided upon plans for the model cottages to be built at Blackley. In a degree the plans approved follow the lines adopted in the building of model cottages at Leek, in Staffordshire, and have several improvements as compared with the original design. The chief additions are a bathroom and a bedroom, the former room being placed on the ground floor immediately behind the kitchen fireplace. Access to it is obtained from the scullery, from which it can at pleasure be cut off when in use by folding doors. The bathroom is to be made available for washing purposes generally. The third bedroom is to be in the centre of the building, the floor being 3 feet 6 inches higher than that of the other bedrooms. So far as the cost is concerned, the alteration in the original scheme for the erection of 233 cottages will involve an additional outlay of 7,000/., and application to borrow this sum will have to be made to the Local Government Board if the plans are adopted by the City Council.

THE report of the Lunatic Asylums committee of visitors to be presented to the Birmingham City Council in January states that considerable progress has been made with the new asylum at Hollymoor. The boiler-house, engine house and water-tower walls have been erected to a height of about 7 feet above the ground, the chimney-stack to about 33 feet, the bake-house to about 3 feet and the male and female attendants' homes to about 8 feet above ground. The greater part of the basement work, from the boiler-house to the front corridor, has been completed. As regards the kitchen department, dining-hall, and female working patients' block, the foundations are in to the ground line, while in the male working patients' block the excavations are nearly completed. The isolation hospital is in an advanced condition, the greater part of the roofs being boarded and felted ready for slating. This portion of the work has been proceeded with as rapidly as possible, in order that accommodation may be provided for patients from Rubery Asylum in case of an outbreak of infectious disease, attention having on more than one occasion been called by the Lunacy Commissioners to the need for such provision when visiting the Rubery Asylum. Of the eight attendants' cottages, four have been roofed in complete, and in the remaining four the roof timbers are fixed for slating. It is understood that these will be occupied for the present by some of the contractor's employes, a suitable rent being paid for their use. Up to November 22 last 2,026,000 bricks had been made upon the ground for use in the building.

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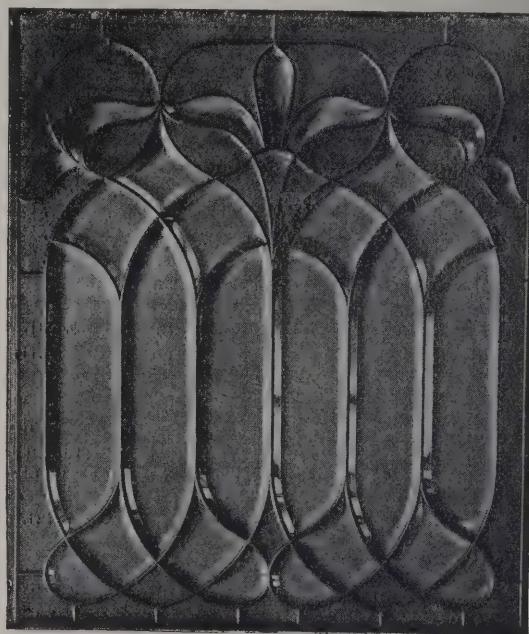


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No. 2.

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DILATORY WORKMEN.

In a speech delivered at Bolsover on Saturday, Earl Gray said that the building trade furnished the greatest illustration of the evils which result from restriction of output. In this business there was no international competition. The builders of New York could not compete with the builders of Bolsover, and the builders of Bolsover could not compete with the builders of London. The evil results of regulations restricting the output were consequently not apparent; but what was the effect upon the community? Owing to the restrictive regulations which doubled the cost of labour the building of houses was checked, with the result that the rents were increased and that the working classes were compelled to live in overcrowded houses. A Royal Commission had reported in 1884 that twenty days a year were lost upon the lowest average to every working man and every working woman from simple exhaustion occasioned by the vitiated air of overcrowded dwellings. The position was worse to-day. Mr. Rowntree, in the important book he had just published on the study of town life, had pointed out that in York 88 per cent. of their working class population were living in houses which left much to be desired, and 30 per cent. of the population were living in poverty and were ill housed, ill-clothed and ill-fed. The chief cause of this sad state of things was the restriction of output which increased the cost of building, raised the rents, caused overcrowding, produced debility, which in its turn drove people to drink. What was wanted was the application of copartnership principles and the imitation of the example set by Mr. Bainbridge, who had endeavoured to secure for his workmen the advantages of the towns and the fresh air of the country.

WORKSHOP ORGANISATION.

At the ordinary meeting of the Manchester Association of Engineers held on Saturday, Mr. Henry Webb presiding, a paper was read by Mr. A. P. Loscher, of Manchester, on "Workshop Organisation." He said that in these days of keen competition the perfection of labour-saving tools and machinery had made such rapid progress as to revolutionise the organisation of workshops and the methods of production. Modern workshop organisation and timely specialisation of production had borne such excellent fruits in America, and in later years in Germany, that it was surprising that similar

methods had not been universally adopted. Too many engineering works were practically void of even the most elementary points of organisation, and did not possess either toolrooms or stores or any proper system for the execution of orders, whilst the cost of such orders was too often merely guesswork. The writer described in detail an elaborate plan of systematising engineering work. He then went on to say that although much had been written of late about the advantages of an intensified or differential rates system of wages over the piecework system and over the premium or profit-sharing system, he had not heard of any factory here adopting the first. The fixing of rates by scientific methods and the fixing of maximum outputs for men and machines were, he said, the foundation of economical and successful production. What a workman could produce in a given time, and what he actually did produce presented widely different results. The ordinary plan, which failed owing to a lack of recognition and reward for the workman's individual capacity, was to regulate a man's wages by the position he held, thus placing a highly skilled man on the same level as those of less intelligence or ability. The differential system, on the contrary, offered better terms to the willing and industrious workman than any trade union was even trying to secure for its members. The absolute want of even an elementary education by a large number of working men made it very often extremely difficult to introduce any new system of organisation, pay or machinery. He recommended as a step towards improving this state of things that every apprentice should be compelled to attend regularly at one of the numerous evening technical schools. Compelling apprentices to work on strictly modern lines would, he thought, greatly assist in successful organisation, and would also weaken the resistance of those journeymen who were still under the influence of trade union principles. The proprietors of up-to-date workshops saw to it that they had the best tools and conveniences, in well-lighted and well-ventilated workshops, knowing that if they were to turn out the best class of work it was necessary to consider the welfare of the workmen. Mutual benefit, he said, could only be secured by offering full scope for the workman's experience, knowledge and ambition.

The paper was followed by a discussion.

THE foundation-stone was laid on the 4th inst. of a new Wesleyan chapel which is being erected at Stapenhill, Staffs. The cost of the building is estimated at about 2,500l.

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CARNEGIE RESEARCH SCHOLARSHIPS.

MR. ANDREW CARNEGIE lately presented to the Iron and Steel Institute debenture bonds of the value of 64,000 dols. for the purpose of founding a research scholarship or scholarships, at the discretion of the Council of the Institute. Mr. Bennett H. Brough, the secretary of the Iron and Steel Institute, has now issued a circular giving the conditions upon which the Council have decided that the scholarships shall be awarded. The competition is irrespective of sex or nationality, and the circular has been translated into French, German, Spanish, Italian, Swedish and Russian, and will be circulated in those countries. Candidates, who must be under thirty-five years of age, must apply on a special form before the end of March to the secretary of the Institute. The object of this scheme of scholarships is not to facilitate ordinary collegiate studies, but to enable students who have passed through a college curriculum, or have been trained in industrial establishments, to conduct researches in the metallurgy of iron and steel and allied subjects, with the view of aiding its advance or its application to industry. There is no restriction as to the place of research which may be selected, whether university, technical school or works, provided it be properly equipped for the prosecution of metallurgical investigations. The appointment to a scholarship shall be for one year, but the Council may at their discretion renew the scholarship for a further period instead of proceeding to a new election. The results of the research shall be communicated to the Iron and Steel Institute in the form of a paper, to be submitted to the annual general meeting of members, and if the Council consider the paper to be of sufficient merit the Andrew Carnegie gold medal shall be awarded to its author. Should the paper in any year not be of sufficient merit the medal will not be awarded in that year.

CHEAP HOUSES IN LIVERPOOL.

In a letter to the *Liverpool Courier* Mr. Edward Mines, a builder, writes:—Having built some hundreds of houses for the working class in Liverpool it may interest some of your readers to know how the housing question is viewed by a builder.

I firmly believe that the building by-laws are the source of all the trouble. Our health committee (prompted, I suppose,

by our city surveyor) seem to have such an abhorrence of the two words "jerry" and "insanitary" that they have gone the other extreme. Just compare the by-laws of fifteen years ago with those of to-day. Ten years ago it was possible to build a three-storeyed house of six rooms for 75%. To-day under the present by-laws, the smallest house permissible of four rooms cannot be built under 150%. Ten years ago a six-roomed house could be let at 4s. per week as a paying rent and the very poor, who could not afford even this rent, could let off two or three rooms. To-day the smallest four-roomed cottage cannot be let under 6s. per week as a paying rent.

This is due, slightly only, to increase in price of building material and labour, but chiefly to the very severe and restrictive by-laws of to-day. Every few years seem to bring in some new and drastic by-law in the building of cottages, which only serves to increase the rent, and cause private enterprise to withdraw from the erection of such houses. I wonder if our worthy surveyor, or any member of the health committee, could explain, among others, the necessity for the following by-laws over those of fifteen years ago:—

Increase in Strength of Main Timber.—In pulling down insanitary property which has been standing considerably over fifty years the main timbers are found to be in perfect condition, yet the same strength of timber over the same span would not be permitted by our present-day by-laws, greatly increased strength being considered necessary.

Nine-foot Back Passages.—Five years ago I built a block of cottages, and by the new by-laws was compelled to put a 9-foot passage behind them. I was then made to pave the same with stone, which had to be brought by rail from another part of England, our local stone not being thought by our worthy engineer hard enough for such an important passage. This cartway, upon which no vehicle has ever been seen, has so added to the cost of the cottages abutting thereon that a further 4d. per week rent is demanded from each tenant. What was the 9-foot passage for? Not air space, as that is dealt with in other by-laws, but our surveyor says for "sanitary reasons," or, in other words, so that refuse carts can get down daily to empty the ash-bins. Then, why are the sanitary authorities supplying to builders ash-bins that work on a swivel to turn the refuse direct into wheelbarrows? And why do the refuse carts wait at the end of the street while the refuse is brought in barrows to them? The old 4-foot passage was quite wide enough for this.

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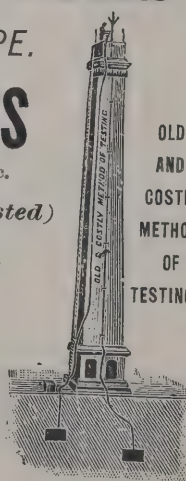
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Width and Surface of Streets.—The by-laws of to-day under his head are extravagant beyond all reason, and they seem to be pressed to their utmost by those in authority. Only a few days ago I was informed by one of the chiefs of our engineer's office, referring to some hard kerb stone that had been brought from Yorkshire and laid in a road in Liverpool in front of cottage houses, that his department would not pass it; they must have granite kerbs, and he gave an instance of some York kerbs which had been put down in another part of Liverpool for about fifty years "showing considerable signs of wear." No courts are now allowed in front of cottage houses, but a street of from 30 to 36 feet must be made, yet large hotels, office buildings and even large workmen's dwellings and hotels now being built by the Corporation are just ferreted with courts, and have much less air space per person than our former courts. At a low estimate the streets now demanded by our building by-laws, with the making of them, have added one shilling per week to the rent of our present cottages for the working class.

Even now our surveyor and health committee are not satisfied. They purpose placing before Parliament next session a Bill for all streets to be made before starting to build. This, if passed, will add at least another penny on to the rent of a cottage house. I hope the new edition of the building by-laws about to be published by the building surveyor will not be used solely in the future by the Corporation themselves as builders, or the ratepayers may have cause to inquire into greatly increased rates. Builders are unanimous in thinking that all new by-laws relating to improved and up-to-date methods of draining are absolutely necessary, but most of the others are beyond all reason.

TALLA WATERWORKS.

THE works committee of Edinburgh and District Water Trust held a special meeting for the purpose of having an interview with Mr. Hill, consulting engineer, Manchester, in regard to the state of the Talla works, of which he has just completed a special examination at the request of the trustees. Asked as to the delay which had taken place, Mr. Hill said that speaking generally it was due to the extended length of the trenches and the difficulty of getting a good solid bottom. That had now been secured, and nothing could be better. The clay puddling had been delayed until the excavations had been

thoroughly made. As showing that difficulties of this kind were not uncommon, Mr. Hill mentioned that in connection with the Glasgow waterworks it was necessary to go over 200 feet deep to secure good sound bottom. There was no way of doing work of this kind except to reach solid foundation, no matter how much delay might be caused. To stop the leakage in the roof of the tunnel at the Talla, he proposed to extend the puddle trench over the top of the tunnel, so as to cut off the reservoir from the outside. In Mr. Hill's view the packing of the tunnel had been defective, but as he would be arbiter in any question which might arise, he declined in the meantime to give any expression of opinion as to who was responsible. For the same reason he declined to allocate responsibility for the partial collapse of the tunnel near Penicuik. No doubt it would have been better to have had the inverts into that tunnel. Unless exceptional circumstances arose he thought the works should be completed in from two to three years. The getting of men was the great difficulty, and even if the wages were raised the relief would be only temporary, because a similar rise would take place over the whole country, and matters would again be where they started. As a rule he never pressed contractors for three or four months during the winter, as the work could make little or no progress during that time. Mr. Hill was asked if he could give any reason why the filter-tanks at Fairmilehead were to cost 200,000*l.*, exclusive of land, whereas the Alnwickhill tanks, which had the same capacity of 9,000,000 gallons a day, and were admitted to be the best in the country, cost 57,000*l.*, including land, at a time (1878) when labour and materials differed little in price from the rates now current. Mr. Hill agreed to submit in writing a detailed report on that subject, and also on the proposed augmentation of the present supply by making certain connections from one reservoir to another.

IRISH RAILWAYS.

A PAPER was read by Mr. Joseph Tatlow at the last meeting of the Institution of Civil Engineers of Ireland on the "Progress of Irish Railways." He said that the community at large knew but little of the steady and substantial progress which, despite a diminishing population, had been made by the Irish railways during the last ten years. The railway returns of the Board of Trade and the census tables disclosed facts which were interesting and instructive, and he proposed to examine

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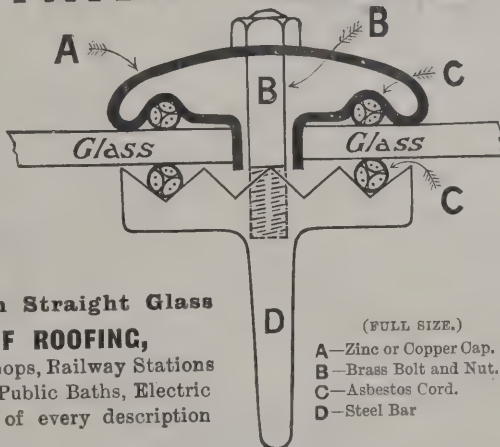
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their impartial statistics and to show not only the positive progress of the Irish railways during the decade, but also their relative progress as compared with the railways of England and Scotland. Population affected all statistics relating to commercial undertakings, and he would draw attention to the striking fact that whilst the population of England had increased by 9·13 per cent., and of Scotland by 4·69 per cent., the population of Ireland decreased by 4·29 per cent. during the period under review. This decreased population meant much more than the mere probability of a relatively less number of railway passengers in Ireland than in the sister countries. It meant that in Ireland thousands had annually left their native land because their native land was poor, because it could not furnish them with the means of support, whereas England and Scotland were rich, and their prosperity was so great that an ever-growing population lived upon their resources under conditions of yearly increasing comfort. In 1890 the paid-up capital of Irish railways was, in round figures, 37,298,000*l.* This in the year 1900 had risen to 39,369,000*l.*, being an increase of over 5½ per cent. In England during the same period railway capital had increased by 18 per cent., and in Scotland by 22 per cent. In the case of Ireland the figures do not represent the whole of the capital expenditure on Irish railways, as during the period free grants were made by the Government towards the construction of railways for opening up poor districts, amounting to about 1,500,000*l.* If this sum is included the increase in the capital of the Irish railways amounts to nearly 10 per cent. What these railways have accomplished for the trade of the fisherman is evident when it is said that in the year 1890, before any of them were constructed (the Act for their construction being passed in 1889), the total quantity of fish traffic railway borne in Ireland was under 8,000 tons, whereas in the year 1900 it had increased to close upon 16,000 tons, an addition of 100 per cent. The amount of additional rolling stock which has been provided in Ireland during the decade, and in the face of a continually diminishing population, was remarkable. During that period 118 engines, 541 passenger carriages and 3,862 waggons have been added to the working stock of the companies. These, at a moderate estimate, would cost more than a million pounds sterling, which has been expended for the better-carrying on of the railway business of the country. In 1890 the number of train miles run in Ireland were 13,600,000, and in 1900, 17,300,000, being an increase of 27 per cent. It would naturally be expected that England and Scotland would

show much higher figures, but in England the increase only amounted to 28 per cent., and in Scotland to 30 per cent. The number of passengers carried in Ireland in the year 1890 was 21,400,000; in 1900, 27,600,000—an increase of about six and a quarter millions, or 29 per cent. For the conveyance of these passengers the money received by the companies increased by 19 per cent., the average amount paid per passenger having fallen from 1*s.* 3*d.* in 1890 to 1*s.* 1½*d.* in 1900. Another item of railway business which is satisfactorily increasing is the periodical or season ticket traffic. Since the opening of the decade the increase in the number of these tickets has been 40 per cent. in Ireland, as against 38 per cent. in England and 49 per cent. in Scotland. In Ireland the increase in goods traffic is close on 20 per cent., compared with 27 per cent. in England and 35 per cent. in Scotland. In goods traffic is included minerals, the chief item of which is, of course, coal. With regard, however, to live stock traffic, Ireland is far ahead, the comparison of receipts being for England a decrease of 0·32 per cent., Scotland an increase of 7·47 per cent. and Ireland an increase of 16·96 per cent. during the decade. In the year 1890 the Irish railway receipts from live stock traffic were 263,000*l.* In 1900 they reached 307,000*l.*, the increase being 44,000*l.* Comparing the total railway traffic receipts per head of population, the figures show an increase of 27 per cent. in Ireland, 30 per cent. in Scotland and 20 per cent. in England, so that the total railway traffic of Ireland has per inhabitant developed at a much greater ratio than that of England. Net railway receipts have increased in Ireland by 12 per cent., as against 7 per cent. in England and 23 per cent. in Scotland. The net revenue sufficed to give a return upon the paid-up capital in the case of the Irish railways at the rate of 3*l.* 17*s.* 10*d.* per cent., of the Scotch railways at the rate of 4*l.* 2*s.* 2*d.* per cent., and of the English railways at the rate of 4*l.* 0*s.* 5*d.* per cent. Shareholders of the Irish railways have, therefore, to be content with smaller profits than holders of English and Scotch railway stocks, and no one can regard an average of 3*l.* 17*s.* 10*d.* per centum as an unreasonable return to those who furnished the funds for the construction of the Irish railways. The record of the last decade of the railways of Ireland is distinguished by enterprise, improvement and progress. In conclusion Mr. Tatlow expressed a hope that the Irish railways would recover their elasticity, and that the present decade would end more brightly than it had begun.



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THE WEEK.

WHEN the London Building Act was passed in 1894 it was not anticipated that the Metropolis was afterwards to be divided into several boroughs. The London Government Act of 1899, in granting to the boroughs certain privileges, enacted that in case doubts should arise as to whether any power, duty or liability was or was not transferred by the County Council, the decision was to be left to the High Court. The application which was made on behalf of the City of Westminster on Monday in respect of the right to examine and license any temporary wooden structures which will be erected within the boundaries of Westminster for spectators of the Procession in June was one of those doubts. As our readers are aware, Part VII. of the Building Act relates to special and temporary buildings and wooden structures. By section 82 application is to be made to the County Council for approval of any structure which it is proposed to erect, and the Council have the right to make regulations on the subject. By section 83 the control of the structures is left with the County Council, and by section 84 no wooden structure is to be erected, except hoardings enclosing vacant land, without license having first been obtained. Now the question at issue was, whether the County Council was deprived of that power by the London Government Act or still retained it. Simple as the issue may appear, it is not one with which a court would care to deal. The Court of King's Bench Division, consisting of the Lord Chief Justice, Mr. Justice DARLING and Mr. Justice CHANNELL, therefore avoided entering into a consideration of all the collateral issues which belonged to such a case. The court was content to say that section 84 seemed to give control over wooden structures, and the powers under section 84 had been transferred to the City of Westminster. The manner of treating the subject is enough to suggest that many other questions are likely to arise relating to building which will have to be painfully determined in the High Court.

THE sites and buildings committee of the Birmingham School Board have recommended that three months' notice be given to Messrs. MARTIN & MARTIN, architects and surveyors, to terminate their engagement. All work which they have now in hand for the Board is to be completed by them on the existing terms. The Board will advertise for an architect to be the architect to the Board for new works, at a rate of remuneration of 7s. 6d. per scholar of accommodation, plus 1½ per cent. for taking out and furnishing quantities, the engagement to be for three years, with a clause for determining the same at three months' notice on either side at any time; the Board will advertise for a land surveyor at a commission of ¾ per cent. on the purchase money, and the Board will also advertise for a superintendent of buildings for alterations and repairs, at a salary of 250l. per annum, to devote all his time to the duties and to work in the Board's offices, all necessary office furniture, stationery, &c., being provided by the Board. The proposals show a desire for again experimenting with the architectural work of the School Board. Birmingham is unique in that way. Originally Messrs. MARTIN & CHAMBERLAIN obtained all the commissions. Then for a short period the competition system was tried. Next Messrs. MARTIN & MARTIN were selected to build any additional schools required, and now there is to be a Board's architect who will not be paid a fixed salary. We do not suppose the new arrangement will be final, and there may yet be novel methods introduced for obtaining plans.

THE perversity of the London County Council in supporting the Works Department at all costs was once more exemplified on Tuesday. The report of the finance committee demonstrated that the losses of the department amounted to 78,000l., and there are some people who believe that a still larger sum would be more exact. Yet in spite of the appalling figures it was decided by a majority of 56 votes that the lodging-house which it is proposed to erect in Deptford in imitation of the Rowton Houses is to

be carried out by the Works Department. The building is estimated to cost 51,500l. In the course of the long discussion there was not one argument brought forward to prove that a better and cheaper lodging house will be obtained under departmental influence than is possible with an ordinary contractor. If the County Council would frankly admit that their aim is not economy but the rewarding of a numerous class of voters, then their position would be understood. It may be right to expend public money in that way, but what we must protest against is the subsidising of a class and calling it economy.

THE same plans can be used sometimes for more than one building, but it is not always wise to inform clients of the circumstance. Mr. BARRETT, an architect in Bognor, has failed in an action brought for the recovery of his fees through announcing that the plans prepared for the defendant could be used elsewhere. The defendant intended to erect a house on the Highfield estate, near Bognor. Plans and specifications were prepared and tenders were received in August 1899. No tender was accepted. In March 1900 the plaintiff joined the Imperial Yeomanry and went out to South Africa, but before departure he informed defendant that a qualified architect was to look after Mr. BARRETT's business. The plans were returned to plaintiff, as he said they were to be used in connection with other work. On Mr. BARRETT's return to England he found that the defendant had purchased a house instead of erecting one, and he therefore applied for 23l. 13s. 6d., the fees for preparing plans and specifications. Not receiving the amount, it was necessary to bring the case into the county court. Defendant contended that he could not proceed with the work, as there were no plans, and he was not informed about the representative of Mr. BARRETT, who by joining the Army had abandoned the commission. It was not stated that any inquiry had been made about the representative. Moreover, it could easily have been shown that plans are not always left with the client. The Judge, however, accepted the defendant's view, and decided for him, with costs. The judgment is not encouraging to architects who are ambitious to serve their country in an emergency.

THE judgment of the Irish King's Bench Division in the case of the King (CODDINGTON) v. the Local Government Board has an interest that is more than local. The question involved was whether a Government Board and a Rural District Council could compulsorily acquire land without first endeavouring to satisfy owners and tenants. Instead of the three acres which is the normal area in England, half-acre plots were acquired in Ireland as sufficient land to be attached to labourers' cottages. Afterwards it was proposed to add another half-acre to each plot, and this was done without adopting the usual means of agreement or exchange. Colonel CODDINGTON, who is a large ratepayer in the district in question, sought to obtain a prohibition of so summary a process, but the Court decided that "authority to purchase" included compulsory purchase. The prosecutor therefore failed to establish his case, and will have to pay costs. We hope this arbitrary precedent will never be followed in England, where the Lands Clauses Acts are rarely put into operation until public authorities or railway companies have failed to come to an agreement with owners and occupiers of lands and houses.

THE German explorers in Babylon have made an unusually interesting discovery. Inscribed tablets of clay are common enough, and examples of them are to be found in the principal museums of Europe. But in the excavations at Nischan-el-aswad 400 tablets have been discovered, many of which are of a novel character. Several may be considered as of the belles-lettres class. They were evidently used for teaching, and therefore may be regarded as presenting examples of the Classic literature of Babylon. Some served as a dictionary, and on that account will be interesting to philologists. There is also a hymn which was chanted during the processions in honour of the god MARDIK, whose temple has been brought to light by the German explorers. In another part of the same district the Temple of Adar or Ninev, the protector of physicians, has been discovered.

PROGRESS OF THE GEOLOGICAL SURVEY.

A REPORT on the geology of Great Britain should give rise to thankfulness that our country, although limited in area, is so marvellous an epitome of the world. In its formations it is truly representative of the great globe itself. There may be rocks which are found on a great scale in other countries, and which are visible here in only insignificant quantities, but it would hardly be an advantage for us if we had no more than the exact proportion of every one of them that would correspond with the magnitude of our two islands. Who, for instance, would sacrifice the coal formation for the more picturesque dolomites? It is only, however, by degrees that we are discovering the extent of our geological riches. The difference between the homogeneous and the heterogeneous of the evolutionist could be amply illustrated by a consideration of the history of geological study in Great Britain. At first the divisions were few, but as time went on there were subdivisions, until now, when it would be risky to describe any group as more than a temporary approximation. The change is owing to the immense interest which has always attended the study of geology, and the number of workers who have been ready to come forward in order to examine rocks under all circumstances. But the credit for the present position of the science must mainly be ascribed to the staff of the Geological Survey. Sir ARCHIBALD GEIKIE has retired from the service after spending upwards of forty-five years on the work, and if he should ever write his memoirs he will be able to place on record the great change which has taken place in our knowledge of the surface of Great Britain and Ireland. But he will also have to declare that there was no alteration in the spirit of the staff who were so loyal to him, for now, as at first, every surveyor would be willing to join in BEETE JUKES's old song:—

Free o'er the hills our feet shall roam,
We'll breathe the mountain air, sir;
Care shall not ever dare to come,
Nor grief pursue us there, sir.
Joyous in nature's wildest scene,
Where rocks lie topsy-turvey,
And falling waters flash between,
We'll prosecute the survey.
O the survey, the geological survey,
Health and good-humour shall be queen
Of the geological survey!

A joyous spirit is indispensable, for every geological surveyor has to accept the consequences of working under variable climatic conditions. In the last report we learn how the able Mr. BARROW had to retire from field-work after a period of three weeks, that Mr. EGAN died from complications arising from an accident in Ireland, and that Mr. NOLAN has become incapacitated for hill-climbing owing to rheumatism. But in spite of those drawbacks the staff which is now under the direction of Mr. J. J. H. TEALE has been able to perform excellent service. The demands for information on geological subjects have moreover increased at the offices in London, Edinburgh and Dublin. Advice or assistance has been given about building-stones, limestone, coal, sand for glass-making, mining, water-supply, well-sinking, soils, sites for houses, &c. But science demands more than these subjects suggest.

There was a time when the oldest formations were said to be Cambrian and Silurian. It was not always easy to distinguish between them, and many a fierce battle was fought by the followers of MURCHISON and SEDGWICK over the subject. It is now found that the Cambrian is no longer the primitive formation of "the planet's dawning years," for below it there are bedded rocks which the Survey calls pre-Cambrian, but others Ezoic. These ancient rocks have been examined mainly in Scotland, particularly in Ross-shire, where nature was at one time in fierce commotion. At Inchbaye the formation has been intruded upon by porphyritic granite, which appears "to have produced a certain amount of contact alteration in the schists, though this early metamorphism is now masked in part by the structures that have been induced both in granite and schist by the pressure to which they have been alike subjected, and to which in great part, if not wholly, their present crystalline condition is due."

There is evidence of much volcanic action, and minerals which were the results are found in extraordinary quanti-

ties. Thus, in one locality there are exposures several square yards in extent which consist almost entirely of garnet and kyanite, or of garnet and green micaceous scales, in nearly equal proportions. Some garnets are no larger than small shot. It might be supposed that the rocks are all igneous, but signs of bedding are to be discerned, although the indications are only observed in the variations of mica or other minerals. It is also evident that some of the dyke intrusions are of the tertiary age, and therefore comparatively modern to a geologist. It seems incredible that in so remarkable a district there is not more mineral wealth which can be turned to account. Lead ore, it appears, was at one time worked, but owing to the difficulty of carriage the mines had to be abandoned. In another place there was a thin vein of plumbago, from which in 1818 five tons were extracted, of a value of 460*l*.

Later in date is a formation which has been called Dalradian, also in the Highlands, and which manifestly was subjected to terrible convulsions in some remote age. The famous Glen Tilt, a place which at one time aroused general interest from the fact that strangers were prohibited from entering it, is one of the best localities for a study of the phenomena. What is known as contact metamorphism is often exemplified by the tremendous pressure of the underlying granite forcing its way upwards. Limestone bands have been converted into green calcsilicates, while the accompanying black schists pass into cordierite-hornfels, in which the characteristic puckering of these schists can still be detected. The sedimentary rocks are even much impregnated with granitic material. Examples are also seen where the granitic intrusions could not fuse the earlier rock.

The amount of information respecting the Dalradian rocks is surprising, and the observations in the field gain precision by the microscopic examinations to which specimens are subjected. From the descriptions it would be easy to imagine that chaos had come again and that no signs of order were visible. But it has been found that in the area between Glen Salsach and Loch Creran there is an amount of repetition which similar lithological types present. Black or dark slaty schists and quartzose seams are alternately repeated in narrow zones or bands over several miles of ground, in a manner that would completely baffle any attempt at separating the kinds of rock on the map. We have, in fact, says Mr. KYNASTON, a banded series, consisting of repeatedly alternating zones of siliceous and argillaceous material.

The Silurian formation is considered as it appears in Ireland. Many disputes have arisen about the exact position which the rocks should hold in the geological scale. On maps the boundary tracts do not correspond. In 1853 we find JUKES writing:—"A day or two's work in Kildare lately nearly convinces me too of a large Cambrian tract there also, hitherto mapped as Silurian. If not Cambrian it is the very uttermost base of the bottom of the Silurian, or somewhere below that." The early formations in Ireland have been intruded upon by igneous rocks. From Sir A. GEIKIE's experience in the North of Scotland he is able to judge of the characteristics of the invading masses. He has come to the conclusion that the representations of them on the maps will require to be modified. The intrusive masses in Ireland occupy a larger area, and the lavas and tuffs a smaller area than those engraved. But as the revision would occupy several years in the field and the laboratory it is left to futurity. When the time arrives other views may prevail, and meanwhile whatever may be marked Upper or Lower Cambrian or Silurian on a map should be received with caution.

The Devonian formation is another puzzle, and much attention has been given, according to the last report, to what is seen in Cornwall. Some geologists have held that Devonian should not be allowed a separate existence, but treated as synchronous with carboniferous limestone. Mr. HILL, who has examined a large area, found nothing resembling a limestone, and there was an apparent absence of organic remains. He has come to the remarkable conclusion that in some places after the cleavage of the slate beds, but before the cessation of the stresses, mica traps have been intruded, and have altered the character of the beds which came in contact with them. In the old red sandstone the disturbances have also been traced with great

care, in Scotland especially. In one place alteration in the character of the rocks could be seen at a distance of more than a quarter of a mile from the intruding granite.

In the carboniferous area there has been some resurveying. Through Sir A. GEIKIE'S inspiration metamorphic changes have received unusual attention. It has been demonstrated that the succession of strata in Denbighshire and North Staffordshire is nearly identical, and it is concluded that the marls which have been employed extensively near Ruabon and Wrexham for bricks and drain-pipes can also be found in Staffordshire. Mr. GIBSON, one of the surveyors, has ascertained that the marls at Old Hill, used in the manufacture of the famous South Staffordshire blue bricks, are identical in lithological character with the Etruria and Ruabon marls. We may therefore expect to find Messrs. EDWARDS & Co. producing an additional variety of materials for the use of builders. It suggests the latest theory about age in geology when we see that Cornwall granite is introduced in the part of the report which deals with carboniferous rocks. It is, however, worth noting that in the Cornish area there is an almost uniform direction of joint planes, and that the grain of the granite corresponds with the position of the joints. It is believed that the granite is less ancient than the culm, which is probably related to carboniferous rocks.

So many inquiries have been raised about water-bearing formations, care has been taken to investigate the chalk district in the South of England. It is mentioned that slight undulations, such as were overlooked in this homogeneous rock before the divisions were mapped, are now known to form underground water-partings, by raising the hidden impervious beds below; these shed the water in opposite directions and isolate catchment areas formerly thought to be continuous. A thorough knowledge of the limits of these catchment areas is a necessary preliminary to the allotment of the different basins to different towns or districts. Memoirs are in preparation in which the subject will be treated. Meanwhile it is well to know that the raised bands of sand found in some parts of Sussex are the main source of water-supply in the Weald clay district. The water-supply derived from wells in the sands is often tainted with mineral matter in solution, and is usually only sufficient in quantity for household supply, but is important in a district where no other safe source is available. We need not follow the progress of the Survey through more recent formations.

It will be evident to all who consider the subject that the Geological Survey is conducted without any decline in energy or in scientific spirit. The work is, of course, fascinating, and from the circumstance that various theories can be applied in examining strata, an intellectual contest is always going on. DE LA BECHE, LYELL, MURCHISON, RAMSAY, PRESTWICH would acknowledge that the province of the Survey has extended, because, unless it did so, it would be unworthy of the science. Those who consider the duty of surveyors is the preparation of a general map should learn how many important problems cannot be represented on a small scale map. It is by the combination of memoirs, sections and plans, as well as general maps, that the value of the work can be estimated, and on those witnesses the geological surveyors of Great Britain can rely in all appeals to the public.

THE CATHEDRAL OF TOURS.

IN his short story, "Le Curé de Tours," BALZAC was evidently desirous to express the contrast which must exist between an ancient cathedral and one of its ordinary servitors. The church of St. Gatiens is not the most admired architectural work of its class in France; indeed, it must be allowed that as an example of Gothic it has some shortcomings. It possesses a peculiar historical interest, for it gave occasion to a contest between Frenchmen and Englishmen which, if restricted in results and short in duration, was none the less bitter. We may even say without exaggeration that the foundations of Tours Cathedral were laid in blood. A genius like BALZAC could hardly fail, when he thought of the commotions out of which the building arose, to compare them with the petty

troubles and annoyances which made the latter days of one of the priests of the cathedral a torment to himself as well as to others. It was characteristic also of the novelist that over so simple an affair as a curé's furniture politicians should be described as coming into collision. Very few instances can be found in which imagination has so ably combined the colossal and the insignificant in order to invent a tale which could charm a reader for an hour.

It is generally allowed that in old times a French cathedral was only the largest and loftiest part of a series of buildings that seemed to nestle round it for protection. BALZAC supposes that near the cloister at Tours there were several buildings, one of which still remained, and which was traversed by some of the flying buttresses. It originally belonged to the chapter, and during the Revolution had been seized as national property. But somehow a M. GAMARD was able to acquire the old mansion, and he bequeathed it to his daughter, one of those ancient maidens who were so often introduced by BALZAC. As her tenants were priests, the Government at the time of the Restoration did not interfere with her property. One of the apartments remained almost unchanged from its original condition. It was carved and adorned for the reception of one of the dignitaries. When some ancient furniture was placed in it, it seemed a desirable residence for an ecclesiastic. A canon who occupied it was able to fill it with a bookcase, chairs and tables that were suitable, and when he died he left it to his friend the Abbé BIROTTEAU, whose fate through the possession of so much wealth is narrated in the story. Having well furnished rooms, he became discontented with his position as a curé, and desired to attain a canonry in order to be in keeping with the goods around him. Unfortunately he was too simple a man to engage in the diplomacy necessary for success. Eventually he lost his property, and died of the disappointment.

If stones could speak, those of the cathedral of Tours might well utter a satirical discourse over the littleness of men, and especially of ecclesiastics who were ambitious to attain a higher rank in order that they might stand well before their contemporaries. The building has had a history in which the principal actors were men whose character was entirely unlike that of the weak Abbé BIROTTEAU. With Tours is associated the later years of the Roman soldier MARTIN, who divided his cloak with a beggar, an incident which generations of artists have endeavoured to make immortal. The city was also connected with GREGORY, the historian and bishop, to whom we are indebted for all the knowledge we have of the Merovingian kings. The patron whose name is now attached to the cathedral is St. GATIEN or GRATIEN, one of the early missionaries who was subsequently compelled to fly for refuge to Marmoutier, where with his own hands he is said to have excavated a grotto to live in. Afterwards one of the wealthiest of the French abbeys was erected at the spot. The first cathedral or basilica was not, however, placed under his patronage, but under that of St. MAURICE, who was martyred with some companions. The building was destroyed by fire in A.D. 559. A second cathedral was consecrated in A.D. 590 and endured until A.D. 1166. Its destruction was owing to a remarkable event.

Our HENRY II. exercised sovereignty over nearly one-half of France. There was war between him and the French king, but in 1162 a temporary peace was concluded through the intervention of the POPE. Four years afterwards both monarchs were believed to be required in Palestine, but through mutual jealousy they were afraid to depart. An agreement was made that under the circumstances both France and England should contribute towards the expenses of the Crusade. The money was to be deposited in the cathedral of St. Maurice. At the time JOSCEON was archbishop of Tours, and he claimed the right to distribute all the offerings which were received in his cathedral, and to send them to Palestine by his own agents. HENRY II. would not allow of that arrangement, while LOUIS VII. approved of it. Contests took place between the troops of the two kings, Tours was set on fire, and in the conflagration the cathedral was destroyed. Only a small part of the ancient building can now be traced.

With the aid of some of the gold which had been found in the ruins of the cathedral JOSCEON resolved to erect

a new church on a grander scale. Money which had been given for the recovery of the holy places was therefore utilised for the rebuilding of a French church. According to the ethics of that time, there was no injustice in the application of the gifts to a purpose which was not contemplated by the donors. The money was intended to further the interests of the Church, which was one institution, and it was thought to be lawful to apply it at the discretion of the prelates. The first stone was laid in 1170, and the people of that age could have made no objection to the appropriation of the funds, for it is related that the construction was at first carried on with extraordinary ardour. Then followed a reaction, for the work was so slowly conducted it gave rise to a proverb or pithy saying which was applicable whenever an undertaking was a long time in hands, *C'est interminable, c'est l'œuvre de Saint-Maurice*. The building was not finished in the course of four centuries. Like its predecessors it was dedicated to St. MAURICE, but in course of time the name of St. GATIEN was substituted by popular usage rather than by official authority.

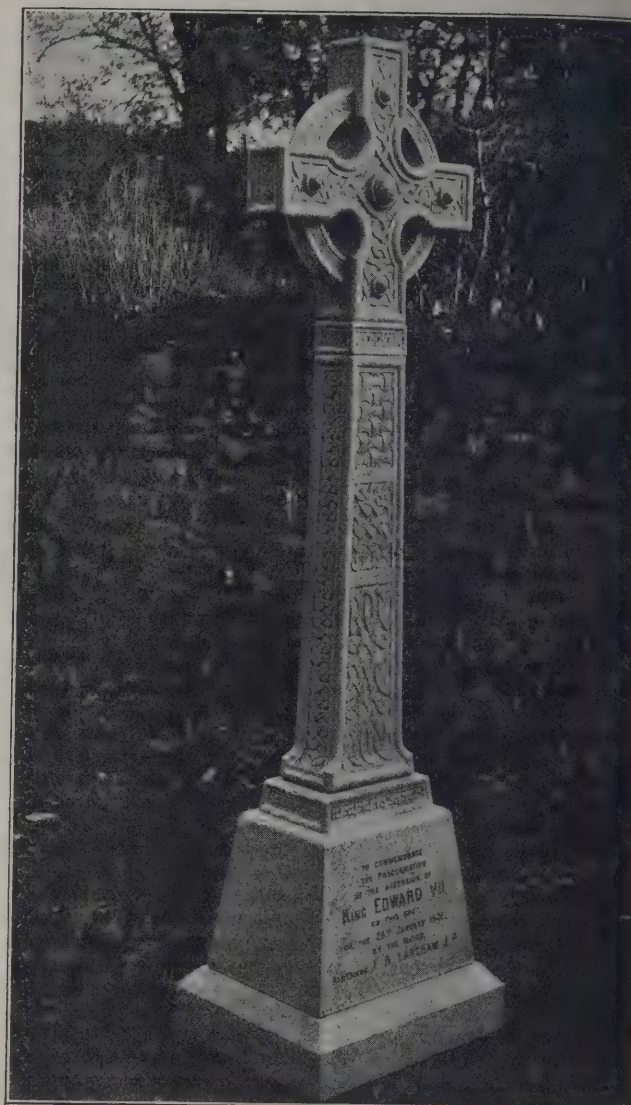
There is less known about the architects of the cathedral of Tours than of many others in France. Tradition has not preserved a name of one of them. The building possesses remarkable unity, and it is therefore reasonable to conclude that whenever works were in operation some original plan continued to be respected. The choir and its fifteen chapels are assumed to belong to the thirteenth century. A belfry was erected at the crossing of the nave and transepts in 1377; it was constructed of timber and destroyed by lightning in 1425. A year afterwards the completion of the two towers was undertaken, and during the fifteenth century unusual activity was seen in the works of the building. The cloister of the Psalterie, which will always be connected with BALZAC's story, was erected about that time.

As the two towers are crowned with cupola terminations that were built in the Renaissance period a great many visitors on seeing them allow a prejudice to arise against the cathedral as an example of Gothic. It is, however, a typical instance of the lightest type of French Gothic. The front appears confined in breadth, and there is, perhaps, too much blind arcading and panelling, but although Tours Cathedral may not be so impressive in grave majesty as some of the more northern buildings, it has a charm of its own which is not quickly forgotten. If we remember that a great part of the work belongs to the fifteenth century the character of the details becomes more remarkable. Loyalty to early Gothic is manifest. The builders had no fear of any clashing of coloured light with their masonry, and the stained-glass windows still enhance the interest of the architecture. There are some critics who maintain that the choir is not surpassed in France for beauty. As there is a deviation from the axis in the choir it has been assumed to be an intentional effect, and is symbolic. Although the buildings were not entirely saved from vandalism, the effects are not so visible in Tours as in other cathedrals. The majority of the niches are deprived of their figures, and in consequence the charm of sculpture is not apparent, but as a compensation the sculptured masses which were favoured in Renaissance times, and which marred so many Gothic buildings, cannot disturb the visitor's equanimity. The impression made on the mind is derived from Gothic forms alone, and it must be owned is satisfactory. In no building is the soaring principle of Gothic more manifest than in the cathedral, and especially in the nave. It might be presumed that, in order to increase the effect, the central division was kept rather narrow. All the ornament is delicate in design, and was executed with finesse.

There is much else remaining in Tours which will gratify the lover of antiquity. The ruins of the towers of the abbey of St. Martin recall an institution which rivalled Cluny or St. Gaul as a centre of civilisation. The church exceeded the cathedral in size, for the latter is only about 300 feet in length, and in wealth must have also surpassed it. The abbey suffered at the hands of the Huguenots, and was one of the buildings swept away in the Revolution. There are other churches and some old houses which will enable the visitor to create a picture of Mediæval Tours when it was visited by pilgrims from all parts of Europe.

COMMEMORATIVE CELTIC CROSS.

THE cross we illustrate has been made by the Irish Marble Company, Kilkenny Mills, to the order of Mr. H. C. RICHARDS, K.C., M.P., and is being presented by him to the town of Hastings. It is intended to occupy the position of the old market cross in that town, and to



commemorate the proclamation there of the accession of King EDWARD VII. by the mayor, Alderman F. A. LANGHAM, J.P., on January 26, 1901. The material is Kilkenny grey marble from the Marble Company's quarries, and it is to be erected on a base of local stone, the entire being 14 feet high.

HAMMERED IRONWORK.*

IN the few remarks which I shall address to you on the subject of "Hammered Ironwork," I have borne in mind that I am speaking to those who may have themselves acquired some knowledge not only of the history of art metalwork, but possibly of the practical work of the craftsman, therefore I do not propose to go at great length into the one or the other, but rather lay before you what knowledge I have myself acquired on the subject, with a view that in the discussion which I hope may follow we may be mutually benefited by the interchange of ideas and experiences arising out of our use of hammered ironwork in its various forms.

In touching on this subject I must ask your indulgence if I go over ground which may be more or less familiar to you, and you will certainly require more patience to listen to my explanatory remarks than you will to follow my friend Mr. Ashford's demonstrations, as he will be able to illustrate with a few strokes of his pencil what art metalwork is or ought to be, in a manner which I cannot hope to do in words.

Whenever I watch an art-smith at work I am reminded of the old northern legend of Wieland the smith, who was seized

* A paper read before the Society of Architects on December 19 by Mr. W. Höfler, with demonstrations by Mr. Ashford.

by King Envy and made to forge arms and armour by means of which the king might extend his realm, and as the smith must work unfettered and yet not be able to escape, the tendons of his feet were cut, but the spirit of liberty was so strong within him that necessity taught him how to forge wings for himself, by which means he escaped and took vengeance on his captor.

It seems to me as if every art-smith had imbibed some of Wieland's feelings, and the peculiar poetry in ironwork is no doubt arising from the fact that the worker must, so to say, fight against the stubborn resistance of the material which he has to get under control in order to accomplish his task. It is this supposition, this contrast which exists between the finished work and the violence of the strokes of the hammer by means of which these graceful forms have been produced which give the work its charm. It seems as if the iron were at last to obey with pleasure to the hand which knows how to render it pliable and supple. But it is not sufficient to strike hard to make iron say tender things; it is necessary to strike justly, to act quickly without hesitation, to improvise on the anvil, now with formidable violence, then with caresses. That is why the clever smith almost loves the iron, and it must have been one of these enthusiastic iron-lovers who, in the pride of his craft, said, "If Ceres gave bread to the Cyclops it is only because they had forged her the plough."

The well-known truth that nothing really worth having is ever obtained without difficulties applies with special force to the smith's craft. The more difficult his work the more the clever smith likes it, and the more of his individuality he puts into it. If the works of art in iron of the eleventh to the eighteenth centuries inspire us with so much admiration, it is partly on account of the strong individuality due to the difficulties originating from the very clumsiness and imperfection of the tools which the artists of that period had at their disposal. Just think that when the worker of these past ages wanted a nail he had to forge it himself, and that he had to take a rough bar of iron to produce not only his piece of art metalwork, but often also the very tools with which to do the work.

How often have their patience and their passionate taste been sorely tried by all these material difficulties which might have caused the less audacious to fail in their attempts. All these drawbacks have disappeared in our days. The raw material undergoes transformation which science pursues without interruption. Mechanical tools prepare or finish that which, as I just said, the worker of bygone days had to create himself. Bar-iron, sheet-iron, the various kinds of steel, nails, screws, &c., all are manufactured with a view to the most economical application. I am, of course, far from condemning progress which brings us so many advantages and benefits; but I cannot help saying, and I am sure I am neither too severe nor unjust in saying it, that it is decidedly detrimental to art metalwork in general. It has caused the number of real art metalworkers to diminish sensibly, and the art of the forge is seriously cultivated only by a few amongst them.

For the art-smith's work is indeed a complex and difficult art. It requires of him who practises it a great knowledge of design and decoration, and a special experience which can only be gained in the course of many years. And the artist who has rediscovered the art of the ancients keeps it with jealous care. However, a new era seems now to dawn. The architects in particular, and all men of taste who fully understand the artistic resources of the craft which occupies us, endeavour to allot an increasingly large place to ornamental ironwork in interior and exterior decoration.

I think there is a noble mission to fulfil. On the one hand, to strengthen and support the actual movement in favour of the employment of art metalwork by demonstrating its vast possibilities for rich ornamentation and its numerous applications; on the other hand, to help its renovation and its extension by a short survey of the principal elements of knowledge which are necessary to a good art-smith.

As the native of a country (Austria) where there are so many useful State-aided institutions, I cannot help thinking that in England, too, much good might be done by imitating the example, for instance, of Belgium, where the famous railings in the Place des Sablons, at Brussels, have been ordered by the State, the same being the case with the chancel rails in the Votive Church, Vienna.

It is certain that no smith can be called a good one unless he possesses that artistic intuition, that natural talent with which every art worker ought to be endowed. The boldness, the finish and the beauty of his work are based to a great extent on that inborn skill, that natural cleverness which experience alone, even combined with continuous practice, cannot give to those who do not possess it.

As, however, many great men have held that genius is after all nothing else but the power of steady application to the one object which they had determined to master, much can be done by closely studying the various elements which combine to make up the science of art metalwork. They are the

following:—Designing, knowledge of material and tools, practical skill in the various branches of the smith's work, which are forging, welding, embossing, mounting and finishing.

In speaking of design I do not intend to dwell on the subject of the history of art metalwork, as this would bring me to the almost inexhaustible subject of styles and periods, which has been treated by infinitely more competent speakers and writers than I am. I will only say that the main object in designing wrought ironwork is to obtain a pleasing original effect by means of graceful lines and curves, coupled without practical knowledge of construction, which tends to produce an artistic object with superfluous expenditure. And you will, I hope, agree with me when I say that hardly any other material lends itself so well to absolute freedom of treatment in the interpretation of elegant and yet simple ideas. Even in England, which undoubtedly has taken the lead in sound ideas on artistic taste, the time is not long past when such toy things as imitation roses, spider webs, lizards and many other naturalistic copies in iron found great favour with the so-called "art-loving" public. The much-abused "art nouveau," the "modern style," may have on its conscience a great deal that is unpalatable to the truly æsthetic, but surely it has the invaluable merit of having given the death-blow to all those weak and childish productions. The nineteenth century, with its astounding display of energy, is surely none the less to be respected from an artistic point of view for having endeavoured to endow the future with an art which answers our reformed tastes and requirements, and the origin of this surprisingly sudden movement seems to be found in the complete transformation of the whole machinery of production. The development of mechanical science during the past century has forced us to create certain objects, the want of which had not made itself felt before. But just as in no previous centuries the transformation to entirely new art principles, even under the guiding influence of the greatest reformers, has been quite abrupt, so also now we find in the architecture of the most modern objects many lines which had already previously been employed and which bear witness to the everlasting and real power of all that has been created by the great artists of old. We only wish to discard the pedantic attention to superfluous ornamentation and seek beauty in rational application and treatment of the material.

In my business experience I have noticed with much pleasure that of late years the demand for the so-called "armour-bright" ironwork has greatly increased, because this is the finish which, in the measure in which it leaves visible all the special features of the various processes of hammering, welding, embossing and so forth shows the natural beauties of the material, viz. iron, to best advantage. Black iron stands next for artistic merit, but this black colour, which is obtained either through burning oil on to it or through painting it with "dull Berlin ivory black," is really, like painting iron with various colours or gilding, bronzing it, &c., a makeshift necessitated through the tendency of iron to rust when left unprotected. I have recently heard of a process whereby iron is said to be efficiently protected against rust by means of a metallic coating which in no way changes the natural grey colour of armour-bright iron, and it is sincerely to be hoped that this is not merely the delusion of a sanguine inventor's scheming brain. As regards the architect's position in the matter of designs of art metalwork, I hope you will pardon my saying that I have not found these always quite practical. Junctions are frequently shown where it is impossible for a smith to weld, which induces pinning or rivetting, neither of which are satisfactory to the conscientious smith. One of the great charms of Mediæval ironwork is the utter absence of forced treatment, and it is this which raises the controversy as to who made the designs for these works, the architect or the smith. With all the varied duties and sometimes heavy anxieties which the architect has to bear, I should say that he will very often be glad to leave the task or carrying out the design of the art metalwork in the hands of the specialist.

Let us now proceed to the next section of our programme—knowledge of material.

When you enter the smithy and you see the worker strike the piece of iron, you are put at once before the problem why the piece of iron yields which is to be worked and not the hammer which deals the blow, nor the anvil which receives the blow, all of which appear to be and, as I shall show you, actually are made of the same material. You will say this is not correct; the one is iron and the latter two are steel. Nevertheless both are composed of the same elements, and in both the proportion of these elements is almost identically the same. Steel is nothing but iron, only it contains a higher percentage of carbon. In the latter it is from about 0.05 to 0.6 per cent, in the former 0.6 to about 2.3 per cent. I call your attention to this figure 0.6, common to both, because it shows at once how gradual the transition from one material to the other is. Which, then, are the important distinguishing features between the two? Iron, such as is alone suitable for our work, is soft. It can be

hammered into all shapes, it can be flattened out, it can be swelled by the so-called process of "jumping," it can be bent at very sharp angles without breaking, and it assumes a pasty condition under the influence of great heat. This fact allows of uniting two separate pieces in such a manner that they become practically one, and this process, which is so important for our work, is called welding. When heated, no matter to what degree, and suddenly cooled off in cold water, it does not change its properties perceptibly. Steel on the other hand is hard, breaks when bent at a sharp angle, becomes brittle when heated beyond a light red colour, never assumes a pasty condition, and cannot therefore be welded. Its most remarkable property, however, shows itself when it is heated and then suddenly cooled off. In this case it becomes harder than glass and just as brittle; when still more heated it loses all cohesion, so that small pieces detach under the slightest shock. As you can see, steel in this state would be quite useless for tools, but it can be treated in such a way as to preserve a sharp edge or point even when used with great force on material as hard as iron or ordinary steel. This treatment is called tempering, and it consists in heating the steel to a certain degree which is judged by the colour it gradually assumes in the fire (from crimson to light red), and then suddenly cooling off in cold water. From this brittle condition it must be changed into a state of hardness or elasticity according to the different purposes it is to serve. This is done by slightly reheating the material. It would be very difficult, if not impossible, to determine when the right degree of heating is reached if nature had not provided a most wonderful phenomenon indicating this change; on a polished surface which has to be prepared for the purpose of more easily watching this phenomenon, during the process of reheating appear in succession the following colours:—Straw colour, dark yellow, light brown, dark brown, purple, dark blue, light blue, light grey. Straw colour goes hand in hand with the hardness required for sharp tools which serve for working metal, for instance, punches, chisels, drills—this stage is still rather brittle; the brown colour accompanies the hardness sufficient for sharp woodworking tools or blunt tools destined for treating metal, such as the anvil and the hammer; blue comes into consideration only for articles which must be very pliable—all springs are tempered to that degree. The remaining two colours and the whole range of colours which during further heating fly over the surface in rapid succession are of little interest as the material is approaching its original state.

Having spoken of the material of which the tools are made, I will not detain you with the detailed descriptions of those most used by the smith, but I will merely state that a conscientious smith will avoid as much as possible the aid of mechanical appliances, and confine himself to the use of the patriarchal anvil, hammer and tongs; the swage block, of which I have shown you a specimen, seems, however, to be a permissible addition to the smith's stock-in-trade.

I can now deal with the various operations to be performed by the smith. The first is forging. It is best done when the material is heated to a light red; smaller pieces are forged by one man, larger ones require one or more helpers who then strike in rhythmic succession. Through knocking the piece against the anvil or through a few light strokes of the hammer, the glowing iron is freed from scale which otherwise would be hammered into the piece. If the latter is to become hard and elastic then the forging is to be continued until the piece becomes cold, or hammer and anvil are wetted whereby a smooth surface is obtained. Pieces that have become too hard must be annealed; that is, heated to a dark red and gradually cooled down.

The welding—that is, joining of two separate pieces into one—is done when both are in a white heat. It is important that the smith should know exactly how to prepare his fire in order to heat his pieces; first in the right places, and second to the right degree of heat, because the result depends on these two primary conditions, so that when the moment of welding has arrived he presents to the anvil two pieces of iron which are of the right heat and yet perfectly sound, which means not burnt. At first sight these conditions appear simple enough, and yet more than one smith whom one might ask whether he can guarantee his welding at the first attempt, would at the critical moment, where he introduced his pieces into the fire, reply in the negative. The man is like seized with a fear of all the possible accidents; but this fear instead of diminishing his faculties, gives him, on the contrary, an energy, a dexterity, a precision in the stroke of his hammer which he would certainly not have with sang-froid. For he knows that the welding can generally not be done twice over without seriously compromising the result, may be, of days of difficult and always conscientious work. All these emotions through which he has to pass cause him to become passionate for his craft and to talk of it with pride. The points which the experienced worker will observe in order to prevent failure are the right size and intensity of the fire, which are best regulated by having a sufficient quantity of so-called "breeze" (breeze

is coke from which less gas has been extracted than from ordinary coke, and it is washed three times in order to remove all dust and earthy substance which would cling to the iron and thus spoil the work) handy wherewith to replenish the fire, making it more intense than ordinary coal and allowing the iron to be evenly heated right through without burning it; then he will take care to prevent the blast or draught coming into direct contact with the pieces to be welded, as this would paralyse the action of the fire; he will turn round his iron often enough to protect it from being burnt, and each time he turns it he will sprinkle it with a little sand, which protects the outside of the piece from burning and helps the piece getting evenly heated.

The stretching is synonymous with the lengthening or widening of the piece of iron to be treated. The strokes with the thin end of the hammer are more efficient than those with the broad end.

The jumping is the opposite process and produces a shortening and thickening of the piece. It is done by lifting and then heavily dropping the piece on to the anvil or to a special jumping block, or by striking one end of the piece with a hammer, whereby that portion of the iron which has been made red-hot is swelled.

The adjusting gives to bent pieces or to those which have got out of their angle the right shape. It is done with the hammer on the anvil or on the "adjusting-plate," and can be done hot or cold.

The bending can also be done while the iron is hot or cold. If the piece has to be bent in an angle of 90 degs it is hammered over the sharp-edged beak of the anvil; if it is to be round the circular end of the beak is made use of.

The embossing or repoussé work gives to thin metal all sorts of plastic forms destined to enrich the heavier forged parts. It is done either hot or cold, the latter being preferable for the working of delicate details. Light hammers of a great variety of shapes; either with ball-shaped or edge-like or flat faces, are employed for this work. Great experience is required to judge of the allowance to be made for reducing flat surfaces into curved and hollow shapes.

LIVERPOOL CATHEDRAL.

THERE has just been issued a brochure prepared by "The Liverpool Cathedral petition committee," which has been formed in private, says the *Liverpool Courier*, practically to oppose the present cathedral scheme. The introductory statement, called "a protest," is signed "T. Myddelton Shallcross, hon. secretary pro tem.," and it is dated from 6 Dale Street, but he does not state the names of the committee nor the constituents who selected them. The protest begins by declaring that there is a strong public feeling that the objections advanced against the present scheme have not received from the cathedral committee the consideration which they deserved, and declares the desirability of having the whole project "thoroughly discussed before impartial and unbiassed judges," so "that the views of the opponents of the present scheme may, if sound, prevail, and if not may be finally silenced." He proposes, therefore, a petition against the Bill of which the cathedral committee have given notice, and says, "and to ascertain whether such an inquiry is desired by the subscribers to the Liverpool Cathedral fund, by architects and by the country generally, the Liverpool Cathedral petition committee have been formed and a well-known firm of solicitors retained to advise them." The "protest" goes on:—"The petition committee have sufficient funds to lodge a petition, but they will not do so unless they feel assured of the support of the country generally, by having guaranteed to them sufficient funds to conduct a thoroughly exhaustive and effective inquiry; for they are not wishful to oppose the cathedral committee excepting with a view to insuring that the cathedral to be erected in Liverpool shall be a noble structure and placed upon the best site. The committee, therefore, would be glad to have the views of the subscribers, of architects and of the general public, and an intimation to the honorary secretary as soon as possible as to the amount of contribution which would be guaranteed to the petition committee in the event of their deciding to appeal to Parliament. Although the intimation asked for above is at once necessary, it should be mentioned that, as the lodging of the petition would not be required before about February 1902, the contribution of the cash promised would not be immediately necessary." The pamphlet then argues in favour of Monument Place as better than St. James's Mount, but gives no indication how to raise the enormous amount necessary to purchase that site and the property now upon it, including all business interests which would be affected; and the rest of the booklet consists of a series of extracts from references in newspapers, including letters by the hon. secretary of the petition committee. It would have been much more satisfactory to those whom Mr. Shallcross addresses had he given a list of the members of the committee for whom he speaks, and also stated whether, if the supporters and funds for a petition are forthcoming, he

was advised that a Parliamentary committee would or even could, if it so desired, consider the merits of an alternative site. So much money is required to build a cathedral that to spend any in disputations which would be abortive seems a pity.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held last Friday evening, Mr. R. S. Balfour, hon. secretary, in the chair. Mr. Edward Cooper was elected a member.

The following list of donations to the New Premises Fund was announced, in addition to those already published:—Mr. John Slater, 26*l.* 5*s.*; Mr. A. W. Soames, M.P., 25*l.*; Mr. E. T. Hall, 20*l.*; Mr. W. A. Pite, 10*l.* 10*s.*; the executors of Mr. T. Satchell, 10*l.* 10*s.*; Mr. H. A. Satchell, 10*l.* 10*s.*; Mr. B. T. Batsford, 10*l.* 10*s.*; Mr. Edward M. Gibbs, 10*l.*; Captain W. B. Marling, 10*l.*; Mr. H. B. Creswell, 5*l.* 5*s.*; Mr. G. C. Ashlin, 5*l.* 5*s.*; Mr. W. Woodward, 5*l.* 5*s.*; Hon. A. McGarel Hogg, 5*l.*; Mr. R. H. Weymouth, 3*l.* 3*s.*; Mr. H. Cayley, 2*l.* 10*s.*; Mr. G. L. T. Sharp, 2*l.* 2*s.*; Mr. H. Lovegrove, 2*l.* 2*s.*; Mr. Cole A. Adams, 1*l.* 1*s.*; Mr. S. J. Tatchell, 1*l.* 1*s.*; Mr. E. A. Agutter, 1*l.* 1*s.*

The Chairman said the amount of donations now amounted to 3,183*l.* 17*s.*

Owing to Mr. J. Edwin Forbes (the holder of the travelling studentship of the Association) being unavoidably detained in Birmingham, his paper was read by Mr. J. D. Tate. It dealt with

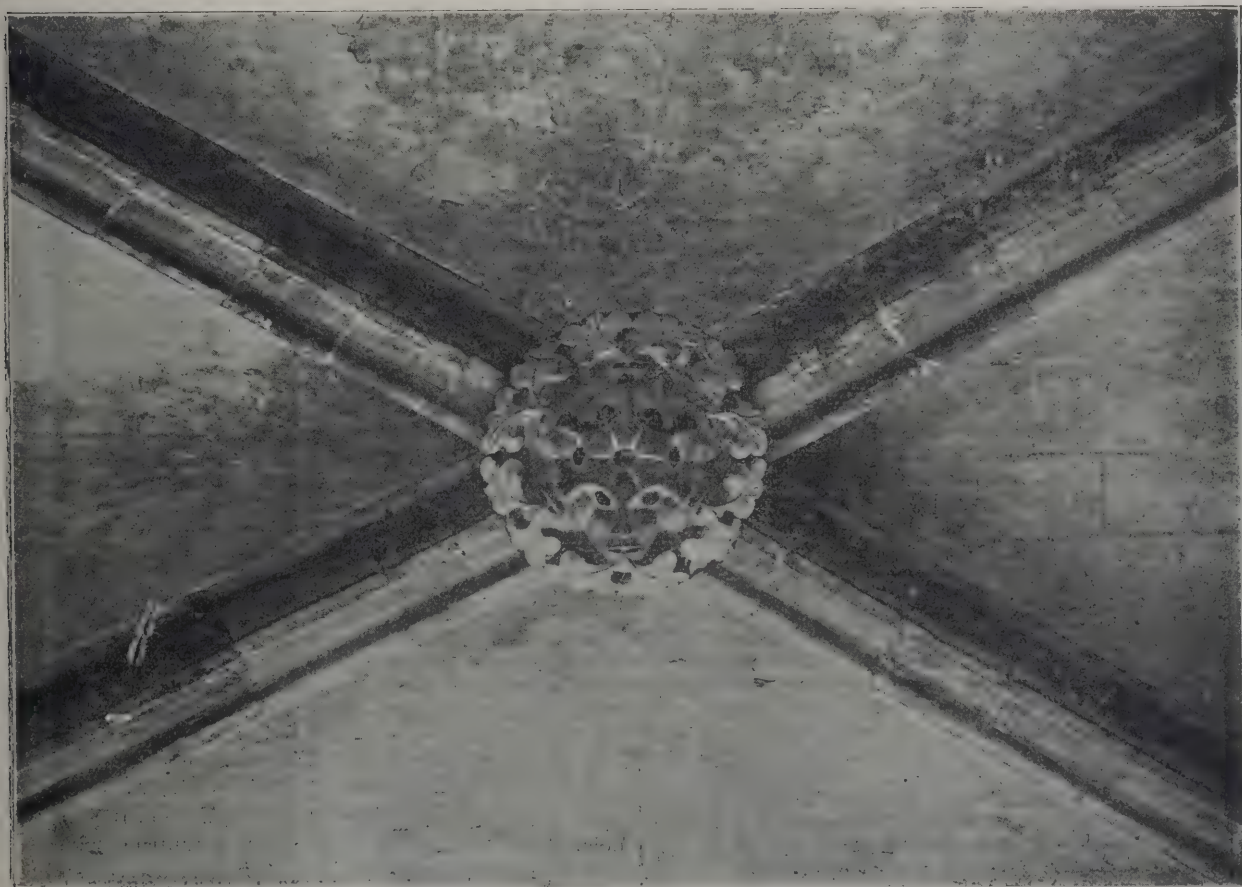
Oxford.

The author prefaced his remarks by explaining that he had treated this subject in a manner more historical than architectural, because in his opinion, in order to thoroughly appreciate the architecture of Oxford, one must first acquire the atmosphere of the place, its legends, origin and history. Of architectural Oxford so much is familiar to all, and so much has been written and said, that it would be quite unnecessary to repeat facts which are so well known to all interested in architecture. According to Anthony à Wood, "In the building and planting of the city our ancestors have behaved themselves very wisely and politically. They have selected a place among springs and pleasant rivulets. It hath since fallen out that it hath been famous for stone quarries, whereby the city in many ages hath been adorned and beautified, and out of which our colleges have been erected." There is an interesting legend to account for the name of the city. About the middle of the eighth century there lived at Oxford a prince named Didan, whose daughter Frideswyde was a pattern of virtue and piety. Her reputation spread to other countries, and Algar, king of Leycester, came in quest of her hand, but she refused him. Undaunted, he sent some of his servants to carry her away by force, but in answer to Frideswyde's prayer they were all struck blind. The enraged king collected an army,

and was on the point of assaulting the town, when he was deprived of his sight. But Frideswyde had flown from Oxford with two of the nuns to a hovel near the town called Benton. After three years living in retirement she re-entered the city riding on a milk-white ox, to which she constantly called out, "Ox forth, Ox forth," and hence they named the city Oxforth or Oxfull. At the end of the fifteenth century there were twenty-four official money-chests from which the poorer scholars were able to borrow. The lecturer then proceeded to outline a Mediæval student's life from the time when he was taken from his home at the age of eleven by the "fetcher" to his oral examination for bachelor of arts. The Presbyterians and Independents who began to appear in the seventeenth century were far from popular, owing chiefly to their Pharisaical conduct. They would avoid a tavern and ale-house, but yet send for the commodities to their respective chambers, and tipple and smoke till they were overcome. They also showed no respect for any of the old families. In the eighteenth century the coffee-houses were the centres of 'varsity life. There were small libraries attached to each containing books to suit every taste. Christopher Wren acquired at these clubs a reputation as a droll wit. A description of Shelley's rooms was given as typical of those lived in at the beginning of the last century. The custom of taking the furniture at a valuation from the previous tenant was one of the few practices that have come down from the early days, for in spite of the general opinion to the contrary, Oxford now contains in inward management scarcely anything that is old, or which, while retaining an old name or an old place has not lost its original meaning or original appearance altogether. An instance is furnished by the long vacation. In the old days Oxford used to be almost deserted. But now there is no real vacation, or only a short one. Men and dons remain in residence. The life of the undergraduate under the new régime is also greatly changed. In the pre-Reformation days the whole body of Oxford men were like dwellers in one gigantic common room, all members being of a highly exclusive society, and mostly all belonging to one church. Every individual felt himself the member of a little aristocracy, and was conscious of the dignity of his privilege. But now the introduction into the university of quite a new class of men belonging to a lower rank of life has changed the character of the place.

A vote of thanks, proposed by Mr. N. F. Barwell and seconded by Mr. W. J. H. Leverton, was passed to Mr. Forbes and to Mr. J. D. Tate for having read the paper.

The Chairman, in putting the vote to the meeting, said the committee regretted the way in which Mr. Forbes had treated his subject. A paper entitled "Students' Notes" offered good scope for matter, but Mr. Forbes had singularly failed to make his paper interesting from an architectural standpoint.



NOTES AND COMMENTS.

ALTHOUGH the political relations between France and Italy are believed to have been a little strained, there is no doubt that in the exhibition of modern decorative art which is to be held next year at Turin, France is likely to hold the most prominent place. The position assigned to French work, which is in the grand salon, is almost enough to persuade the visitor of French pre-eminence. Several artists have agreed to form a committee to look after the interests of their countrymen. Among them are M. GÉRÔME, the painter and sculptor; M. ROTY, the medallist; M. GALLÉ, sculptor; M. GARDET, president of the section of decorative arts; M. BESNARD, painter; M. LALIQUE, jeweller; and M. DAMPT, sculptor. They will select the works which are to be exhibited, for it has been decided that in the display at Turin the honour of France rather than of individuals must be the first consideration. If England is to take any part in the Turin exhibition it is to be hoped there will be equal care shown in the arrangements. In that case the modern decorative art of England could present a more satisfactory appearance than it has in some late exhibitions.

ENGLAND was not the only country possessing canals which became indifferent to their advantages. In France some of the great canals were disposed of by the State in the belief that they were obsolete. It is now realised that water communication has its use, and should not be sacrificed to railways. Belgium set the example of utilising canals for modern goods traffic. Germany has since followed, and to-day the French are advocating the improvement of canals with their usual energy. It is proposed to expend about 610,000,000 frs. on alterations and improvement of existing canals and new work. The subject will come before the French Parliament early next year. That the financial arrangements will be approved there is little doubt, but what is to be feared is that every deputy will endeavour to obtain a share of the money for the part of the country which he represents. It is believed that the money can be raised without imposing a large addition to the taxation. If the project is realised, it will provide an extraordinary amount of employment for French workmen.

A BROCHURE on "Freehand Drawing of Foliage," by Messrs. JOHN and W. J. CARROLL, has been published by BURNS & OATES, LTD. The plates are reproductions of photographs of plant forms, which appear to have been taken from the living plant, for all seem to have more vitality than is usual in such representations. On each page there are also small diagrams which serve as guides to tyros, who may be puzzled about where they should begin in drawing the examples. The twenty-four plates cost only 1s. 6d., and they can be recommended to designers as well as to students of drawing and painting.

COMPLAINTS are often heard about the destruction of bindings in private libraries, and a common cause is said to be the faulty ventilation and lighting of the rooms. The paper which was read by Dr. PARKER before the Society of Arts, and which we have reprinted, makes it plain that the defects cannot be debited with any reason to architects, but are mainly due to the leather-dressers. Architects' books are generally costly, and they also can claim to be sufferers from the preparers of morocco, calf and roan. It is stated by bookbinders that English leather contains too much sulphuric acid, and in other cases the mischief is ascribed to oxalic acid, especially with the buff calf used in law books. It is not only the cheap leathers which succumb. In the British Museum, where great care is taken with bindings, it has been found that some fail after ten years' use. It would have been well if more attention had been given to foreign leathers in the discussion at the Society of Arts. Books bound in France and Belgium do not fail so quickly as those which are bound in England. The leather may appear to be lighter in weight, but it somehow withstands the conditions in England better than native work. Light roan also often outlasts morocco. It is also remarkable that imitation tree-calf made of paper in Germany and pasted on canvas has been found more enduring than genuine English binding in that variety of leather.

ACCORDING to COWPER, it is pleasant to look at the world through the loopholes of retreat, and a survey of that kind has inspired the thoughtful book "In a Minster Garden: a Causerie," by the Dean of ELY (London: ELLIOT STOCK). The pages were written, for the most part, during convalescence. Dr. STUBBS looks on himself as the successor of Prior JOHN of Crauden, who lived at Ely in the beginning of the fourteenth century, and who was likely to have discussed VITRUVIUS with the sacrist, ALAN DE WALSINGHAM. The Dean also loves architecture, and indeed a man would not be worthy to have control of the beautiful cathedral unless he possessed more than an official respect for building. The description that he gives, by the agency of a correspondent, of the octagon of Ely by moonlight, is enough to prove his right to be regarded as an amateur, and there is much else which will confirm that opinion. The Mediaevalism of Ely comes out the stronger from the contrast between it and impressions which were derived from a visit to America. Another charm of the book is that amidst so much that relates to the past there is an indication that love is still lord of all, for there is a suggestion of a modern romance in the pages. It can be said of Dean STUBBS'S "Causerie" that it is worthy to be placed on the same shelf with SOUTHEY'S "Doctor." But the latter delightful work never possessed illustrations, while there are fourteen views of gardens and architectural works as embellishments of the Dean's chapters. No book of this season is better adapted to serve as a Christmas present.

VISITORS to the Salon in the Palais de l'Industrie, and architects more than any other class, often expressed surprise at the meanness of the staircase which led from the department of sculpture to that of painting. Efforts were sometimes made to conceal its deficiencies by means of tapestry, which could easily be obtained without payment for the sake of advertisement, but the original defects could not be overcome. The staircase was constructed in 1855 for temporary use, for it was expected that money would be forthcoming which would enable one to be carried out which would not be unsuitable for an exhibition of modern French art. But for over forty years the temporary structure was allowed to remain, and the representatives of the original contractor were paid over 200% a year for the use of it. The old Palais de l'Industrie has been annihilated, but its successor, the Grand Palais, seems to be destined to resemble its predecessor in its staircases. M. DEGLANS, one of the architects, designed two fine staircases, but there is no money to pay for their construction. It has therefore been decided to use a temporary staircase of wood. How long it will have to stay cannot be determined. The Government have not the money to spare, and the two societies of artists who exhibit in the Grand Palais are likely to remember how much money they have already lost over building works. In any case expedition is demanded, for a great many French artists are of opinion that the Grand Palais cannot be ready for the reception of works at the beginning of April, and they believe it would be an advantage if the Salon exhibition was not held in 1902.

ILLUSTRATIONS.

CHURCH OF ST. JAMES THE GREAT, LEICESTER.
DETAILS OF FAIENCE WORK.

THE contract for the portion now built, consisting of a chancel, choir and four bays of nave, is 7,899/- Two additional bays with baptistery, narthex and west end will complete the church, which will then accommodate 1,000. The church is of the basilica type with raised choir projecting into the body of the building. Under the choir and apse are convenient parish-room and classrooms. The materials are Woodville bricks, Mansfield stone and Devonshire marble columns, terra-cotta arcading, pulpit and choir, with faience panels to choir and apse (the latter not yet fixed). Messrs. H. HERBERT & Sons, of Leicester, are the contractors, and the terra-cotta is by the Burmantofts Branch of the Leeds Fireclay Company.

THE NEW READING ROOMS, LEICESTER.

IN this building also it will be observed from the illustration that the work of the Burmantofts Branch of the Leeds Fireclay Company is also largely introduced.

BATHS, CHESHIRE STREET, BETHNAL GREEN, E.

LEATHER FOR BOOKBINDING.*

FOR many years past there has existed a growing dissatisfaction among librarians and owners of libraries with the quality of the leather put on books, owing to the fact that many books bound within comparatively recent years already show serious signs of deterioration and decay. This dissatisfaction grew in volume until a small committee of gentlemen interested in the subject, called together by Mr. Douglas Cockerell under the chairmanship of Mr. Cobden Sanderson, began to investigate some of the causes, and to take evidence on the subject. At this committee a certain amount of information was gleaned, but it was found generally that the exact causes of the decay were not known. Librarians were inclined to lay a good deal of the blame upon the bookbinder, who in turn blamed the leather merchant for the quality of the leather, and the leather merchant when questioned absolved himself of all blame by vaguely talking of new processes of tanning, even hinting as to the existence of some rapid process of transforming skin into leather by aid of acids and other chemicals.

After this, which I may term a preliminary inquiry, the Society of Arts took the matter up, determined that it possible the cause of the dissatisfaction should be investigated. To this end a very strong committee was appointed, under the chairmanship of Lord Cobham, and the members included representative bookbinders, librarians, leather merchants, leather manufacturers and chemists, who made a special study of the leather trade. Of this committee I formed a humble member, and as a member of both sub-committees which were subsequently formed, as well as of the main committee, I have been asked by several to detail the various investigations which were carried out by the sub-committees, to show samples of the leather which was used and tested, and to give the actual proof and experimental work in detail on which the main committee based its report, which has now been before the public for some months.

I need hardly enlarge upon the work of the first sub-committee whose object was to justify the cause of the complaint, to find out which leathers appeared to decay most rapidly, and the conditions under which the books were kept, whether the decay was noticed as much in libraries lighted with gas or electric light, whether the bindings appeared to last longer when kept under glass cases, and if possible to note approximately the period at which general decay seemed to set in. This committee in its work visited nine of the most valuable and most important libraries in England, and found generally that most modern leather of all kinds showed signs of decay, and in many cases that bindings of not more than ten years already showed marked signs of deterioration and decay. The bindings of scientific works, proceedings of learned societies, on shelves, bound in calf, of which the date of binding could be very closely ascertained, were in many cases falling to pieces, and in several cases books bearing the dates of 1885, 1886 and 1887 could not be handled without the leather coming off in the form of dust. In another case the removal of the book from the shelf caused the back to come right off.

Generally speaking, as the report clearly states, most sign of decay was found in libraries where gas was used for lighting; and it was also found that, approximately, the most marked form of decay was noticed from 1860 onwards. It was certainly noticeable on books bound at any earlier period, but it became more general, comparing all libraries, about 1860.

Through the extreme kindness of several of the librarians and bookbinders I was allowed to detach portions of many of the worst specimens, in order that they might be laid before the second sub-committee for microscopical and chemical examination. This second sub-committee was also supplied with many old bindings and with various samples of bindings, the exact date, nature of the leather and all particulars being clearly stated.

Turning now to the work of this second or scientific sub-committee, the problems before them were therefore of a definite nature. Having first convinced themselves of the almost universal tendency on the part of modern leather to decay, their work was to investigate the cause or causes of this modern decay, and to find out why books which were bound in the fifteenth to the early part of the nineteenth century were still in most cases in almost perfect condition. It was extremely unlikely that any change had taken place in the nature of the raw skins used. It was consequently taken for granted that the causes were to be found in some of the modern processes of leather manufacture. An examination of several pieces of old bindings revealed the fact that the bindings were, generally speaking, thicker than those of more modern date. A microscopical examination showed the fibres of these leathers to be in an upright condition, whereas in more modern leather this is not generally the case; the

stretching and tight setting-out of the skin having a tendency to lay the fibres in a more parallel state. Another important factor was revealed by the chemical analysis, which showed that all the old samples of leather analysed contained less tannin in proportion to the skin substance than was found in more modern bookbinding leather; in other words, it was evidently the custom in the eighteenth and nineteenth centuries to tan the skins in weaker liquors, with the result that the leather was lighter tanned than is the custom at the present time.

Further, and also another important factor was, that in most of the bindings examined which had stood the test of time the tanning material which had been used was in nearly every case either sumach or oak bark, and it was further noticed that in many cases where even fairly modern leather had stood for twenty or twenty-five years the tanning agent had been sumach. Here, therefore, there was indicated a special line of investigation likely to be productive of much useful information. Although sumach and oak bark are still used for the tanning of the better-class high-priced leather, very many skins are tanned with such materials as quebracho (a wood which comes from South America), larch bark, gambier and mimosa bark, and thousands of dozens of sheep, goat and calf skins are sent over ready tanned from India. These latter are tanned with turwar bark, Cassia auriculata. These are known in the trade as Persian moroccos, Persian sheep and E.I. calf. Some of these skins are simply scoured, dyed and finished, while the majority are stripped of the loose tannin by scouring in a weak alkaline bath, borax or carbonate of soda being used. As this treatment turns the skins an ugly dark brown colour they are put into a bath of weak sulphuric acid. When supposed to be thoroughly freed from sulphuric acid by washing in water, they are retanned with sumach, and afterwards dyed and finished in the usual manner.

In order to find out whether any special tanning material had or had not an advantage, and whether the tanning material, per se, was liable to cause decay or destruction of the leather, calf, goat and sheep skins were tanned out, one of each skin in each of the following tanning materials: pure sumach, pistacia lentiscus, tamarix, oak bark, myrobalanus, quebracho, mimosa bark, gambier, larch bark, chestnut extract and oak-wood extract. Two sets East India tanned goat, sheep and calf, one set washed, oiled and dried, the other set scoured, soured & sweetened and retanned in sumach as carried out in practice, were also prepared. When these skins were judged to be lightly but thoroughly tanned, one-half of each skin was removed from the tan liquor, and the remaining halves were left in the liquors, these being strengthened up with more tannin, so that the second halves were more fully tanned, as is most commonly the case in modern leather. The leathers so produced were rinsed through water to remove superfluous tan, allowed to drip, and when in a semi-dry condition were oiled lightly upon the grain surface and hung up and dried in the usual manner. Portions of these skins are before you on the table. Pieces of each of these leathers were so fastened upon boards that one-half of the piece of leather was exposed, while the other part was carefully covered, so as to be protected from either light, heat or the action of the surrounding atmosphere. In all, eight such duplicate sets were arranged, and were subjected to the following tests for thirty days:—

Board No. 1 was exposed to an ordinary direct sunlight. This was done in a large room facing south, and the tests were carried out during July and August.

The second board was exposed to the action of gaslight. A small cupboard was arranged, and a No. 5 ordinary fish-tail gas-burner was placed in the centre of the cupboard, and the boards so arranged round this that the leathers were about 18 inches from the lighted burner.

No. 3 board was arranged in a similar cupboard and exposed to the light from an ordinary incandescent gas-burner.

No. 4 was also arranged in the same way, but in place of the gas-burner a 16 candle-power incandescent electric lamp was used.

The fifth board was subjected to the fumes of burnt gas. To carry out this experiment a similar room was used 8 feet high and 6 feet square. On the floor of this room was placed an ordinary fish-tail burner, turned about half on, and the boards, with the leather fixed upon them, were hung on the ceiling. A maximum and minimum thermometer was also hung on the ceiling, and the room so ventilated that the temperature was not allowed to exceed 90 deg. Fahr. I may add that this was the temperature noted on the top shelves of two of the libraries which were examined, so in this case the worst library conditions were imitated as closely as possible.

The sixth board was subjected to moist and dry air alternately. This was done by drawing a current of moist and dry air over the leather through a vacuum oven. The temperature was kept at 60 to 70 deg. Fahr.

The seventh board was subjected to an atmosphere of carbonic acid gas. This test was likewise carried out in an

* A paper read by Dr. J. Gordon Parker before the Society of Arts on November 27.

oven, the carbonic acid gas being dried before it was allowed to enter the bath.

The eighth board was subjected to direct sunlight, but the leather was protected from the air by a sheet of glass being laid upon it. This was exposed at the same time, and in the same room as board No. 1.

The leather after this treatment gave some most interesting and instructive results. It showed:—

1. That the leathers tanned with certain tanning materials were less affected than those tanned with other materials.

2. That the fumes of burnt gas appeared to act more strongly on all the leathers than any other agent.

3. That artificial light had only a slight effect upon the leather, provided it was protected from the products of combustion.

4. That direct sunlight and air appeared to have a very strong disintegrating action upon most of the samples, but when the leather was protected by a covering of glass the action was less intense.

5. Moist and dry air appeared to have no special deteriorating action. The same thing was noticed in the set exposed to carbonic acid gas. The electric incandescent light appeared to have even less effect than either ordinary gas-light or the incandescent gas-burner, probably on account of the less heat evolved and the absence of products of combustion.

On examining all these sets side by side it was noticed that in each case the leathers tanned with sumach were the least affected of any, followed in regular rotation as being less affected by myrobalanus, chestnut extract, oakwood extract, oak bark, gambler, larch bark, quebracho, pistacia and tamarix; and the worst set was the leather tanned with turwar bark, especially the sample which had been scoured, soured and retanned. Further, it was also noted that the samples of leather which had been only lightly tanned were less affected in each case than the samples which had been finished in stronger tanning material, and were thus more heavily tanned. These results showed that the tannins which belong to the pyrogallol class of tanning materials, viz. sumach, myrobalanus, chestnut and oakwood extracts, were the least affected; while, on the other hand, those of the catechol series, represented by gambler, larch bark, quebracho and turwar bark became dark red in colour and hard in texture. The fibres of the leather appeared to be disintegrated, and in the worst cases the leather could not be rubbed even with a soft cloth without removing a layer of red powder. The tannins of the catechol series appear to part readily with water when exposed to the action of light, heat, or acids, and are converted into red, resinous-like substances which appear to thoroughly disintegrate the fibres of the leather, causing it to become hard and lose all strength.

These above detailed experiments were first carried out at Wrexham by Mr. A. Seymour-Jones, and were afterwards repeated by myself in London, and both sets were confirmed by Professor Procter in Leeds, so as to leave no doubt about the accuracy of the work. A similar set was treated for sixty days, and some leathers were exposed for three full months. These samples are before you this evening, and can be examined by anyone interested. This was the first stage of the work, and it revealed clearly that tanned goods of which sumach was the tanning material were the least affected of all the tanning materials, and that the East India tanned portions were the most sensitive to either gas fumes, light or heat.

To further test these latter goods, a fresh set of leathers was obtained. An ordinary tanned East India goat and also a sheep skin were purchased in the usual manner, and each skin divided into four parts. A quarter of each was left in its state as purchased; a second quarter was rinsed through water, lightly pressed out, oiled and dried; a third quarter was scoured in alkali, then washed through sulphuric acid, afterwards well rinsed in water and then retanned in sumach; and the fourth quarter was simply washed well in water, struck out, and afterwards retanned in sumach. These portions of skins were subjected to a similar series of experiments, to the action of gas fumes, direct sunlight, and to diffused daylight for sixty days. Each sample was more or less affected. The quarters which had been stripped with alkali, treated with acid, and afterwards sumached showed most deterioration. The portions exposed to the action of burnt gas fumes were absolutely rotten at the end of the time, and could not be handled without breaking or falling into powder. The best sample was that which had been simply washed in water, oiled and dried, but even this was badly damaged and turned a deep red colour, but it showed that the removal of some of the tannin tended to lengthen the life of the leather; while, on the other hand, the usual trade custom of stripping with an alkali and souring with acid, afterwards retanning in sumach, appeared to about halve the already short wearing life of these leathers.

Thus far, then, the committee had discovered the best and the worst leather in its natural tanned state. The next point was, if possible, to find out the cause of the decay in modern

oak-barked tan calf. For this purpose several samples of tanned calf skins were purchased and obtained from librarians and bookbinders. None of this leather had been used or exposed in libraries, and most of the samples contained varying quantities of free sulphuric acid, which had evidently been used to brighten the colour. Several other samples were therefore obtained, free from sulphuric acid. Portions of each of these skins were subjected to the method of testing described, with the result that acid-free leather stood the tests in a very satisfactory manner, while the other samples which contained quantities of sulphuric acid, varying from two-tenths to eight-tenths of a per cent., had changed to a red brown colour, become hard and brittle and were easily abraded by friction.

I may say, in passing, that this custom of brightening the colour of bark tanned calf with acid is of comparatively recent date, probably becoming general twenty or thirty years ago. It has a wonderful effect upon the leather; it removes stains or any unevenness in colour, generally brightening the somewhat reddish tone, and transforming it into one of a yellower shade, thus giving to the skin a better appearance from the buyer's standpoint. Further tests with bark tanned calf showed that the heavier it was tanned the more rapidly it appeared to decay.

The experiments carried out thus far, as will be noticed, were only done with the rough-tanned skins. But it was necessary to find out whether the methods of dyeing and finishing leather in any way impaired its wearing qualities. For this purpose several kinds of skins, including calf, sheep, goat, seal and pig, were obtained, and each skin was divided into four portions. The first portion was retained in its rough tanned state; the second portion was struck out, dyed, freed from superfluous dye by rinsing in water and dried out; the third portion was struck out, dyed and finished in the usual manner, being glazed after applying an ordinary albumen seasoning, and no acid being added to the dye-bath to develop the colour; the fourth portion was struck out, dyed with the addition of an ordinary amount of sulphuric acid, and finished in the usual manner. These series were, as before, exposed to direct sunlight and to the fumes of burnt gas. The results showed at once that the dyeing of the leather where no acid had been used did not in any way affect the life of the leather. The finishing appeared to protect the surface of the leather somewhat. This would, of course, be expected, as the ordinary finishing process consists of coating the leather over with a thin layer of albumen, and afterwards polishing either by hand or machine. This thin layer would naturally protect the tannin from oxidation and preserve the leather for a certain time. The portions of the skins with which acid had been used in the dye-bath, however, showed signs of decay, and had become hard and brittle. Of the five different skins used, the calf and sheep appeared to be the weakest, while the goat, seal and pig skins appeared the least affected of the five.

In order to ascertain whether the use of sulphuric acid, either as a brightening agent or in the dye-bath, had become universal, from various sources we collected a large number of samples of different kinds of leathers. I have not the details of the number of samples examined by Professor Procter, who fully confirms my results, but I personally analysed thirty-eight different samples of moroccos, and found that thirty-six contained free sulphuric acid; eighteen different samples of skivers were examined, of which twelve contained acid; thirty-two different samples of calf, out of which twenty-seven contained free sulphuric acid; eighteen Persian goat and twenty-three Persian sheep were also examined, and in all cases free sulphuric acid was found to be present. Six different samples of pig-skin were all tested, and in each of the six free acid was found. These were all of English manufacture, some obtained direct from the manufacturers, others from leather merchants and bookbinders.

Knowing that of recent years a large quantity of French and German skins had been used for binding purposes, eight different samples of French Levant moroccos were obtained, and in each of the eight samples a large quantity of free sulphuric acid was found; the lowest contained six-tenths and the highest 1.3 of acid. Twelve samples of German book-binding leather were in like manner tested, and eleven found to contain acid. The highest percentage found in any was .85 per cent.

It would, perhaps, be unfair to draw a definite conclusion from the few French and German skins examined, but those which passed through our hands were certainly much inferior from the bookbinder's standpoint to any of the English skins. Although the French skins were of a bolder grain and larger in area, they were split down to such an extent that they were little better than paper, added to which a higher percentage of acid was found in this class of goods than in any of the English samples.

It is evident, therefore, that sulphuric acid is of almost universal use, either as a brightening agent or to liberate the dye in the dye-bath.

As it is always customary in tanyards to rinse the skins well through water after souring with acid, it was somewhat surprising to find such a high percentage of free acid still present in the finished leather. Tests were therefore undertaken to ascertain the amount of washing or rinsing necessary to remove the acid. To this end several pieces of skin were treated with known quantities of sulphuric acid, and then washed for varying periods in running water. It was found to be practically impossible to remove the whole of the acid by rinsing or washing in ordinary water. One piece of "Persian" leather, containing 1 per cent of sulphuric acid, was washed for five days and nights in running water, and at the end of that period it was found that it still contained slightly over two-tenths of a per cent. of sulphuric acid, showing that sulphuric acid, as stated in Professor Procter's Cantor Lecture, delivered before this Society, appears to dissolve in the leather and adheres most tenaciously to the fibres. It was, however, found that if skins were washed in water containing either potassium or sodium lactate or acetate, the free sulphuric acid was neutralised; where, therefore, it is absolutely necessary to use sulphuric acid, the committee recommend that this means of neutralisation be adopted.

The committee then turned their attention to the various processes of tanning. Without wearying you with all the details of the experiments made, I will merely state that it was found in general that skins which had come from abroad preserved in salt were when tanned weaker in texture than either dried or fresh skins. Skins which were in any way tainted, or even only slightly decomposed, were extremely weak.

Many sheep skins arrive in this country from New Zealand and Australia in what is known as the pickled condition. These skins are pickled in a solution of salt and sulphuric acid. Several of these skins were tanned and compared against unpickled skins, and it was found that the leather produced from skins which had been pickled was much inferior in strength and durability to the unpickled.

Low liming and the use of stale limes containing quantities of free ammonia were found to weaken the pelt, as also over-puering, a process which is used to rid the skin of lime, and, at the same time, to pull down its thickness, and to make it soft and pliable.

Many of the finished leathers examined microscopically by us showed that the skins had been distinctly over-puered. This was very noticeable in a series of pig-skin bindings of one of the large public libraries.

Another interesting feature, already referred to, was that leather appeared to lose in strength and durability the more heavily it was tanned, and this point is one which leather manufacturers should watch. I am of opinion, as expressed in the report, that the skin for bookbinding purposes should be lightly but thoroughly tanned; not what would be termed "dead tanned." They should then be rinsed lightly through water, should not be tightly set out and should not be dried in a stretched condition. It is the custom to dry many kinds of leather strained tightly over boards. This tends to lay the fibres in a flatter and more parallel condition, and to keep the fibres all taut, removing from the skin its elasticity and also what I may term the cushion effect which is produced when the fibres run transversely to the skin.

Many of the different samples examined, both on and off books, were found to be shaved down or split so that only the thin grain surface remained. It required no investigation to prove that this was contrary to all reason, and that shaving the skin down to the thin substance could not but reduce the leather to about the level of brown paper as a binding agent.

Mr. Douglas Cockerell was good enough to obtain for me from different sources sets of samples of six different substitutes for leather for bookbinding purposes. It would be better for me on this occasion not to mention the names of these substitutes, although they are all well known to bookbinders. These mostly consisted of cloth or cotton foundations, covered over with some material of a waterproof nature, which by skilful processes could be made to imitate almost any class of skin. These samples were each subjected to a series of tests similar to those that the leathers had undergone, and although sunlight or artificial light appeared to have little or no effect upon these substitutes, they were more easily affected by the fumes of burnt gas than even the poorest qualities of leather. Moreover, in a dry atmosphere they become hard and somewhat brittle.

Examination was next made of some of the methods used by bookbinders for brightening the leather and for sprinkling, and also of the pastes which were employed by them in their workshops. To this end the committee were willingly supplied by various binders with samples of sprinkled leathers and dried calf, also samples of leather which had been washed with oxalic acid to brighten the colour. It was found that sprinkled leather soon went into holes, and leather which had been washed with oxalic acid also rapidly darkened in colour, and became very hard and brittle when exposed to the sun's rays.

The pastes on the whole were found to be harmless,

but from the leather standpoint we cannot too strongly emphasise the damage which must be caused to the leather by stretching it out too tightly over the back of the book in binding.

Before concluding this somewhat lengthy account of the different series of experiments carried out, I would point out one fact which at first was somewhat puzzling. We found that sumach-tanned leathers in every case stood all the tests better than any other, but that some samples of sumach-tanned leathers deteriorated, while others showed no sign after even sixty days of sunlight. On examining carefully the leathers referred to it was found that some of the rough-tanned sumach skivers contained free sulphuric acid. As the source of supply in two cases was known, the firms in question were written to, and it was acknowledged that a small quantity of sulphuric acid had been put in the sumach tanning vats to give the skins a slightly thicker feel.

But another cause for the differences in sumach-tanned leather is the fact that cheap brands of sumach are invariably adulterated with the leaves of two other materials, viz. pistacia and tamarix, and it was the presence of these adulterants which caused some of the sumach-tanned leathers to show deterioration. This discovery led us to tan out skins with tamarix and pistacia in order to see how they behaved in comparison with sumach tannage, and as the first series of experiments showed, they were considerably worse than even larch or gambier-tanned skins.

It was our duty to give if possible some advice to librarians and others as to the preservation of books bound in leather, and Professor Procter undertook an elaborate series of experiments with glasses of various tints in order to find out whether the disintegrating effect of sunlight could be minimised by the use of lightly-tinted glasses. His experiments were eminently satisfactory. He found that the violet or actinic rays which affected photographic printing paper also affected the leather, so that any glass which would keep out the actinic rays could be recommended for the glazing of library windows.

I have endeavoured to state as clearly as possible the details of the chief experiments which were carried out by us in order that the leather trade may be able to judge whether the grounds on which the report is based are sufficiently strong. Many other experiments were done, but I will not lengthen this paper by detailing them, as they were of lesser importance than the ones I have given. I need only say that every statement and recommendation made in the report, the grounds for those statements, and the experimental and practical work on which they are based, were confirmed by each individual member of the sub-committee, so that their conclusions cannot, as has been stated by some critics, be considered as being simply the "opinions or fads of professional men."

Before bringing this paper to a conclusion, I should like to refer to a fact that impressed us very forcibly, viz. the number of disguises under which the ordinary sheep skin masqueraded. We found books bound, nominally, in levant morocco, hard-grain morocco, straight-grain morocco, pig-skin, calf-skin, crocodile and alligator leathers, which leathers, on close microscopic examination, were found to be the ordinary common sheep skin, on which had been stamped, probably by electrotype rollers, the special grains and markings of the skins they were got up to imitate. In many cases both the bookbinders and the librarians had bought these leathers under the impression that they were buying the genuine article, the buyers having probably been tempted by the low price which would naturally be charged in a case of this sort.

The question of price brings us, I think, to one of the most important points in connection with this investigation. I may be wrong, and it may be that I am not sufficiently connected with the commercial side of the leather trade to form a definite opinion, but I venture to give my views on the subject for what they are worth. I believe that a good deal of the leather of the cheaper sort which has been found to decay is largely the fault of its cheapness. The librarian has stipulated that his books must be bound at a certain contract price. The bookbinder has in consequence to procure a cheap class of leather. This he has in most cases easily found, as there is always a large quantity of cheap leather on the market, splendidly finished, and to all appearances of first-class quality, which owes its high finish and good appearance to the use of materials in manufacture which are injurious to its strength. I think it is therefore clearly the duty of the librarians, if they are determined to have a leather which will last, to put in their specifications, when high-class work is required, that the leather must be of pure sumach tannage; secondly, that no mineral acids must have been used in any process connected with the manufacture of the leather; and thirdly—also an important point—that the skins used must not have been pared down or split to paper thickness. For small books, small and thinner skins must be used in the binding.

Sumach-tanned calf can be obtained and can be dyed to the brown shade so much liked in the case of ordinary brown calf; bark-tanned calf can also be used in binding, pro-

vided the leather is not over-tanned, and has not been brightened by the use of acid; but I think there is not the slightest doubt the librarians must in future, if they wish a leather to last more than from ten to fifteen years, insist on their specifications being carried out to the letter, and they must be prepared to pay a correspondingly higher price for a guaranteed article. Low quotations in most cases are to be regarded with suspicion. Chemists have now obtained sufficient knowledge to be able to test leather both chemically and microscopically. (1) for the presence or otherwise of acids; (2) to ascertain if the leather is over-tanned; (3) the tanning material used, and (4) to ascertain whether the fibres are in a good healthy condition, or whether the skin has been damaged, either in the early liming or puering, or in the later finishing processes.

I believe that in many cases the manufacturers themselves are not wholly responsible for their leather being spoilt. The buyers often demand high finishes, bold grains and other characteristics in the leather, such as can only be obtained at the expense of its strength and durability. In many works the finishers use both alkalies and acids at different stages to produce certain results, and in nine cases out of ten they do not understand the action of the materials, and do not know that their use damages the leather. It seems to me that it would not have been necessary for this committee to sit, and for its members to spend so much time and trouble on this investigation, had the workmen, or, more important still, the leather manufacturers themselves, possessed greater knowledge of the principles underlying leather manufacture.

The work of the committee is not yet completed, as the question of the fastness of different dyes is still under investigation. The committee hope that this part of their work will be finished by next summer.

BLOXHAM CHURCH.*

THE church of St. Mary at Bloxham consists of a chancel, clerestoried nave with north and south aisles, a chapel on the south-east of the south aisle, a western tower projecting beyond the aisles with octagonal spire over, and north and south porches. The east end of the north aisle is so divided as to form a transept. The south porch is groined and has two rooms over it.

Of the church as it stands to-day the arcades between the north and south aisles are the oldest parts of the building. They are of four bays each, and belong to the Early English period. On the north the columns and all the members of the moulded capitals and bases are circular. The south arcade is very characteristic of Early English work, and suggests a somewhat later date than that on the north, probably about 1220; the columns are composed of a circular shaft with four smaller circles attached, the mouldings of the capitals and bases following the same shape. One of the capitals has its bell richly ornamented with stiff-stalk foliage, two have perfectly plain bells, whilst one is ornamented with four trefoil leaves. The arches of both arcades are pointed and are of two orders, with chamfered edges. The chancel, tower and spire, with the majority of the windows, belong to the Decorated period.

The tower is composed of five stages; the fifth is octagonal forming the junction between tower and spire; two unusually large buttresses, ornamented with canopied niches, and having copies of human figures for their termination, strengthen the angles of the western face of the tower; at the junction of the square with the octagonal stage rise four tall pinnacles, which, with their crocketed finials, come far above the base of the spire. The lower of the two windows, which are on the western face of the tower, is of three lights, with the heads of the lights elevated so as to reach up to the main arch; the hoodmould is decorated with the ball flower. The upper window has two lights, each of which is entirely surrounded by ball flower; the two lights are coupled together, with a space of plain wall between them, where is a canopied niche; the three compartments have independent hoodmoulds which, however, are joined and capped in the centre by a fleur-de-lis ornament. This is sometimes called a twin window; there is one at Irthlingborough, Northants (date c. 1350). From this window the eye is led on to the culmination of the ornament in the richly decorated bands which surround the octagonal stage of the tower, and these, together with the graceful pinnacles, form a rich and attractive mass of ornament, which gradually dies away through the window and crockets of the spire to its termination 195 feet above the ground. The spire is one of the fine series of Oxfordshire steeples (the term applies to the style and not strictly to the county) which, with their angle buttresses, traceried parapets and enriched gable-lights, were in direct descent from the early spire of St. Frideswide's, at

Oxford. Witney followed shortly, and of later date we have Shipley, Bampton, Adderbury, Bloxham and King's Sutton. The typical characteristic of this class of spire is the manner in which the pinnacles are brought within the angle of the tower close into the octagonal sides instead of being kept independent at the angle of the tower.

The west doorway is large and curiously decorated. It is adorned with a sculptured representation of the Last Judgment, wrought on the wall above and on each side of the door arch. The north doorway has its capitals and archmoulds decorated with foliage and ball flower; the jamb moulding is formed by a combination of circular and fileted shafts and the wave moulding. The south doorway arrests attention and will be referred to later; its mouldings are elaborately decorated with zigzag ornament of the Norman period.

The parapets of the nave and north aisle are decorated with panelling, and on the cornice beneath the parapet of the north aisle is carved a curious series of grotesque figures. A good specimen of the sanctus bell turret remains in its usual position at the eastern end of the nave.

The greater part of the window tracery belongs to the Decorated period, and is of an unusually varied and interesting character. There are five windows in the chancel; the eastern and three others have had the tracery replaced by modern work. In the remaining two the mullions simply cross and continue into the window-head; some Norman mouldings with beak-heads, billets, &c., are built into the jambs of these windows in a manner that at a glance might be somewhat puzzling. A small low side window (2 feet 6 inches by 1 foot 2 inches) remains at the west end of the south wall. In the aisles there are six windows with tracery belonging to the Decorated period. Only two of these are alike; they have three lights, above which is an arrangement of cusped circles. One has the ornament entirely formed by ogees; the other three contain tracery of a peculiarly interesting and attractive type. The east end of the north aisle forms a transept, the north wall projecting somewhat beyond the face of the aisle wall; across the aisle are two pointed arches supported on a slender column which has a peculiar capital. It has been rescued by care and patience from a mass of whitewash under which it was once entirely hidden. It is supposed to represent the head of St. George enveloped in the coiffe de mailles as worn in the reign of Edward I. In his left hand is his shield and in his right his gonfanon, both charged with his appropriate emblem; around the other parts of the capital are heads similarly attired. The base of the columns has masks at the corner. The marks of a pointed roof over the nave can still be seen over the chancel arch and against the tower; this was removed for the addition of a clerestory which is well lighted on both sides by windows, of which the date, judging by the free style of the tracery, belongs rather to the Decorated than to the Perpendicular period.

This church has an excellent example of Late Perpendicular work in the Tudor chantry, which is built at the south-east end of the south aisle. It is known as the Milcombe chapel and contains monuments to the Thorneycroft family of the village of Milcombe. Probably no other church of the same size contains a chapel which furnishes so many and such typical specimens of Perpendicular work; from it a student, without going further, might obtain a very fair idea of the characteristic features of that period.

The chapel is separated from the south aisle by an arcade of two bays; the arches are four-centred, and as four-centred arches were not used for constructive purposes until quite late in the fifteenth century, we may fix the date as late fifteenth or beginning of sixteenth century. The pier is composed of small members, each of which has its own separate plinth, which is very high and much subdivided; below these bases a pedestal or "footstall" is added for the entire group. The east window has seven lights and a four-centred arch. It is entirely typical of the period. The mullions are crossed by a transom which is ornamented by the Tudor flower. Three lights on each side of the centre are grouped together by an inner arch which takes the same curve as that forming the window head into which it is continued. The usual subdivision into many—and mostly vertical—parts takes place. On the outside the mouldings of jamb, sill and string have the characteristic curves, the large and shallow hollow being prominent. Inside, the sill, as well as transom, supports the Tudor flower; the mullions of the window are continued on the wall surface below, forming divisions for panelling. The upper row of niches is now filled with figures on pedestals, but these are modern. On each side of the window are the remains of canopied niches, which are mutilated. The south wall contains two similar windows, each of five lights, with more simple panelling beneath. These occupy almost the entire length of this south wall, excepting only a few feet against which, on the exterior, the buttresses are placed. The buttresses are narrow and of bold projection, capped with square pinnacles set diagonally. The jamb of one of the windows contains a piscina. In the west wall is another window of similar design to the others,

* A paper read by Miss B. Potts in connection with the Course of University Extension Lectures on Gothic Architecture.

but having, through want of space, only four lights. The stone altar, which stands against the east wall, is a reproduction of the original slab correctly moulded from remains found under the plaster. The east windows of the north and south aisles have been replaced by others of the Perpendicular period; that in the south aisle is exactly the same as the east window of the chapel.

The font (c. 1350) is panelled and ornamented with tracery of the Decorated period. There is a piscina in the east wall of the north aisle. The entrance to the rood-loft staircase and the exit still remain on the north side. The original rood-screen has been restored to good condition and repainted.

There are some remains of old masonry preserved in separate stones; one is Norman work with the zigzag ornament. Numerous fragments of ancient tiles have been found, and their patterns have been reproduced in the new flooring.

Remains of early wall-painting can be seen on the arches of the arcade over the north door and chancel arch, and in the chapel. A new wooden screen separates the Milcombe chapel from the south aisle. The pulpit is of Caen stone and elaborately carved.

The remarkably fine and varied work which this church contains, and the abundance of detail to be studied, demand so much time and attention that this paper is of necessity descriptive rather than historical or hypothetical; but as architecture is to a great extent history written in stone, it is almost as impossible as it is unadvisable to ignore altogether the life-history of the church.

At the time of the Norman survey the parish of Bloxham was part of the great estate of Edwin, Earl of Mercia. This Edwin, with his brother Morcar, and supported by Blidon, king of Wales, broke out into open insurrection, but being betrayed by three of his captains he was slain fighting, and his estate fell into the hands of the Conqueror.

Richard I. in the first year of his reign granted the church to the priory of Godstow, and afterwards the manor belonged respectively to Almaric de St. Amand, warden of the forest of Dean and governor of Hereford Castle (time of Henry III.), Roger de Beauchamp (1338), the Atwoods, and Mary, Duchess of Somerset (time of Henry VI.).

The Crown seems never to have entirely lost the power over the living until it was given by Edward IV., in the first year of his reign, to Eton College, in whose hands it still is, whilst the manor belongs to Lord Saye and Sele, having been in that family since the reign of Henry VIII.

The earliest church of which any trace can be found seems to have belonged to the time of King Stephen, who built here a chapel and gave two fields for a priest to say masses for the repose of the soul of his mother Adela, daughter of William the Conqueror. Of this building the head of the doorway in the chancel, the Norman mouldings in the chancel windows and the door of the south aisle are doubtless the remains, their original positions being only a matter of conjecture. The apparent Norman work in the chancel arch, with the exception of one small capital, I take to be new. This first chapel of King Stephen probably occupied the ground where the chancel now is and, contrary to the usual Norman custom, would probably have a square east end. There was in the first half of the twelfth century a bishop influence that joined hands with the old Saxon traditions of the square-ended sanctuary. More than this, Stephen's daughter Mary was abbess of Romsey, and there the idea of a square-ended presbytery is reached in work to be dated before 1125. At Winchester, too, Bishop Henri de Blois, Stephen's brother, gave a deep aisled presbytery to his hospital of St. Cross with a high square front.

Before the twelfth century the aisle had become the recognised addition for the enlargement of the parish church, and when the nave and aisles were built (c. 1220) the former church of King Stephen would be made to do service for the chancel of this parish church. The present aisle windows are of a later date than those that would be put in when the arcades were built; this however is no safe proof that the present walls were not built then, because windows were often taken out at later periods and replaced by larger ones. But the position of the south aisle door which is Norman work is the main reason which causes me to think that the aisles were entirely rebuilt and enlarged at a later period. Its present position could not have been its original place, because the arcade between the nave and this aisle belongs to a later date, and the arcade must have been built if not before at least at the same time as the aisle wall. This door is the only trace of Norman work to be found outside the chancel, and I should suggest that the chancel—which now is of about the same date as many of the windows of the aisles (1300-50)—retained its original form, which would be late Norman, until the first half of the fourteenth century, when it was entirely rebuilt and the original Early English aisles, which had been put up at the same time as the present arcades, pulled down and rebuilt at a greater width. In this way, that is the chancel and aisles being rebuilt at the same time, the Norman door in question would be removed from the chancel and put up in its present

place and the Norman mouldings in the chancel windows built in as they are to-day. That there is no trace at all of a window of the same period as the arcades seems to me to argue in favour of the walls having been entirely rebuilt. The original aisles would most likely be much narrower than the present ones, and probably the Early English doorway which can be seen in very fair condition at the Joiners' Arms, not far away, belonged to one of these aisles. The tower and spire would be built about the middle of the fourteenth century. Tradition ascribed the building of the spire to Cardinal Wolsey, but it rests on very uncertain authority, and the architecture points to an earlier date. The only reliable mention of the spire that I have been able to come across, though interesting, does not help to fix the date. It is from a paper which has been brought to light by Canon Dixon, where it is ordered by Lord Gray, in the reign of Edward VI., that John Wade, parish priest of Bloxham, should be hanged on the steeple there for his resistance to the change in religion. As regards the two-storeyed room over the south porch, there are three or four uses to which it may have been applied. It may have been a muniment-room (like that at Adderbury Church, which in so many respects resembles Bloxham), or a dwelling-place either for a chantry priest or the parish priest. If it had been for a chantry priest it would seem natural for there to have been an outlook on the east side overlooking the altar of the present chapel. Instead of this, however, there is on the first floor an opening which looks to the north; from it a good view can be obtained of the north transept, which containing as it does a piscina and aumbry was at one time used as a chapel, and so may have had a chantry priest attached to it. But this opening also gives a very convenient outlook over the greater part of the church, and would afford admirable facilities for night-watching and general supervision; steps lead into it from the interior of the church and from the general arrangements I am inclined to think it was the residence of the parish priest. There is a fireplace in the first room and from the staircase an easy exit on to the church roof. Late in the fifteenth or at the beginning of the sixteenth century the eastern end of the south aisle wall was evidently pulled down and the chantry built, and at the same time the east windows of both aisles were replaced by others, corresponding with those of the chantry.

At the western end of the north side of the chancel there is a recess which was probably a low side window. As the exterior is covered by a turret containing the rood-loft staircase it cannot be examined, but low side windows being in general use before rood-lofts became common, it is most likely that it was used as such until the staircase was built, when it was blocked up.

You will remember the theory about these low side windows, how it is supposed that they were intended, not for the use of lepers, but for the acolyte, who could ring a handbell through these openings at that part of the service when in many churches the sanctus bell was used. But I think it is not generally known that the name of "leper window" is comparatively a modern one, and originated from the discovery by Mr. Street of a wall-painting which seemed to represent a leper communicating at one of these windows. There is also another theory which contends that these windows were used in connection with the burial service; it has been thought that before it was the custom for the body to be brought into the church, the greater part of the burial service was said by the priest through the low-window. The ground on the south side of the church was usually the first to be converted into a churchyard, and this would seem to lend support to the theory, because the low side windows are commonly found on the south side of the chancel. In this way we might find a reason for occasionally finding one of these windows on each side, as we do here; when the churchyard was full on the south and burials commenced on the north it would necessitate another opening on that side.

At the western end of the clerestory there have been two openings, one on each side, like small windows; they are now filled in with stone, and at first sight are a little puzzling, but whoever will take the trouble to go on to the roof will, I think, have no doubt as to their meaning. The staircase from the upper room leads on to the roof of the chapel, and from there an opening through the parapet provides for access to the roof of the south aisle; from there one can trace exactly the same opening that was noticed from the inside, and these have evidently been formerly used for a passage across the nave, and so on to the roof on the other side of the church, which could only be reached from that side by ladders. There was, I believe, at one time a western gallery, and although these openings would be considerably higher than the gallery they may in some way have been connected through that; the western gallery being entered from the body of the church a ready means of exit to either roof would be obtained by these openings. In the eighteenth century the spire suffered repeatedly from lightning, especially in December 1790; it was then restored by Charles Cockerell.

The intense love of the churchwardens at the beginning of the nineteenth century for "neatness," which to them was synonymous with "whitewash," induced them to plaster the church to an unpardonable degree; even the upper part of the rood-screen and the arch over it was plastered over. The screen itself was painted slate colour all over. The font was defaced not merely with a coat of whitewash, but with a thick covering of red paint.

The church was restored in 1866 under the direction of Mr. G. E. Street at a cost of about 6,000*l*. The plaster was entirely removed, and, amongst other repairs, the nave was reroofed and the roof of the parvise covered with some fragments of the old nave roof. The rood-screen was restored, and the old colours carefully traced and copied. The roof of the north porch was reproduced exactly from the original one, of which they found remaining only one pair of principals. The floor of the church was retiled.

The sedilia were wholly obliterated, and the only thing found was the trace of them in the mortar of the masonry, which showed their shape. One or two fragments also were taken from the wall near them. The old piscina had been inverted and made part of the seat below. The hole in the present one, with a portion of the slab, is old; the rest had to be added.

After writing my paper I happened to come across some remarks made by Mr. Street when he restored this church. He said that they discovered that a great part of the wall over the window arches in the chancel was built of pieces of wrought stone, which had been used before. Some of these stones appeared to be the angle stones of a tower, and some the stones belonging to a spire. These are very interesting as proving that there was a spire before that which is now here, and Mr. Street suggested that this may have been central. I have not had an opportunity of revisiting the church since I found this suggestion, but from what I had learnt of the church on former visits I have been unable at present to find any place in its life history for a central spire. There were few, if any, stone spires entitled to that name in the Norman period, although their forerunners, the high pyramidal roofs, are sometimes spoken of as spires. Seeing, then, that the present spire is Decorated, it is almost certain that the former one would have been put up in the Early English period, and as the arcades belong to quite the beginning of the thirteenth century, it is hardly likely that the spire would be before them in date. Now if the tower and spire were central, and were built either at the same time or after the arcades, where were the supports of the tower? We see no traces of piers or columns likely to have been used for that, neither do we see any suggestion of these present arcades having been interfered with or added to when the tower and its supports might have been removed. The only variation in the regular planning of them is that the column of the eastern respond of the north aisle resembles those on the south in shape, but at present I cannot honestly bring forward sufficient evidence to support this theory.

It is interesting to note the similarity between this church and that at Adderbury. The planning of the two churches is on much the same lines. At Adderbury, between each of the transepts and the side aisles of the nave are two arches resting on clustered columns with sculptured capitals consisting of heads and figures similar to that here. Adderbury, too, has a cornice decorated with a series of grotesque figures and animals similar to that on the north aisle at Bloxham. The same blocked-up openings at the west end of the nave are also at Adderbury. Mr. J. H. Parker once described this church as one of the finest parochial edifices in the kingdom, and whether that may be questioned or not, it certainly illustrates almost every phase of the development of Gothic architecture.

The Gothic storey divides itself into three parts, corresponding roughly to three centuries, and we have at Bloxham not a few of the main characteristics of each. The slender rigidity of the upright shafts and the emphasised circlings of the capitals, with their hollow bells, are as typical examples of thirteenth-century work as is the leaf-capital of the Early English grace of natural suggestion. The many-mullioned windows with their variety of tracery, and the slender and high steeple, strike the keynote of the style which is associated with the fourteenth century. Leaving this luxuriant grace of the Decorated period we come, in this Perpendicular chantry, to the stiffness, the straight-lined tracery, the perfect stability of the last greatest church building which, in the Midlands, we find in great parish fabrics like those of Coventry and Nottingham.

The Tower of Selby Abbey is said to be in imminent danger, the parapet and cornices now being in such a state that a strong wind would easily dislodge them, and they might fall on the roof. As a result of a report from an expert the ringing of the bells has been discontinued. The cost of taking down the tower is estimated at 800*l*.

PUBLIC BODIES AND ARCHITECTURE.

THE first of two lectures under the Warburton Trust was delivered at Owens College on December 11 by Mr. Reginald Blomfield, whose subject was "Municipal Bodies and Architecture." Mr. Alfred Hopkinson, principal of the college, presided. The following report is from the *Manchester Guardian* :—

Mr. Blomfield said he did not propose to offer any suggestion as to the practical business details with which municipal bodies were concerned in relation to architecture; a far more widely reaching question was the mental attitude of municipal bodies towards architecture, the faculty of judgment which they possessed—or did not possess—as representing the average public. He hoped to show that there was here a growing necessity for wider and more intelligent education, and to offer some suggestions as to the lines that this education should follow.

Municipal bodies in modern cities had more important functions to discharge in dealing with architecture than anybody else. The buildings for which they were responsible were public buildings, and therefore were, or should be, monumental in character, with regard to the fact that they were built once and for all, for certain special and permanent uses. For good or for bad, they represented the average public taste and intelligence of the time. It was a reflection that should make the more thoughtful of our public men ponder on their misdoings with some misgiving, that future generations would look with wonder and contempt on the mere barracks and masses of vulgarity that had too often done duty for our hospitals and our town halls. Unkind things were said about modern architecture, all tending to the conclusion that there was no such thing, and that architects had nothing to say. This might or might not be the case, but it was not the fault of the architects. It was the fault of the bodies who employed them—bodies who too often took a very easy view of their responsibilities, and, considering architecture a matter of slight importance, cheerfully treated the selection of their architect as a matter of merely local and ephemeral interest. The attitude of town and county councils to architecture but too faithfully reflected the attitude of the general public towards that art. That this attitude was quite unsatisfactory there could be no doubt. He thought that any competent observer who took note of the average of architecture in our great cities would be driven to the conclusion that the general level of taste and ability was low. He would find that some of the least admirable of these buildings were the most admired. He would find, too, no common standard of appreciation, but merely a mass of unrelated judgments, amounting to little more than individual expressions of like or dislike. He would, in short, find public opinion in architecture in a state very little removed from chaos. He would find that there was no intelligent body of opinion to which a competent architect could appeal as a matter of course; and that the public in the pursuit of architecture were like sheep without a shepherd. The uncertainty of taste shown in the treatment of the public buildings of the last fifty years was conclusive evidence of the confusion of judgment which existed in the minds of our representative public men. There was no reason in the nature of things why this state of chaos should indefinitely continue.

It had not always been so in English architecture. In the seventeenth, and still more in the eighteenth century, when a building was to be erected such questions as had recently exercised the Liverpool Cathedral committee did not exist. Architects who were called upon to design a building knew exactly what they had to do. They had no necessity to clear the ground by a long preliminary discussion as to the style to be adopted. Everything went as smoothly as clockwork. But about 150 years ago a new element appeared. The amateur and the virtuoso assumed an importance which they had never previously enjoyed. Distinguished noblemen dabbled in design, and eminent men of letters amused themselves with architecture. Mr. Blomfield quoted the example of Horace Walpole, who, he said, subordinated architecture to the elegant insincerity of his own taste. When a direct attempt was being made to reproduce Gothic architecture, in obedience to a purely literary sentiment, it was hardly to be wondered at, he thought, that the layman should have lost his bearings. Thus the nineteenth century opened with three styles struggling for ascendancy—the old traditional Classic of Chambers and his school; the new Greek method, which was to be carried to such a high degree of excellence by Decimus Burton, and later by Thomson, of Glasgow; and, lastly, this revived Gothic. All architects of reputation followed one or the other of the first two manners. The amateurs stuck to the Gothic, and the amateurs carried the day; but when one considered that the whole force of the Romantic movement was behind them, the result was not surprising. So Wyatt, or Wyattville, started his career of architectural murder; Pugin followed, and threw himself into the cause with the enthusiasm of an ill-regulated mind; and then came Ruskin, a man of narrow prejudice but brilliant genius, whose eloquence won a sort of St Martin's summer for the Gothic movement, prolonging its life quite two

generations beyond the appointed time. All these men, from Walpole to Ruskin, seemed to have laboured under one very serious vice in their handling of architecture. It never occurred to them that architecture was an art which dealt with practical and immediate necessities, that it was founded on use and based on construction, and that the details which so much exercised their attention—Walpole with his ridiculous Gothic, Ruskin with his exquisite sense of detail, and no more—were not architecture at all, but mere words or phrases in its language. So Walpole treated architecture as a subordinate expression of literature. Pugin, and still more Ruskin, translated it into terms of ethics. The result had been that the sense of architecture as an art, with its own limits, its own technique and its own ideals, had almost disappeared, even among architects.

So far as the public was concerned, laymen had first of all lost their bearings in architecture, and finally had lost their interest in it, as being an art of no serious bearing on the immediate concerns of life, and therefore to be dealt with according to the fashion of the time, without regard either to first principles or to the teaching of the past. This habit of mind had been faithfully reflected in the conduct of the various bodies that represented the public. The history of public competitions for town halls and similar buildings erected in this country during the last fifty years was too painful to go into. But with rare and brilliant exceptions, the deplorable results were to be seen in every part of England to this day—in asylums that disfigured a whole countryside with their deformities and town halls that brought their cities to shame. As for public parks and gardens, in these we have reached the lowest note of vulgarity ever sounded in our country. These fiascos in municipal architecture were a matter of the last fifty years or thereabouts. Before about 1850 public buildings might have been unimaginative and dull, but the majority of them preserved some glimmering of an architectural sense; they regarded proportion, and were not devoid of a certain staid dignity. But this sort of thing would never do for the histrionics of the modern revivalist. He must have "something that knocks you down then and there," something to be talked about, something that would reproduce well in the art papers. The absurd thing about it was that meanwhile there existed a high degree of individual good taste and culture. The difficulty was to get this knowledge into line and to make its weight felt in municipal dealings with architecture. We needed to instil sounder and simpler views into the man in the street, to make him more anxious and inquisitive about the buildings he had to live with, and to suggest to him larger ideas as to his duty in the matter. It was pretty certain that if the public wanted good architecture and really cared about it to such an extent as to make it a matter of serious interest they would very soon get it. He thought that there was no lack of ability among the architects of this country; the only thing was that ability did not appear to be wanted. If it were, public bodies would hardly tolerate what they got in some of their public buildings. London, for instance, or the London County Council, would hardly permit magnificent frontages in new streets to be taken up by financial syndicates and covered by piles of hideous buildings which made one long for a second Nero. Important public buildings would not be handed over to mere office draughtsmen of unproved capacity; the care of our cathedrals and great public monuments would not, again and again, become what was more or less of a public scandal.

How were they to get at this state of indifferentism and to rouse municipalities and public bodies to a sense of their responsibilities? The question became one of education, and it was a question which in a great and intelligent city like Manchester should be seriously considered by its representative public men. Cities such as Manchester were not hampered by the traditions of the older universities; here, with a new foundation specifically designed to meet modern requirements, there could be no excuse for neglecting to provide for this growing educational need. There seemed to him, broadly speaking, to be three channels through which the public could be reached—(1) by direct school teaching; (2) by treatises on architecture; (3) by the works of architects themselves. With regard to the latter point, it must be obvious that in an art such as architecture, which must make appeal through the eye, the object lesson of a beautiful building was worth all the treatises in the world. But then, in the first place, the architect must be given the opportunity to design such buildings, and the public must have an eye to see them with when they were built. Hitherto, and until quite recently, no systematic public education in architecture had been attempted in this country. It had remained outside the lines of general education, and from this point of view had been considered rather as a mere hobby for which no special provision need be made in educational schemes. It was for the modern universities to remedy this defect and to organise a system by which, at the great provincial centres, not only technical instruction for the student, but some reasonable education in the nature and

history of architecture should be provided for the public. There was not only room but a growing necessity for more exact technical training in architecture. The old-fashioned system of articles, though not to be dispensed with, was not entirely satisfactory. His own opinion was that anyone who intended to become an architect should be put through a course of technical training as thorough as possible before he entered an architect's office at all. The means of such training should be provided at the great modern universities, and should include not only lectures, but practical training in workshops and laboratories. Moreover, this training should not be confined to architectural students only. It was a well-known fact that the great majority of buildings erected in this country were not designed by architects at all, and it was also a fact that many contractors depended upon clerks and foremen for their practical knowledge. We should hear a good deal less of buildings tumbling down before they were up, of drains laid the wrong way, and the like if all builders had to go through a course of good practical training. Moreover, the speculative builder might avoid some of his worst iniquities of taste if he had any, even the most rudimentary, acquaintance with what had actually been done in architecture. After the technical training was completed the work, of course, must become more or less educational, and it was evident that some highly trained controlling mind would be necessary to undertake this education in the art of architecture. Such a teacher would indeed have his work cut out for him, for it would be his business to clear the air of misconceptions and to lead not only students, but the wider circle of an intelligent public to a sounder appreciation of the theory and function of architecture.

At this moment the public—that was to say, the average man—did not appreciate or understand architecture. In the first place, there was that old stumbling-block of offence, the question of styles. It was evident from a recent controversy in regard to a great building enterprise, that to the lay mind architecture presented itself as a question not of style, but of a style. That was to say, he must be able to label it as definitely Gothic or Classic or Greek or Egyptian, or whatever else it might be. This meant that a design should present such a number of familiar features that it would be at once pigeon-holed a Gothic or Classic, because even the layman could see that it reproduced the mouldings and traceries, or the orders and entablatures, which he had learned from his text-books to be the distinctive features of the style in question. So the layman went his way quite satisfied. He thought that he had got his style according to his prescription, and fancied that he was building as good a Gothic cathedral or Classical temple as was ever built in the days of Edward I. or Pericles. But he was not; he was only getting a more or less knowledgeable copy; he was getting not architecture but archaeological pedantry; and the better it was the worse it was, because so far it divorced architecture more effectually than ever from the actual uses and necessities of the world we live in. Such a professor as he had suggested would make it clear that these styles were merely the classifications of historians, often of amateurs; that they were merely labels of identification dealing with exteriors only, and that behind them there was an elusive spirit to be caught, the real meaning of architecture. It would be a great thing once and for all to clear away this initial misconception of architecture, but there were others hardly less formidable. The way out of the present welter was not easy. A century or more of experiment in the arts had brought little but disappointment and disillusion. Perhaps it was in this latter result that the hope for the future lay. Signs were not wanting of a half-articulate revolt against the two extremes of architectural disease, scholasticism on the one hand and commercialism on the other. We must learn to look upon architecture as a living art, not "complete and exhausted," as a distinguished critic made bold to say the other day, but with possibilities of development waiting to be found, not less varied than in the happy days when architecture was a vital force.

Mr. Blomfield was thanked for his address on the motion of Mr. Alfred Darbyshire (president of the Manchester Society of Architects), seconded by Professor Tout. Professor Tout said that they hoped to found a chair of architecture at Owens College in the near future. It might be asked why there was not already such a chair in existence, but the reason was that the funds of the College were not adequate at the present moment for this new venture. If they could only get a little money to start with they would do their best to found the chair and to get the right man to fill it.

Mr. Blomfield, in responding to the vote of thanks, said the establishment of a school of architecture at Owens College would meet a very great need, and he wished Manchester all success in the enterprise.

The Tunbridge Wells Town Council have decided to appoint an art master at 270*l.* per annum and a new head master of science at 250*l.* per annum for the municipal schools.

PREHISTORIC TUMULUS AT SUNNINGDALE.

IN the course of making new golf links on the grounds of Mr. T. A. Roberts, at Sunningdale, near the railway station, it was discovered by Mr. Craig, the contractor for the work, that a mound which it was proposed to utilise for "teeing" contained burial urns. He at once communicated with the Reading Museum, and on November 27 Mr. O. A. Shrubsole, F.G.S., the curator of the geological and anthropological department, with Mr. Colyer, the assistant curator, proceeded to the spot. Three urns had already been disinterred. As the result of further examination, says the *Reading Mercury*, fourteen more were discovered and removed, besides which indications were found of two interments of ashes not deposited in any urn, but probably enclosed in a cloth which had since decayed. It should be stated that all the vessels contained small fragments of bone partly burnt, with carbonaceous matter and soil, indicating in each case that the body had been cremated, and that a portion of the ashes had been placed in the urn and then covered up by earth. In eight cases the urn was found in an inverted position. As such an arrangement would be unnatural in the ordinary way, it may legitimately be held to indicate a fear lest the spirit of the dead person should escape from the urn. Such indications are not unusual in ancient interments. Among imperfectly civilised races there is frequently a strong disposition to fear and to propitiate the spirits of the dead.

The mound itself is distinctly artificial and circular in form. The diameter is 75 feet, but this has probably been increased by the washing down of the soft sandy soil of which the mound is composed. Its present height is 6 feet, but it was doubtless originally higher. The urns were found generally about 1 foot from the present surface, and appear to have been deposited in a systematic manner about 3 feet apart near the centre of the mound and inclining to the western side.

From the imperfect condition of several of them it is likely that the mound may have been disturbed in ancient times. Accidents might even have occurred at the time of the burial of some of the urns. In one case an urn was found slightly overlapping another.

The crust of the urns was in almost every case of clay baked red and strengthened by fine flint grit. They are all rudely hand-made. Only a few bear any ornamentation, and then in the form of a band or fillet round the urn, either plain or studded with pits or hollows. The urns differ in size, shape and ornamentation: scarcely two are alike.

It is obvious therefore that we have here a cemetery, the remains of an ancient crematorium. The size of the urn in each case might be thought to indicate the importance of the deceased person, yet no one person appears to have been of sufficient importance to have a mound to himself. We have therefore evidence of a settled community living near the spot. It is of interest in connection with this that there is an ancient earthwork about a furlong south-east of the mound.

It being important to ascertain whether the tumulus contained any earlier interment, a further investigation was made by Mr. Shrubsole on December 2 and 3. A trench was cut from north to south through the centre of the mound. Nothing whatever was met with. The soil was entirely composed of the sand of the Bagshot beds, with occasional traces of carbonaceous matter and a few split pebbles. Cross-cuts were also made from east to west, and the centre was dug for a depth of 2 feet below the original surface of the ground. The result showed that the mound was raised simply as a receptacle for the urns deposited in it, or possibly that any primary interment had decayed.

These are all of rude British make, and therefore may safely be ascribed to a time before Britain came under Roman influence.

In the absence of any vestige of a weapon or ornament the exact age of the burials cannot be determined with certainty, but from the shape of the mound, the care evidently exhibited in the disposal of the dead and the evidence of a village community, we shall not be far wrong in saying that they belong to the age of bronze, and probably to a late rather than an early date in that age in this country. Here, in fact, were deposited the remains of "the rude forefathers of the hamlet." Some of the urns are 1 foot 4 inches in diameter; others are much smaller, and some interments were not thought worth any urn at all. A few ashes were deposited with some rough pieces of sandstone, and in one case a slab of conglomerate from the gravel on the top. Another such slab was noticed in the surface-soil of the mound. The split pebbles referred to might have had a symbolic meaning.

It should be stated that the top of the mound was levelled about seven years ago. This will further account for the imperfect condition of the urns, the inverted ones having lost their bottoms and the others having had the upper parts more or less destroyed.

In connection with this matter, it is of interest to note that the modern crematorium at Woking is only a few miles distant, which shows how difficult it is to be original.

ARCHITECTURE AND RELIGION.

THE opening meeting of the session of the Architectural Section of the Royal Philosophical Society of Glasgow was held in the rooms, 207 Bath Street, Glasgow, on Monday evening. Mr. James Chalmers, I.A., the president, delivered his opening address upon the sphere of the architect in relation to religious art. Referring to the recent union of the several denominations and the tendency towards union with the Episcopal Church, it was well for the architect to consider where he stood in regard to church planning, which was more or less following the Episcopal or Roman plan. It appeared to the lecturer that churchmen were becoming convinced that a church was not a house for holding so many worshippers in area and galleries, with the necessary pulpit and organ, but that it was in another sense the house of God. There was no doubt but that the privilege of the architect was to build a church which, as far as possible in form and decoration, embodied all religion; and it was curious to notice the extent to which the building trades, or societies akin to them, had reduced religion and morals to geometrical forms, and were thus able to embody these in stone, giving to each its religious meaning. It was partly because of the simple proportions in the architecture of the Old Testament, with its beautiful symbolism, which inspired the Christian Church in the Middle Ages to favour the triangle as compared with the square. The central idea was the symbol of the glory at the altar, and the ornament appeared to represent the rays. Any church union must be upon the central doctrine of unity in trinity and trinity in unity, and the universal church plan would be built upon the beautiful symbolism of this mystery. The lecturer then traced the development of church planning and ornament from early times, and illustrated his lecture with views of Jewish and Christian temples and churches. At the close a vote of thanks was awarded to the President for his address.

GENERAL.

Mr. J. S. Sargent, R.A., has been elected a correspondent of the French Academy of Fine Arts in the room of the late M. Guffens, the Belgian painter.

The Gross Valuation of the Metropolitan boroughs is declared to be 40,365,897 $\frac{1}{2}$, the rateable value being 33,350,433 $\frac{1}{2}$, and of the City of London 5,890,020 $\frac{1}{2}$ and 4,888,378 $\frac{1}{2}$ respectively.

Mr. Herbert Draper's painting, *Tristram and Iseult*, exhibited in this year's Royal Academy, has been purchased by the Corporation of Liverpool for their permanent collection of pictures.

The Glasgow Parks Committee have resolved that all the International Exhibition buildings shall be taken down forthwith, with the exception of the machinery hall, which is to be retained for storage purposes. The other buildings will be disposed of by auction.

Sir Joshua Reynolds's Palette—inscribed "This palette of Sir Joshua Reynolds is presented with J. M. W. Turner's sincere regards to Sir Martin Archer Shee, P.R.A., January 1, 1832"—sold for twenty-seven guineas on Tuesday. Sir Edwin Landseer's painting palette and easel brought 3 $\frac{1}{2}$ 5s.

The Pennsylvania Road Company are about to construct a tunnel under the North River and another under the East River at New York, so that the terminals of the Pennsylvania and Long Island railroads will be connected. The cost of the undertaking is estimated at 10,000,000 $\frac{1}{2}$, and between three and four years will be required to complete the work.

The London County Council on Tuesday accepted the recommendation of the historical records and buildings committee that the work of indicating by means of memorial tablets houses of historical interest in London should be continued. The Society of Arts have hitherto been engaged in setting up similar tablets, but are desirous of being relieved.

M. A. Bessard, the French painter, has been elected president of the section of "Objets de l'Art," for the Salon exhibition, in succession to the late M. Cazin.

The London Corporation have purchased from the owners of the freehold Spitalfields Market for 176,750 $\frac{1}{2}$.

The Gallery of Modern Art in the Luxembourg, Paris, is so crowded it is proposed to erect a larger gallery in the garden which is to be formed in the Champ de Mars.

The Sanitary Inspectors' Examination Board will hold an examination in London on January 21 next and four following days. Particulars will be forwarded on application to the honorary secretary, Mr. Wm R. E. Coles, 1 Adelaide Buildings, London Bridge, London, E.C.

An Exhibition of modern English furniture will be opened in March next at the Hungarian Museum of Decorative Art, Budapest.

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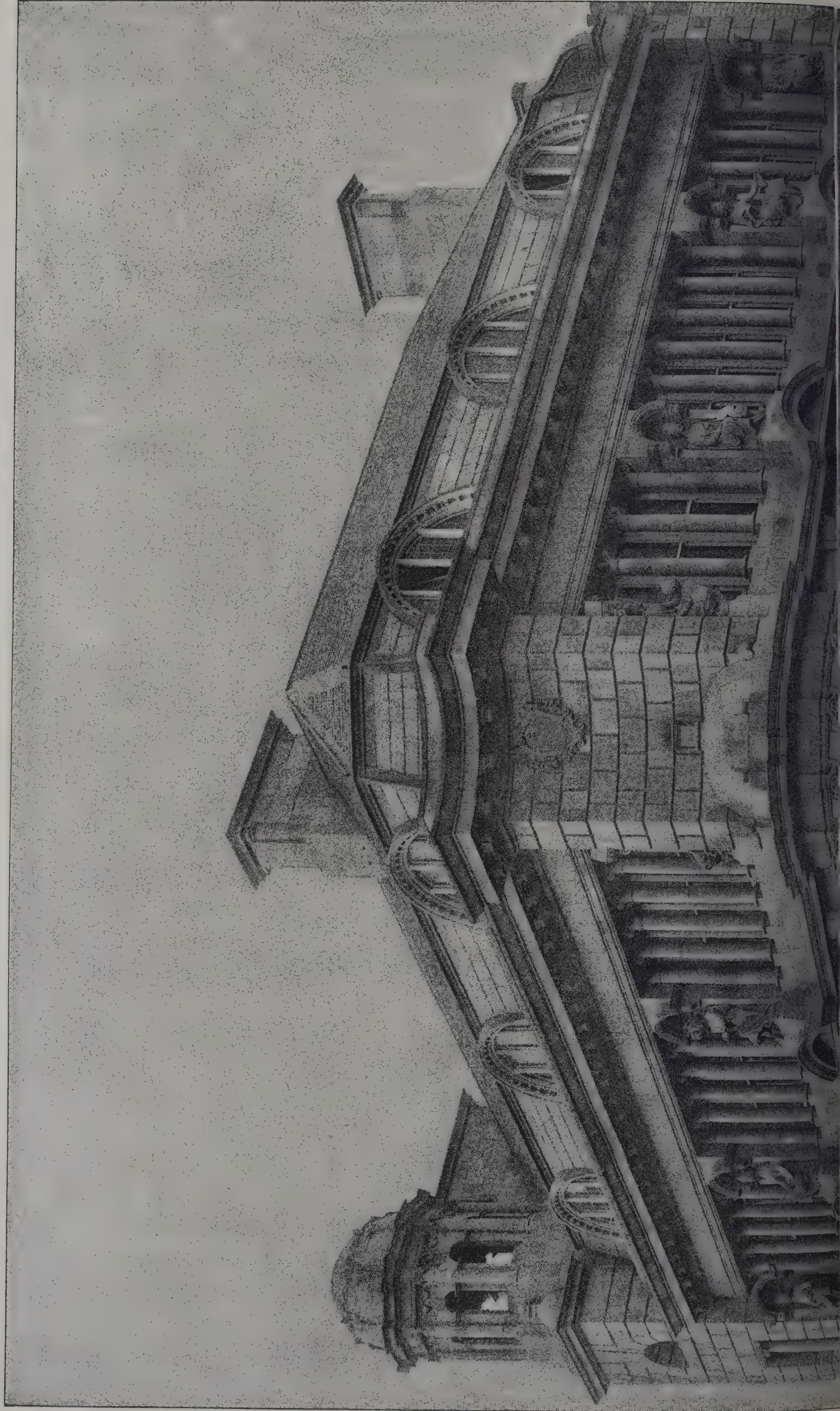
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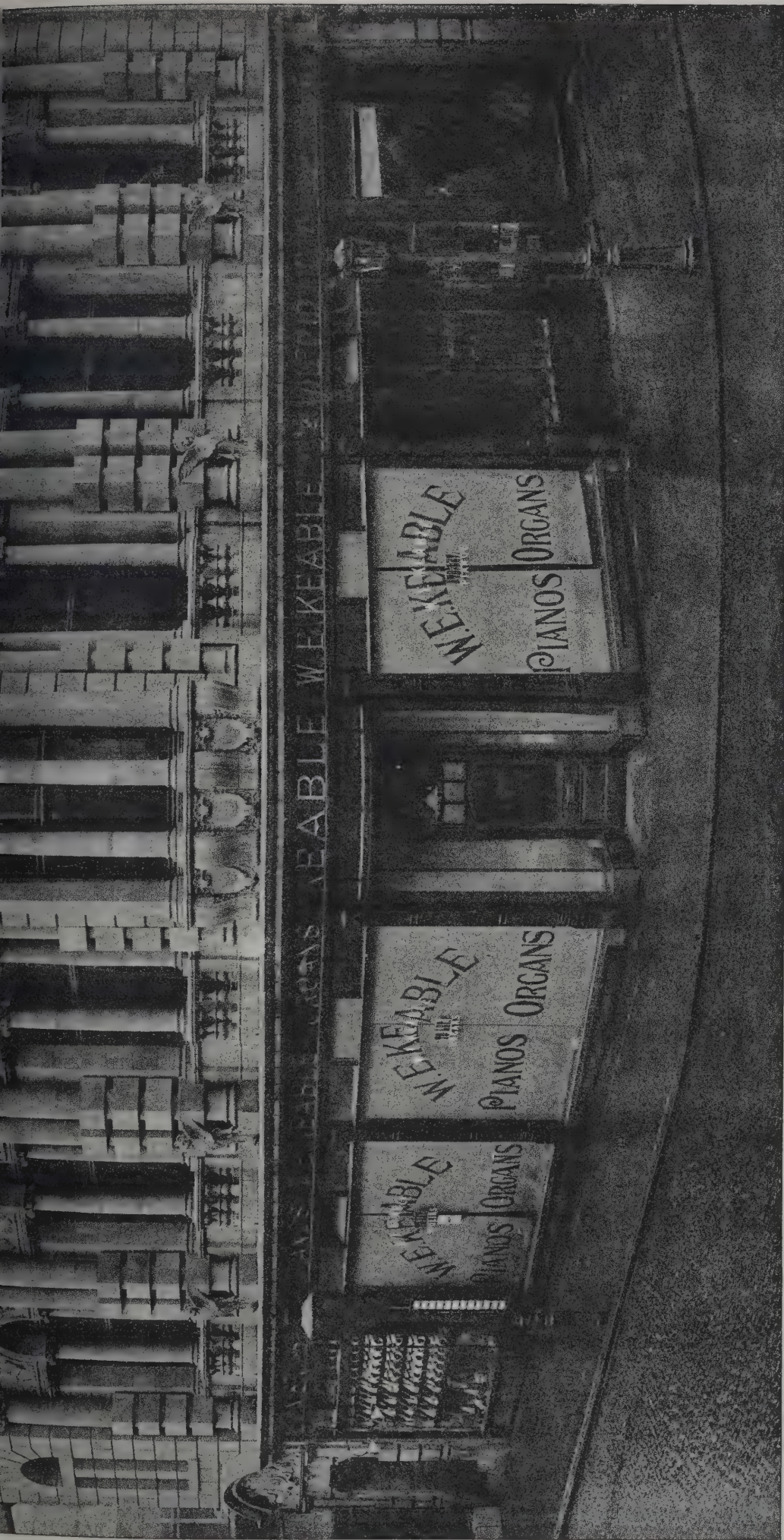
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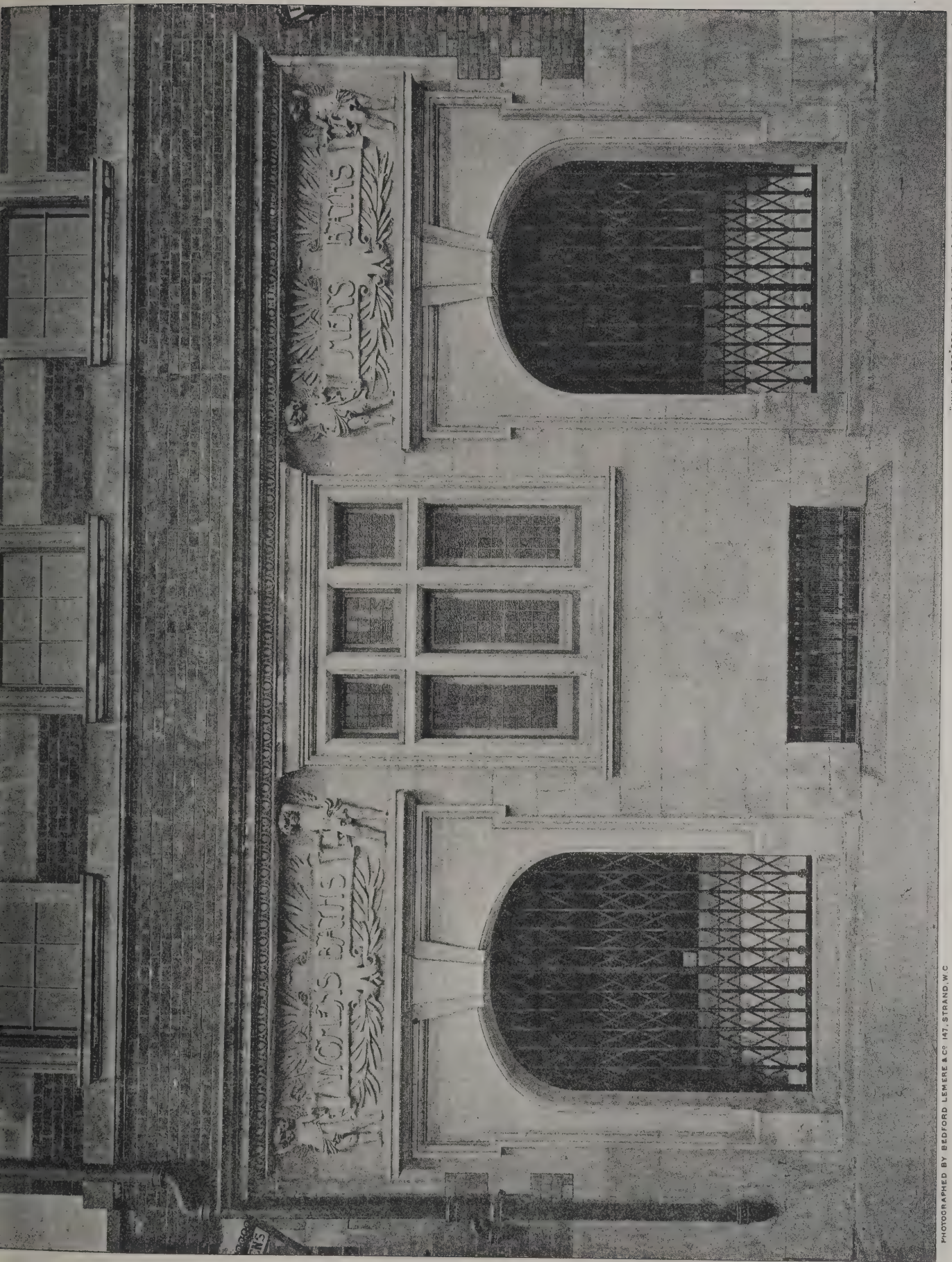


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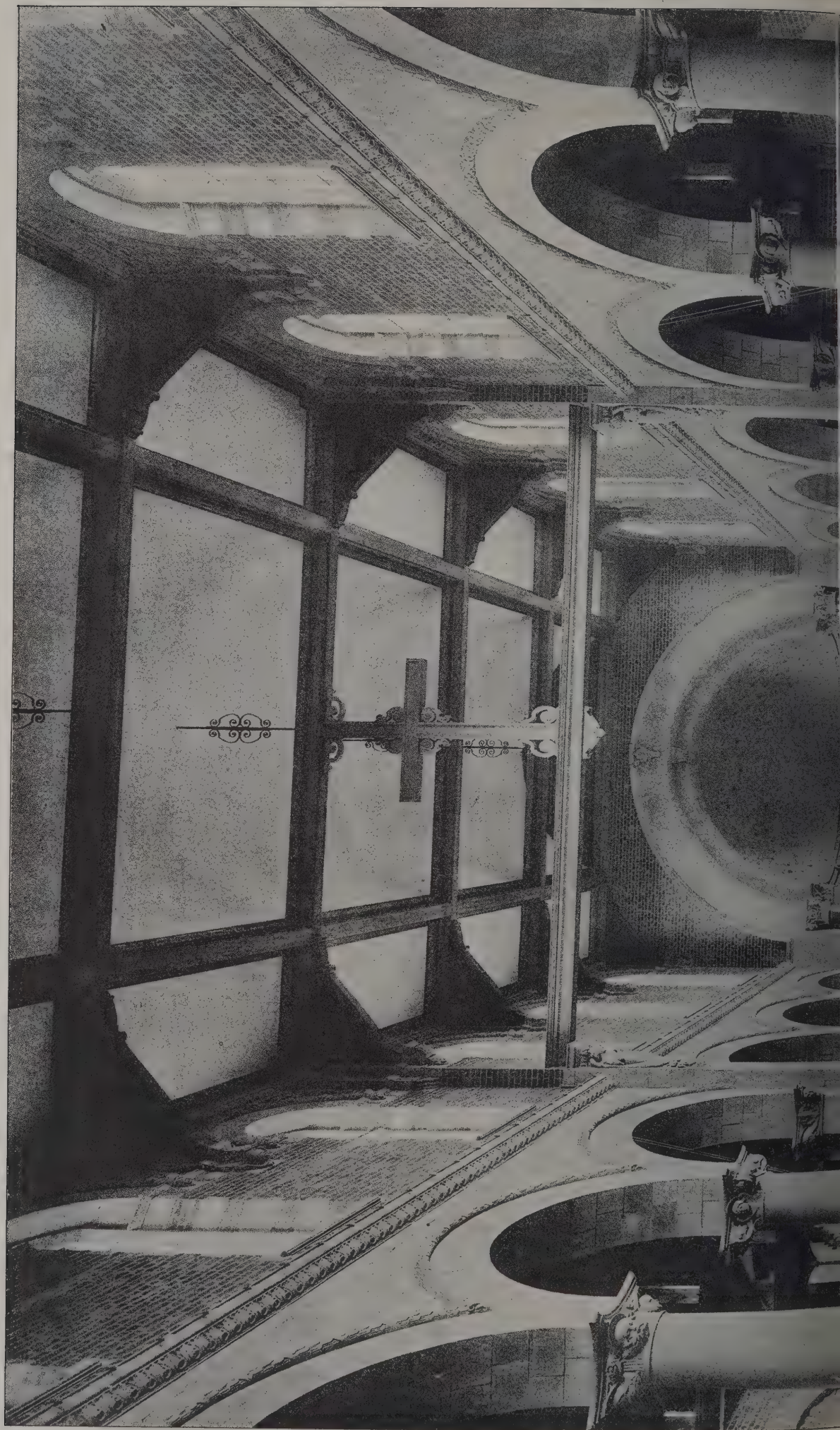
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THE

Architect and Contract Reporter**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

IMPORTANT NOTICE.

Owing to the Christmas Holidays, all Advertisements, Tenders, &c., for the issue of December 27, must reach the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 p.m., on Tuesday, December 24.

COMPETITIONS OPEN.

AUSTRALIA.—May 1.—Designs are invited from sculptors for a memorial statue of Her late Majesty in marble or bronze. All information can be obtained at the office of the Agent-General for the State of Victoria, 15 Victoria Street, Westminster.

BATTERSEA.—Jan. 31.—Premiums of 50*l.*, 25*l.* and 10*l.* respectively are offered for the three best sets of designs, &c., of dwellings, as follows:—(a) A house of two storeys; (b) a house consisting of two self-contained tenements; and (c) a house consisting of three self-contained tenements. Mr. W. Marcus Wilkins, town clerk, Municipal Buildings, Lavender Hill, S.W.

GLASGOW.—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

HULL.—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

IRELAND.—Jan. 20.—Plans, &c., are invited for drainage of Howth and Sutton, Dublin (and an alternative system for the latter). A premium of 50*l.* is offered. Mr. John O'Neill, clerk, board-room, North Brunswick Street, Dublin.

ISLE OF WIGHT.—Jan. 31.—Designs are invited for a suitable monument as a memorial to Her late Majesty, to be erected in St. James's Square, Newport, Isle of Wight. A premium of 25*l.* is offered for the accepted design. The Secretary, Isle of Wight Queen Victoria Memorial Committee, 20 Holyrood Street, Newport, Isle of Wight.

KENT.—Jan. 1.—Competitive designs are invited for laying-out about 16 acres of land, near Canterbury Road, Gillingham, as a recreation-ground. Premiums are offered of £20, £10 and £5. Mr. F. C. Boucher, clerk, Gardiner Street, New Brompton, Kent.

LANGHO.—April 4.—Competitive drawings are invited for buildings to be erected at Langho, near Blackburn, for the accommodation of the epileptics, imbeciles and idiots at present in the workhouses of the Chorlton Union and the township of Manchester. Premiums of 200*l.*, 150*l.* and 100*l.* respectively will be awarded. Lithographed plan of site, and copy of conditions and instructions, may be obtained by a written application only, addressed to the Clerk to the Joint Asylum Committee, Chorlton Union Offices, All Saints, Manchester.

LIVERPOOL.—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

SCOTLAND.—Jan. 15.—The Kirkcaldy Burgh School Board invite competitive plans for a technical and science and art school to accommodate from 400 to 500 pupils, and an elementary school to accommodate about 400 pupils. Mr. Alexander Beveridge, clerk to the Board.

WALES.—Feb. 4.—Competitive designs are invited for municipal offices proposed to be erected by adapting, adding to and rearranging the town hall buildings at Mountain Ash. A premium of 75*l.* will be paid to the author of the design placed first in order of merit. Mr. H. P. Linton, clerk, Town Hall, Mountain Ash.

CONTRACTS OPEN.

ASHTON-IN-MAKERFIELD.—Jan. 8.—For supply of a steam road-roller, 12½ tons, a scarifier and a sludge and snow remover. Mr. J. W. Liversedge, surveyor, Council Offices, Ashton-in-Makerfield.

BAKEWELL.—Jan. 3.—For construction of a circular water-tight concrete reservoir to hold about 115,000 gallons, in the parish of Hassop, and the construction of a circular covered water-tight concrete service tank to hold about 50,000 gallons at the Headstones Head, in the parish of Ashford, and other works in connection with the proposed water-supply. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

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BARNSTAPLE.—Jan. 16.—For supply and erection of the electric-lighting plant. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

BARROW-IN-FURNESS.—For electric wiring of the new town hall. Mr. C. F. Preston, town clerk

BIRMINGHAM.—Dec. 30.—For erection of pavilions, boiler-house and other works at the workhouse, Erdington. Messrs C. Whitwell & Son, architects, Temple Row, Birmingham.

BOGNOR.—For erection of a bungalow at Aldwick, Bognor. Messrs. Hall, Cooper & Davis, architects, 10 Gray's Inn Square, W.C.

BOURNEMOUTH.—Jan. 6.—For supply of electric-lighting plant. Mr. F. W. Lacey, borough and tramway engineer, Municipal Offices, Bournemouth.

BRANKSOME.—Jan. 3.—For supply and erection of wrought-iron railing and gates, with dwarf wall to front of the Council buildings, Branksome, Dorset. Mr. W. H. Curtis, clerk to Urban District Council.

BRATTON FLEMING.—Jan. 6.—For constructing a tunnel about half a mile in length, in the parish of Bratton Fleming, in the county of Devon, in connection with the new water scheme. Surveyor, Town Hall, Ilfracombe.

BREDE.—Dec. 23.—For erection of two cottages in Cackle Street, Brede, Sussex. Mr. P. H. Palmer, engineer, Town Hall, Hastings.

BROMSGROVE.—Jan. 8.—For sinking or boring to obtain a water supply for the new Barnsley Hall asylum. Mr. George T. Hine, architect, Westminster.

BURNLEY.—Dec. 24.—For various works at the Gannow district baths, Burnley. Mr. A. Steele Sheldon, town clerk, Town Hall, Burnley.

BURY.—Jan. 20.—For construction of a central tramway depôt in Rochdale Road, Bury. Mr. Arthur W. Bradley, borough engineer, Bury.

CANTERBURY.—For erection of schools to accommodate 1,020 children at St. John's Place, Northgate. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CASTLEFORD.—For erection of six dwelling-houses, Garden Street, Castleford, Yorks. Messrs. Garside & Pennington, architects, Ropergate, Pontefract

CHATTERIS.—Dec. 23.—For erection of a Board school at Chatteris, Cambs. Mr. John Edwin Seward, clerk to School Board, Chatteris.

CORK.—Dec. 23.—For erection of a manse in the Military Road, Cork. Messrs. Robert Walker & Son, architects, 17 South Mall, Cork.

DARLINGTON.—Dec. 27.—For erection of branch stores in Victoria Road, Darlington. Messrs. Clark & Mossdrop, architects, Feethams, Darlington.

DEWSBURY.—Dec. 31.—For erection of a covered market in Crackenedge Lane. Mr. G. Trevelyan Lee, town clerk, Town Hall, Dewsbury.

DRONFIELD.—For sinking shaft 8 feet 6 inches clear, 20 yards below the silkstone seam, and a shaft 12 feet clear, 70 yards to 100 yards from the surface. Mr. Wm. Hutchinson, manager, Stubley Colliery, Dronfield.

DUDLEY.—For erection of a dwarf boundary-wall and entrance-gate piers at the new cemetery, Stourbridge Road, Dudley. Particulars may be obtained at the Borough Surveyor's Office, Town Hall, Dudley.

DULVERTON.—Dec. 27.—For erection of a court-house and police-station at Dulverton, Somerset. Mr. William John Willcox, county surveyor, 1 Belmont, Bath.

EDINBURGH.—Dec. 30.—For erection of a steel latticed girder footbridge and trussed roofs in connection with the Edinburgh and Leith works at Granton. Mr. W. R. Herring, chief engineer and manager, New Street Works, Edinburgh.

FARNHAM.—Jan. 1.—For supply of an all-metal power washing machine (50-shirt capacity). Mr. Ernest Crundwell, clerk to the Guardians, South Street, Farnham.

HANLEY.—Dec. 31.—For erection of a home for the Little Sisters of the Poor, adjoining Cobridge House, Hanley, Staffs. Messrs. R. Scrivener & Sons, architects, &c, Howard Street, Hanley, Staffs.

HARROGATE.—Dec. 23.—For erection of a house and stable. Messrs. Adkin & Hill, architects, 10, 11 and 12 Prudential Buildings, Bradford.

HARTEST.—Dec. 24.—For erection of a retaining wall and fence at Cook's Farm pond at Hartest, Suffolk. Mr. William Carver, surveyor, Cromwell Villas, Suffolk Road, Sudbury, Suffolk.

HOLYHEAD.—Jan. 7.—For erection of an infant school at Kingsland. Mr. R. E. Pritchard, clerk to School Board, Bradford House, Holyhead.

HORNSEY.—Jan. 15.—For supply and erection of electric-lighting plant at the municipality electricity works. Mr. F. D. Askey, clerk, Council Offices, Southwood Lane, Highgate, N.

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ADDRESSES: DARLINGTON, NEWCASTLE-ON-TYNE, SUNDERLAND, MIDDLESBRO' and NORWICH.

HORTON.—Dec. 28.—For fitting-up of nine padded rooms at the County Asylum, Horton, Epsom. Mr. R. W. Partridge, clerk of the Asylums Committee, L.C.C., 6 Waterloo Place, S.W.

IRELAND.—Dec. 23.—For supply of a village wheel pump, with 4-inch chamber (brass-lined), brass valves, suction and rising main pipes, indiarubber washers, all necessary bolts and fittings complete, with 2½-inch lead pipe, for well 8 feet deep at Mullagh, Bailieborough. Mr. Hugh Clarke, clerk to Rural District Council, Board Room, Bailieborough.

KING'S NORTON.—Jan. 6.—For erection of a refuse destructor at Lifford, near King's Norton, Worcestershire. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath, near Birmingham.

KINGSTON-UPON-THAMES.—Jan. 1.—For construction of two filter-beds, &c., at the sewage works. Plans and specification can be inspected at the Borough Surveyor's Office, Clattern House, Kingston-upon-Thames.

LANCASTER.—Dec. 28.—For erection of a car-shed in Thurnham Street. Mr. T. Cann Hughes, town clerk, Town Hall, Lancaster.

LANCHESTER.—Dec. 24.—For sinking a well in the work-house grounds to a depth of about 32 feet. Mr. R. J. Waites, workhouse master, Lanchester.

LEEDS.—Jan. 4.—For erection of about twenty-six blocks of buildings and the alteration of several others, together with roads, drains and all fittings, for the extension of the city hospital at Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

LITTLETON.—Dec. 31.—For erection of a bridge in stone, brick and iron across the river Ash at Littleton, Middlesex. Mr. H. T. Wakelam, county engineer, the Guildhall, Westminster.

LONDON.—Dec. 30.—For adapting 288 New Cross Road for use as a postmen's sorting office. Mr. J. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster.

LONDON BRIDGE.—Feb. 17.—For widening of London Bridge. Drawings and specification may be seen at the office of the City Surveyor, Guildhall.

MAIDENHEAD.—For supplying and laying 5,900 feet of strong 2-inch cast-iron socketed water-pipe 2 feet underground; also 1,400 feet of ¾-inch galvanised iron pipe, with all water connections, meter, stopcocks, ballcocks, &c. Mr. Mark H. Knowles, Hall Place Farm, Maidenhead.

MANCHESTER.—Dec. 23.—For erection of a masons' shed at the Corporation yard in Little Newton Street, Ancoats. The Chairman of the Paving, &c., Committee, Town Hall.

MANCHESTER.—Jan. 7.—For laying and jointing of the southern section of the second line of pipes from Thirlmere to Manchester. Messrs. G. H. Hill & Sons, civil engineers, 3 Victoria Street, Westminster.

MANCHESTER.—Jan. 21.—For supply, delivery and erection at the Stuart Street generating station of the following switchboards—(a) main high-tension three-phase switchboards at generating station, (b) exciter and auxiliary switchboards at generating station, (c) high-tension three-phase switchboards at ten sub-stations, (d) low-tension switchboards at ten sub-stations. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

MORLEY.—Dec. 27.—For erection of buildings for the ashpit cleansing department, comprising stabling for twelve horses, loose-box, isolation-box, provender and general stores, harness-room, men's messroom, shed for mortar making, cart-shed, &c. Mr. W. E. Putman, borough surveyor, Town Hall, Morley.

MORPETH.—Jan. 7.—For erection of an isolation hospital near the Low Black Close, Northumberland. Mr. Alexander Wood, surveyor, Market Place, Ashington.

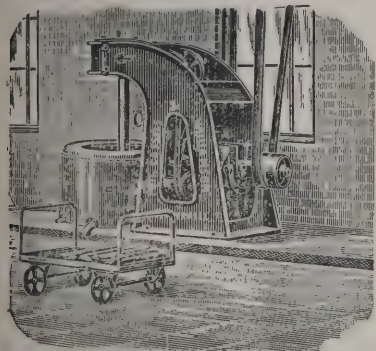
NANTWICH.—Jan. 6.—For supply and erection of the following plant:—(Section A) boiler-house plant—one water-tube and one Lancashire boiler, fittings, steam and exhaust pipes, &c.; (B) engine-house plant—continuous-current steam dynamos, pumps, &c.; (C) switchboard, &c.; (D) underground mains, lamp-posts, &c.; (E) accumulators; (F) meters; (G) crane, &c.; (H) dust destructor. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

NEWBIGGIN-BY-SEA.—Dec. 30.—For erection of sixteen cottages at Newbiggin. Mr. Tom Welsh, secretary, Co-operative Stores.

NEWCASTLE-ON-TYNE.—For pulling-down the buildings and clearing the site of the Presbyterian church, Blackett Street. Mr. Benjamin F. Simpson, architect, 12 Grey Street, Newcastle-on-Tyne.

PATELEY BRIDGE.—For erection of Wesleyan chapel and schools at Fellbeck, near Pateley Bridge, Yorks. Messrs. W. J. Morley & Son, architects, 269 Swan Arcade, Bradford.

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PLYMOUTH—Jan. 15.—For enlargement of head office at Plymouth, for the Commissioners of H.M. Works and Public Buildings. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

PRESTON—Dec. 31.—For construction of an underground convenience in Church Street. The Borough Surveyor, Town Hall, Preston.

READING—Dec. 28.—For supply and erection of plant, works, machinery and rolling-stock for the purposes of the intended electrical tramways. The Chairman of the Tramways Committee, Town Hall, Reading.

ROCHDALE—For alterations to the New Hey Bleach and Dye Works, New Hey, near Rochdale. Messrs. James Sellers & Son, architects, Union Chambers, Bury.

ST. BUDEAUX—Dec. 30.—For erection of a school and boundary walls on the site between Honicknowle and Crownhill, St. Budeaux, Cornwall. Mr. T. R. Kitsel, architect, 1 George Street, Plymouth.

SCARBOROUGH—Dec. 23.—For fitting-up of an electric-light, telephone and bell installation to St. Nicholas House, St. Nicholas Street, Scarborough. Mr. D. Arthur Nicholl, town clerk, Town Hall, Scarborough.

SCOTLAND—Dec. 23.—For constructing at Lesmahagow a covered service tank, about 80 feet by 40 feet by 10 feet 6 inches deep, and other work in connection therewith, in the Upper Ward of the county of Lanark. Messrs. Warren & Stuart, civil engineers, 94 Hope Street, Glasgow.

SCOTLAND—Dec. 23.—For erection of a double cottage, Monaghty, Alves. Messrs. A. W. Reid & Wittet, architects, Elgin.

SCOTLAND—Dec. 25.—For reconstruction of Dunnottar parish church, Stonehaven. Mr. George P. K. Young, architect, 42 Tay Street, Perth.

SCOTLAND—Dec. 28.—For erection of an entrance lodge on the estate of Dunollie, Oban. Mr. Kenneth Macrae, 5 Argyll Street.

SCOTLAND—Dec. 27.—For erection of eastern district hospital in Duke Street, Glasgow. Mr. John Baxter, 243 St. Vincent Street, Glasgow.

SCOTLAND—Jan. 6.—For erection of the Mid-Lothian County Council new buildings, Edinburgh. Mr. J. Macintyre Henry, architect, 7 South Charlotte Street, Edinburgh.

SHEPTON MALLET—Jan. 8.—For providing and laying about 8½ miles of 3-inch main, and about 2 miles of 2-inch and 1½-inch branches, with the erection of a hydraulic ram for compensation supply, providing and fixing standposts, valves, services and fittings, &c. Mr. A. E. Nalder, clerk, Council Offices, Market Place, Shepton Mallet.

SOUTHAMPTON—Dec. 23.—For erection of library buildings at Southampton. Mr. O. T. Hopwood, secretary, Public Library, Southampton.

SOUTHAMPTON—Dec. 30.—For alterations to Pear Tree Green schools. Mr. George C. Gandy, clerk to School Board, Woolston, Southampton.

SOUTHEND-ON-SEA—Dec. 23.—For erection of forty houses for the working classes. Mr. Alfred Fidler, borough surveyor, Southend.

SOUTHWOLD—For erection of a cottage hospital at Southwold, Suffolk. Mr. C. N. Cubitt, architect, Brentwood, Essex.

STAFFORD—Dec. 27.—For erection of shop superstructure (structural steelwork) at electrical engineering works, Stafford. Messrs. Siemens Bros. & Co., Ltd., Woolwich.

TWICKENHAM—Dec. 23.—For building a wrought-iron bridge, with brick abutments, over the river Crane, Cole Park Estate, Twickenham. Mr. George F. Sharpe, architect, 57 Chancery Lane, W.C.

TYNEMOUTH—Jan. 7.—For construction of a gravitation main, consisting of 12½ miles of 18-inch cast-iron pipes, from the Font to Stannington, Northumberland. Mr. Horatio A. Adamson, town clerk, Tynemouth.

UPTON-BY-CHESTER—Dec. 24.—For erection of a cottage home at Upton-by-Chester. Messrs. Thomas M. Lockwood & Sons, architects, 80 Foregate Street, Chester.

WALES—Dec. 23.—For alterations and additions to shop premises at Caroline Street, Bridgend, Glamorgan. Mr. P. J. Thomas, architect, Bridgend.

WALES—Dec. 24.—For erection of a block of six houses on St. Luke's Road, Pontnewynydd. Messrs. Fisher & Sons, architects, Club Chambers, Pontypool.

WALES—Dec. 27.—For erection of Wesleyan minister's house at Coedpoeth. Mr. W. Lloyd Jones, architect, Bangor.

WALES—Dec. 30.—For erection of school buildings at Rudry. Messrs. B. Lawrence & Son, architects, Newport, Mon.

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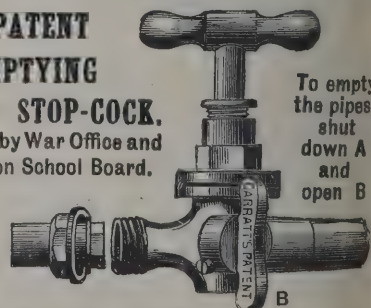
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WALES.—Jan. 1.—For alterations and improvements to the Portmadoc market hall. Mr. J. Jones, clerk to the District Council, 20 Bank Place, Portmadoc.

WALES.—Jan. 4.—For (1) widening the Hayes bridge, (2) widening of the North Road bridge, and (3) reconstruction of the East Wharf bridge, Cardiff. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

WALES.—Jan. 9.—For erection of a car dépôt at Newport Road, Roath. Mr. J. L. Wheatley, town clerk, Town Hall, Cardiff.

WALES.—Jan. 10.—For re-erecting the Crown Bridge over the canal at Sebastopol, near Griffithstown. Mr. D. J. Lougher, engineer, Pontypool.

WALES.—Jan. 13.—For erection of an infants' school, to accommodate 200 children, at Cwmcelyn, near Blaina, Mon, with out-offices, boundaries, playground, &c. Mr. R. L. Roberts, architect, Abercarn.

WALES.—Jan. 15.—For erection of a school at Alltwen. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

WALSALL.—Jan. 18.—For construction of a sewage tank 85 feet long by 21 feet 6 inches wide by 9 feet deep. Mr. John R. Cooper, town clerk, Borough Offices, Walsall.

WEST HAM.—Jan. 14.—For supply of four sets of surface-condensing plant, each to deal with 40,000 lbs. of steam per hour, complete with electrically-driven air and circulating pumps, and one travelling crane to carry 30 tons, span 67 feet. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

WOODFORD.—Dec. 28.—For erection of steel tower, wind-mill pump, rising main, &c., at Woodford, Northants. Mr. Lloyd, engineer, Thrapston.

A NEW appeal has been issued for the repair and restoration of Chichester Cathedral for funds to carry out the works which the late Sir Arthur Blomfield declared to be urgent. The report prepared by that eminent architect just before his death last year has been published, and confirms the previous accounts by Mr. J. L. Pearson and others as to the serious state of decay which exists in some portions of the venerable edifice.

TENDERS.

AMBLE.

For street works in Ladbroke Street, Gordon Street and Back Lane, and for erecting three public urinals.

Ladbroke Street.

J. Maclaren	£360	0	0
R. Scott	203	0	0
E. COULSON (accepted)	191	7	0

Gordon Street.

G. Maclaren	176	16	0
R. Scott	93	10	0
E. COULSON (accepted)	88	13	6

Back Lane.

G. Maclaren	179	18	0
E. Coulson	89	11	9
R. SCOTT (accepted)	84	17	6

Urinals.

F. Green	72	0	0
J. TURNBULL (accepted)	58	6	0

BACKWORTH.

For erection of stores and tenement-houses at New York, near Backworth. Mr. EUGENE E. CLEPHAN, architect, St. Nicholas Chambers, Newcastle-on-Tyne. Quantities by architect.

Ross & Son	£2,765	18	3
S. Sherriff	2,616	11	0
W. Tyrie	2,615	14	8
J. P. Bertram & Son	2,479	17	6
J. TAYLOR, Earsdon, Newcastle-on-Tyne (accepted)	2,284	17	5
J. Stobbs	2,212	15	9

BETHNAL GREEN.

For erection, &c., works for water-supply at the workhouse and for the infirmary. Mr. G. H. HUGHES, engineer, 97 Queen Victoria Street, London, E. C.

Mayo & Haley	£5,724	10	4
D. R. Paterson	5,690	0	0
Timmins & Sons	5,422	16	6
R. D. Batchelor	6,733	18	10
T. TILLEY & SONS, Cambridge Road, London, E. (accepted)	5,615	3	10

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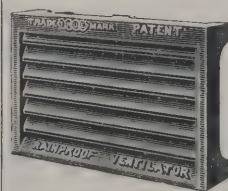
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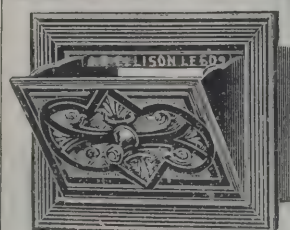
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W. Hoare	12,819	0	0
F. Osman	12,382	0	0
JENKINS & SONS, Bournemouth (accepted)	11,719	0	0

Chimney shaft.

Martin & Co.	2,829	0	0
Myles & Warner	2,694	0	0
F. Hoare & Sons	2,430	0	0
W. Hoare	2,397	0	0
F. Osman	1,953	0	0
Jenkins & Sons	1,949	0	0
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B. Cooke & Co.	8,222	0	0
F. Osman	8,150	0	0
Jenkins & Sons	8,087	0	0
W. Hoare	7,810	0	0
W. E. Jones & Sons	7,748	0	0
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For enlarging the National school at Braithwell, Rotherham. Mr. E. ISLE HUBBARD, architect, Moorgate Street, Rotherham.

C. GREEN & CO., Wellgate (accepted) . . . £260 0 0

BRIDGEND.

For sewerage works. Mr. M. WILLIAMS, surveyor.

J. E. EVANS, 22 Plasnewydd Place, Cardiff (accepted) . . . £6,550 16 2

BRIDLINGTON.

For alterations and additions to Wellington House. Mr. J. EARNSHAW, architect, Carlton House, Bridlington.

A. Gardam	£620	0	0
C. Limon	599	15	0
A. A. Booth	585	0	0
J. H. Hudson	578	0	0
E. Corner	567	0	0
S. Spink	550	0	0
W. Barnes	485	0	0
E. E. YEOMANS, Bridlington (accepted)	473	0	0

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For sewerageworks, &c., in Coundon Grange, Leasingthorne, Howden-le-Wear, Evenwood, and High Grange. Mr. C. JOHNSON, surveyor.

Coundon Grange.

P. Frater	£247	16	0
G. Hetherington	181	16	3
G. H. Bell	161	17	6

Leasingthorne.

P. Frater	54	15	0
G. H. Bell	47	6	0
G. Hetherington	39	11	9

Howden-le-Wear.

G. H. Bell	47	17	6
G. Hetherington	47	9	0
P. Frater	41	10	6

Evenwood.

G. Hetherington	22	13	0
G. H. Bell	22	9	0
P. Frater	22	1	3

High Grange.

G. Hetherington	11	17	0
P. Frater	11	14	6
G. H. Bell	11	10	0

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For sewerage and street works in Holts Lane, Clayton, Yorks. Mr. SAM SPENCER, architect, 344 Great Horton Road, Great Horton, Bradford.

B. NAYLOR & SON, Bradford (accepted).

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C. J. Raybould & Co., Ltd.	458	16	2
R. GOUGE, Carlisle (accepted)	447	19	9

COLCHESTER.

For erection of Freemasons' hall in Abbeygate Street. Mr. CHAS. E. BUTCHER, architect, 3 Queen Street, Colchester.

Harris & Rowe	£2,494	0	0
J. Grimes	2,400	0	0
A. E. Diss	2,300	0	0
R. Myall	2,279	0	0
A. Diss	2,250	0	0
F. Rayment & Co.	2,247	0	0
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T. J. Ward	2,165	0	0
R. Beaumont	2,117	0	0
J. McKay	2,095	0	0
H. EVERETT & SON, Colchester (accepted)	2,050	0	0

DARWEN.

For erection of six houses in Jubilee Street and two houses in Hesse Street, Belgrave Road. Messrs. WOODS & THACKERAY, architects, Darwen.

Accepted tenders.

T. Lightfoot, all trades except plumbers' work	£1,600	0	0
H. C. Jefson, plumber, glazier and gasfitter	83	10	0

DOWNHAM MARKET.

For renovation and reseating of the Free Methodist chapel, Downham Market, Norfolk.

J. W. COLLINS, Station Road (accepted)	£250	0	0
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DUNSTABLE.

For street works in Kirby Road, Priory Road, Richard Street, Lover's Walk and St. Peter's Road.

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F. Ray	2,361	16	5
G. Powdrill	2,335	0	0
H. Williams	1,989	15	10
Felkin & Watson	1,932	0	0
H. Bentham & Co.	1,689	0	0
BOWER BROS, Halifax (accepted)	1,532	13	1

FULHAM.

For street works, Bradbourne Street. Mr. C. BOTTERILL, borough surveyor.

Roadway.

H. J. Greenham	£923	0	0
B. Nowell & Co.	913	0	0
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G. Wimpey	898	0	0
Lawrence & Thacker	893	0	0
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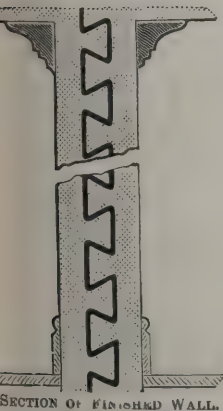
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For laying-out infirmary grounds of playfield for boys of the *Exmouth* training ship.

T. W. Marsh	£237	0	0
Meston & Hale	215	0	0
Ambrose & Co.	208	0	0
R. Ballard, Ltd.	197	0	0
G. Porter	152	2	3
W. A. Philbey	143	10	0
PRACTICAL LANDSCAPE GARDENING AND ESTATE DEVELOPMENT CO, LTD., 25 Victoria Street, S.W. (<i>accepted</i>)	105	0	0

HECKMONDWIKE.

For erection of the St. Saviour's new Sunday schools. Mr. HENRY STEAD, architect, Heckmondwike.

Accepted tenders.

- J. B. Allatt, excavator, mason and bricklayer.
J. Richardson & Sons, carpenter and joiner.
J. Gledhill, plumbing, glazing and heating.
J. B. Greenwood, plasterer and concreter.
J. M. Thornton & Sons, slater.
J. Taylor, painter.

HONLEY.

For alterations and additions to Reins Mill, Honley, near Huddersfield. Messrs. JOHN KIRK & SONS, architects, Huddersfield.

Accepted tenders.

- W. Pearson & Son, Netherton, near Huddersfield, mason.
E. Holroyd & Sons, Honley, near Huddersfield, joiner.
E. T. Jessop, Honley, plasterer.
W. Webster, Honley, plumber.
W. Littlewood & Son, Berry Brow, painter.
W. E. Joutitt, John William Street, Huddersfield, slater.
Calvert & Co., Folly Hall, Huddersfield, hoist.
J. Croke, Folly Hall, Huddersfield, concreter.
W. H. Heywood & Co, Birkby, patent glazing.
E. Bennis & Co., Ltd., Levenshulme, Manchester, stoker.

HOVE.

For street works in Hova Villas and Shirley Street, and laying cabstands in various streets. Mr. H. H. SCOTT, borough surveyor.

J. PARSONS & SONS, Church Road (*accepted*) £1,269 0 0

HULL.

For supply of plant at the electric-lighting substation.

Sir W. G. Whitworth, Armstrong & Co., London	£10,830	0	0
F. Suter & Co., London	6,360	0	0
Johnson & Phillips, Old Charlton	6,000	0	0
Lahmeyer Electrical Co., London	5,400	0	0
Electric Construction Co., Ltd., London	5,310	0	0
D. Bruce Peebles & Co., Edinburgh	4,940	0	0
Sunderland Forge Engineering Co.	4,836	0	0
International Electrical Engineering Co., Ltd., London	4,450	0	0
T. Parker, Ltd., Wolverhampton	4,230	0	0
Bergtheil & Young, Manchester	3,883	0	0
Newton Electrical Engineering Works, Taunton	3,495	0	0
British Schuckert Co., Ltd., London	3,280	0	0
Siemens Bros. & Co., Ltd., London	3,270	0	0

LEAMINGTON.

For additions and alterations to the Pump Room baths.
G. F. SMITH & SONS, Milverton (*accepted*).

LONDON.

For superstructure of Block C, Reid's Brewery Estate.

Treasure & Son	11,198	0	0
S. Redhouse	11,192	0	0
Spencer, Santo & Co.	11,078	0	0
E. Lawrance & Sons	10,866	0	0
Stimpson & Co.	10,733	0	0
B. E. Nightingale	10,646	0	0
McCormick & Sons	10,247	0	0
Martin, Wells & Co.	10,093	0	6
Holloway Bros.	10,090	0	0
H. L. Holloway *	10,026	0	0
R. M. Hughes	10,012	0	0
Hobbs Bros.	9,942	0	0

* Recommended for acceptance.

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Solicited.

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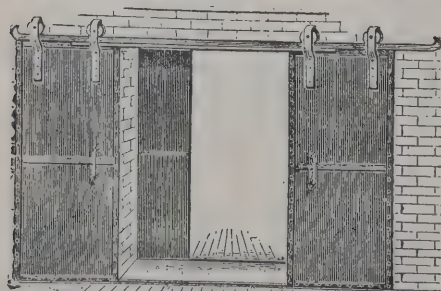
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LONDON SCHOOL BOARD.

For accommodation at Aristotle Road school.

Holloway Bros.	£16,618	£339
F. & H. F. Higgs	16,247	181
Lathey Bros.	16,217	324
W. H. Lorden & Son	15,444	222
J. Marsland & Sons	15,425	180
Treasure & Son	15,274	190
C. Cox	15,089	219
J. Smith & Sons, Ltd.	15,035	200
Spencer, Santo & Co., Ltd.	15,014	170
W. Johnson & Co., Ltd.	14,700	155
E. Triggs	14,536	193
Holliday & Greenwood, Ltd.	14,535	204
J. & M. Patrick	14,359	212
J. Garrett & Son *.	14,342	334

A. If walls of classrooms and halls are plastered add.

For altering position of an existing partition and providing and fixing an additional glazed partition to redivide classrooms C and D into three rooms; also altering classroom doorway, &c., in connection therewith, boys' school, North End Road.

R. E. Williams & Sons	£245	0	0
W. R. & A. Hide	190	0	0
G. H. Sealey	183	0	0
W. Hammond	176	0	0
General Builders, Ltd.	159	0	0
F. T. Chinchin & Co.	158	0	0
S. Polden *.	149	15	0

For providing and setting new range and feed cistern in kitchen and gas-cooking stove in scullery; laying on hot-water services to baths, officers' lavatory basins, slop-sink in lavatory on first floor, and to scullery sink; also providing and fixing boiler in fireplace of scullery, including builders' work, Elm Court school.

J. Esson	£178	0	0
W. G. Cannon & Sons	144	0	0
Wippell Bros. & Row	143	5	0
Wenham & Waters, Ltd.	129	17	0
Duffield & Sons	129	10	0
Paragon Heating Co.	119	0	0
J. & F. May*.	115	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued

For altering position of an existing partition and providing and fixing a glazed partition to redivide classrooms C and D into three rooms; also providing Tobin tubes, boys' school, Hackford Road.

Lathey Bros	£149	0	0
J. Garrett & Son	125	0	0
Maxwell Bros., Ltd.	125	0	0
W. V. Goad	117	0	0
Rice & Son	113	0	0
E. Triggs *.	105	0	0

For providing and erecting three additional iron buildings and appurtenances, Broadwater Road site.

Hill & Smith	£2,700	0	0
T. Cruwys	2,560	0	0
Humphreys, Ltd.	2,438	0	0
Croggon & Co., Ltd.	2,375	0	0
H. Harbrow	2,350	0	0
J. McManus	2,290	0	0
W. Bain & Co. †.	2,040	0	0
D. Rowell & Co.*	1,920	0	0

† This firm has not included provisional sums in the tender.

For supplying and fixing three large No. 24 "Railway" pattern stoves, Gainsborough Road.

J. Esson	£54	0	0
J. Wontner-Smith, Gray & Co.	31	11	6
G. & E. Bradley	31	10	0
J. Defries & Sons, Ltd.*	29	0	0

* Recommended for acceptance

The interiors of the following schools will be cleaned between December 14, 1901 and January 4, 1902:—

Ashburnham.

T. Cruwys	£485	0	0
O. Craske	325	0	0
W. Hammond	315	0	0
C. GURLING (accepted)	279	0	0

Lillie Road (all buildings).

Spencer, Santo & Co, Ltd.	£345	0	0
J. & M. Patrick	314	0	0
C. Gurling	289	0	0
W. HAMMOND (accepted)	289	0	0

C. & A. MUSKER
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LIVERPOOL.

HYDRAULIC AND ELECTRIC
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For Passengers and Goods.

HYDRAULIC AND ELECTRIC
CRANES.

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"DURABLE" ASPHALTE DAMP COURSE,
In Rolls 45 ft. long 4, 1/2, 9, 14, 18, 24 in. wide.

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WORKS: BRIGHOUSE, YORKS

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READING CASES for THE ARCHITECT.
Price 2s.—Office: Imperial Buildings,
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LONDON SCHOOL BOARD—continued.

<i>Munster Road.</i>		
J. & M. Patrick	£265	0 0
Lathey Bros.	265	0 0
W. Hornett	239	0 0
W. HAMMOND (accepted)	235	0 0
<i>Sherbrooke Road (all buildings).</i>		
T. Cruwys	£442	0 0
W. Hammond	323	0 0
C. GURLING (accepted)	295	10 0
<i>Queen's Head Street.</i>		
C. Dearing & Son	£295	0 0
C. & W. Hunnings	273	0 0
J. Grover & Son	267	0 0
McCORMICK & SONS (accepted)	246	0 0
<i>Winchester Street.</i>		
C. Dearing & Son	£337	0 0
C. & W. Hunnings	259	8 0
STEVENS BROS. (accepted)	226	0 0
<i>Wood Street.</i>		
W. J. Howie	£363	0 0
W. Banks	337	10 0
W. Hayter & Son	281	0 0
J. & M. Patrick	269	0 0
H. Groves	243	10 0
E. PROCTOR (accepted)	239	0 0
<i>Colls Road.</i>		
G. Kemp	£208	0 0
Rice & Son	281	0 0
H. Line	265	0 0
W. V. Goad	260	0 0
H. Groves	253	0 0
J. & C. BOWYER (accepted)	252	0 0
<i>Gloucester Road.</i>		
W. Sayer & Son	£392	0 0
Rice & Son	349	0 0
H. Groves	329	0 0
Maxwell Bros., Limited	329	0 0
H. Line	306	0 0
J. C. Bowyer	298	0 0
A. BLACK & SON (accepted)	278	0 0

LONDON SCHOOL BOARD—continued.

<i>Napier Street.</i>		
G. Barker	£387	0 0
McCORMICK & SONS (accepted)	353	0 0
<i>Turin Street.</i>		
Collis Willmott & Son	£337	10 0
Corfield & Co.	330	0 0
W. SHURMUR (accepted)	324	0 0
Vigor & Co.	310	0 0
<i>Mawbey Road (old portion).</i>		
Johnson & Co.	£316	0 0
W. Banks	187	15 6
W. J. Howie	163	0 0
W. Sayer & Son	150	0 0
H. J. WILLIAMS (accepted)	114	15 0
<i>Scarsdale Road.</i>		
W. V. Goad	£295	0 0
Lathey Bros.	293	3 0
Maxwell Bros., Ltd.	247	0 0
E. Triggs	242	0 0
H. J. WILLIAMS (accepted)	225	0 0
<i>Burghley Road (old portion).</i>		
G. Kirby	£438	0 0
H. Wall & Co.	434	0 0
T. Cruwys	420	10 0
Stevens Bros.	394	0 0
F. T. Chinchin & Co.	379	10 0
MARCHANT & HIRST (accepted)	369	0 0
<i>Chaucer.</i>		
J. Watkins	£525	0 0
Johnson & Co.	361	0 0
W. Downs	287	0 0
W. Sayer & Son	282	0 0
H. Line	270	0 0
H. J. Williams	256	16 0
E. TRIGGS (accepted)	220	0 0
<i>Broad Street.</i>		
A. W. Derby	£406	0 0
Johnson & Co.	400	0 0
J. T. Robey	314	0 0
CORFIELD & CO. (accepted)	225	0 0

MCNEILL'S FELTS Roofing, Inodorous, Sarking, Dry Hair, Damp Course, &c.
MCNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.
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 For WORKS, STORES, PAVILIONS, STATIONS, &c.
 FIBROUS ASPHALTE FOR DAMP COURSE, AND FELTS FOR LAYING UNDER WOOD-BLOCK FLOORING, SLATES, &c.
 Experience proves it to be **WEATHER-PROOF, ROT-PROOF, and FIRE-PROOF.**
 SAMPLES, PRICES, AND FULL PARTICULARS, APPLY
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LONDON SCHOOL BOARD—continued.

Keeton's Road.

W. Banks	£425	0	0
Johnson & Co.	403	0	0
H. J. Williams	356	0	0
W. Sayer & Son	297	0	0
E. TRIGGS (accepted)	290	0	0

Cayley Street.

A. W. Derby	£261	0	0
J. Dolman & Co.	239	10	0
A. E. Symes	235	0	0
D. Gibb & Co.	231	0	0
J. T. Robey	227	6	0
J. HAYDON & SONS (accepted)	190	10	0

Knapp Road.

A. J. Sheffield	£397	15	0
D. Gibb & Co.	379	0	0
T. H. Jackson	354	10	0
Barrett & Power	298	0	0
J. Dolman & Co.	270	0	0
J. T. Robey	256	0	0
CORFIELD & CO. (accepted)	228	0	0

For cleaning interior of school and painting interior and exterior of manual training centre, laboratory and art room. Surrey Lane.

W. Hornett	£588	0	0
Rice & Son	449	0	0
Bristow & Eatwell	445	0	0
E. P. Bulled & Co.	419	0	0
E. Triggs	400	0	0
MAXWELL BROS., LTD. (accepted)	364	15	0

For cleaning interior and painting exterior of boys, girls and infants' schools, Ben Jonson.*

A. E. Symes	£865	0	0
W. Hornett	810	17	0
Stevens Bros.	730	0	0
J. T. Robey	700	0	0
BARRETT & POWER (accepted)	670	0	0

* The exterior painting in this case will be executed at Easter 1902.

LOWESTOFT.

For erection of new Congregational church, South Cliff, Kirkley, Lowestoft. Messrs. G & R. P. BAINES, architects, 5 Clement's Inn, London, W.C.

A.		B.	
Cornish & Gaymar	£2,200	10	0
G. E. Hawes	1,767	0	0
Jno. Welham	1,750	0	0
C. R. Cole	1,698	0	0
F. S. Smith	1,670	10	0
J. Ashby, Lowestoft	1,378	0	0
Architects' estimate			2,000
A. Church.		B. Tower.	

MALDON.

For sewerage works and construction of filter tanks in the parish of Tollesbury, Essex. Mr. H. G. KEYWOOD, engineer.

C. T. Thorn	£1,608	7	9
T. W. Pedrette	1,187	9	4
G. Hayward	1,012	6	6
G. BURGUYNE & SONS, 9 Wolsey Street, Ipswich (accepted)		807	11

PLYMOUTH.

For street works in Compton Park Villas Lane, Reservoir Road Lane, Fortescue Place, South View Terrace Lane and Maybank Road extension. Mr. JAMES PATON, borough engineer.

Compton Park Villas Lane.

Pearce Bros.	£115	0	5
A. Coles	114	8	5
E. Duke	107	11	3
J. COLES (accepted)	99	6	9

Reservoir Road Lane.

Pearce Bros.	317	11	3
A. N. Coles	304	18	2
T. Shaddock	294	3	0
E. Duke	292	1	6
J. COLES (accepted)	263	5	0

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CORSHAM DOWN.
CORNGRIT.
FARLEIGH DOWN.
BRADFORD.

Fluate,
FOR HARDENING,
WATERPROOFING & PRESERVING
BUILDING MATERIALS.

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BOX GROUND.
COMBE DOWN.
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WESTWOOD GROUND.
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SUMMER DRIED SEASONED STONE FOR WINTER USE.

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J. HORWOOD, WHOLESALE BUILDERS' MERCHANT,
19, 21, 23 & 25 STRATFORD BROADWAY, LONDON, E.

The "EXCEL-ALL"
is the best Self-setting
Range.

The "EXCEL-ALL"
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are double the usual
thickness.

Thousands of
The "EXCEL-ALL"
in use.
It is the Housewife's
friend.

The "EXCEL-ALL"
requires no Brick
Setting.

The "EXCEL-ALL"

With Open and Close Fire and Fall Bar (A 1923 as drawn).

FITTED WITH PATENTED FLUE NOZZLE.

Sizes ... 24 26 28 30 32 34 36 39 inches wide.

Oven and Sham 26/- 28/- 32/- 35/- 37/- 38/6 39/9 50/- each.

Sizes ... 27 30 32 34 36 39 42 inches wide.

Oven and Boiler with Tap ... 36/- 38/- 39/9 42/- 46/6 58/- 65/- each.

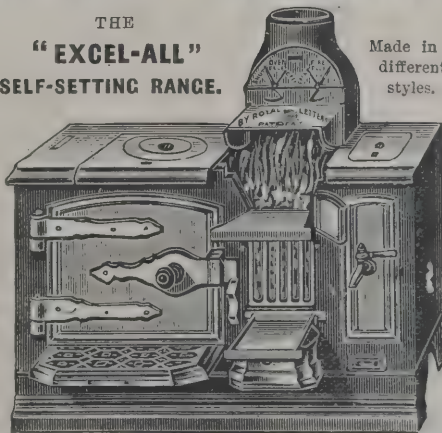
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SELF-SETTING RANGE.

Made in 5
different
styles.



PLYMOUTH—continued.

Fortescue Place.

J. Coles	£347	16	0
E. Duke	241	18	5
T. Shaddock	236	17	8
Pearce Bros.	229	18	1
A. N. Coles	227	9	0
HORTOP (accepted)	213	16	2

South View Terrace Lane

J. Coles	532	17	6
Pearce Bros.	448	5	0
E. Duke	430	5	0
A. N. Coles	411	8	10
T. SHADDOCK (accepted)	405	6	2

Maybank Road extension.

J. Coles	236	18	0
A. N. Coles	154	5	7
Pearce Bros.	151	19	6
R. T. Hortop	151	16	0
E. Duke	145	16	6
T. SHADDOCK (accepted)	144	0	0
For street works. Mr. JAMES PATON, borough surveyor.			
A. N. Coles	£482	9	3
E. Duke	443	16	5
T. Shaddock	435	9	8
PEARCE BROS. (accepted)	411	4	4

SCOTLAND.

For alterations to the farm of Craigshaw, Nigg, Aberdeen.
Messrs. WALKER & DUNCAN, architects, 3 Golden Square, Aberdeen.

Accepted tenders.

W. Dufton, carpenter	£93	9	0
G. S. Cooper, mason	84	10	0
J. Simpson, plaster and cement	39	18	0
G. Currie & Co, slater	26	10	0
J. Mason & Son, painter and glazier	21	0	0

For erection of tenement-houses at Camelon. Mr. T. M. COPLAND, architect, 85 High Street, Falkirk.

Accepted tenders.

G. Sanderson, Park Street, Falkirk, builder.
Gilchrist & Packman, Camelon, Falkirk, joiner.
J. Hopper, Wilson's Buildings, Falkirk, slater.
J. Millar, Graham's Road, Falkirk, plasterer.
R. Brown, Bank Street, Falkirk, plumber.

WALES.

For erection of house, out-offices and boundary walls, &c., at Newbridge, near Ruabon. Mr. W. H. JOHNS, architect, Vroncysyllte, Llangollen. Quantities by Mr. W. J. GREGORY, Booth Street, Manchester.

Evans & Roberts	£654	0	0
E. Evans & Sons	618	0	0
I. Roberts, Llangollen	595	0	0
Price Williams	575	0	0
J. Carden	545	0	0
R. Hopley	520	0	0
J. HIGGINS, Oswestry (accepted)	487	0	0

WANSTEAD.

For erection of a wooden room on brick substructure in the grounds of the Wanstead Cottage Hospital. Mr. C. H. BRESSEY, surveyor.

J. Priest & Son	£346	0	0
A. Reed	342	0	0
J. Jolliffe	330	0	0
T. Osborn & Sons	324	0	0
J. Rolfe & Co.	308	0	0
F. L. Willmott	300	0	0
Sands, Palmer & Co.	298	10	0
Mitson & Harrison	295	10	6
J. Hutchins	295	0	0
W. Mundy	276	0	0
W. A. Robins	258	0	0
T. J. Hawkins & Co.	255	0	0
G. P. Banbury	243	11	3
G. GINGER, jun., Manchester (accepted)	229	0	0
T. H. Thompson & Co.	216	8	6

WEST HAMPSTEAD.

For completion of King's Gardens, West Hampstead. Messrs. PALGRAVE & Co., architects, 28 Victoria Street. Quantities by Mr. C. E. PEASE.

C. Gray & Co.	£33,750	0	0
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WOOLWICH.

For free or assisted wiring, for the electricity committee of the Borough Council.

Accepted tenders.

Nunn, Watts & Co., Mark Lane, E.C.
Norman Engineering Co., Lordship Lane, S E.

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LIGHTED BY

ELECTRICITY

GENERATED BY

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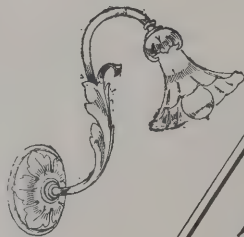
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WEST END SHOW ROOMS:

188, PICCADILLY.

CITY SHOW ROOMS:

67, ST. PAUL'S CHURCHYARD.

DESIGNERS
AND
MANUFACTURERS
OF

Artistic
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ELIZABETHAN,
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ILLUSTRATIONS.

CHURCH OF ST. JAMES THE GREATER, LEICESTER.
DETAILS OF FAIENCE WORK.

THE NEW READING ROOMS, LEICESTER.

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EALING.

For erection of D'Eresty House, Ealing Common, W., for the Metropolitan Guarantee Society, Ltd. Messrs. PALGRAVE & CO, architects, Westminster.

John Barker & Co., Ltd.	£26,342	o	o
L. WHITEHEAD & Co., LTD., Clapham (accepted subject to modification)	19,450	o	o
Mead & Burton	18,360	o	o

BUILDING AND BUILDERS.

LANCASTER School Board on the 17th inst. let tenders for the alteration of the Skerton British school into a Board school, and for a new infant school, the total cost being 8,711*l*.THE tender submitted by Messrs. F. Gough & Co., Church Road, Hendon, has been accepted for the East Finchley Baptist school church building, which is at present to act as a church and school combined until the church proper is erected. The contract amount is 3,634*l*., and the work is now commencing. The architects for the scheme are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, W.C.THE Local Government Board have granted the Corporation of Heywood permission to borrow 1,263*l*. for the purchase of land for the Heap Bridge sewage scheme. Application had also been made for powers to borrow money for the erection of a destructor, the Heap Bridge sewage works, the Captain Fold drainage system, &c., and the Board intimate that they will communicate further with the Corporation on these other matters.

A LIMITED liability company has recently been formed at Port Glasgow for the purpose of building and carrying on a

workmen's home on the most approved model lodging-house principle. The proposed building, the plans of which are in course of preparation, will be capable of providing accommodation for 500 beds, with all the necessary dining and other halls. Only 250 cubicles, however, will meantime be furnished.

THE Marylebone Housing Council have agreed to call a mass meeting in the West London Theatre, the object being to urge the Marylebone Borough Council to put into force the provisions of the Housing of the Working Classes Act. The speakers will be Sir Samuel Scott, M.P., and Canon Barker. A deputation of the Council have met Lord Howard de Walden, who stated that he had set aside 2 acres at Grove End Road for artisans' dwellings, the other part being reserved for the erection of a Lord Rowton House.

THE designs of Messrs. G. Baines & R. P. Baines, of 5 Clement's Inn, Strand, have been accepted for St. Andrew's Street Baptist church, Cambridge. The building is to be faced with whole white flints, the dressings, tracery, &c., being of red Mansfield stone. A bold square tower forms a prominent feature of the design. The joinery is to be of oak. The seating accommodation is about 950 persons, and the estimated cost is 6,200*l*.AN expensive infirmary scheme for Stratford-on-Avon Union Workhouse was considered by the Board of Guardians at their last fortnightly meeting. The workhouse management committee reported that the plans for a new infirmary had been approved by the Local Government Board, but before proceeding further with the architect's scheme for the new laundry and the supply of hot water and heating apparatus for other portions of the workhouse buildings, they desired to know whether the Board were prepared to expend the sum of about 4,000*l*. on the proposed works, in addition to about 5,000*l*. on the new infirmary. The report was adopted, the new proposal mentioned in the letter being reserved for future consideration.

A LABOURER named David Jones, in the employment of Messrs. H. Johnson & Sons, slaters, Pembroke Place, Liverpool, met with a serious accident on the 16th inst. Jones was engaged carrying slates up a ladder leading to the inside of the tower on the new building in course of erection at Messrs. Ogden's, Limited, West Derby Road. He overbalanced himself and fell a distance of nearly 40 feet, when he alighted on the back of the neck of a man named Patrick Shiel, who was working below. Jones then rolled over, and would have fallen a further distance of 15 feet down the staircase but for Shiel,

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who caught him by the leg and dragged him away. Jones was found to be badly injured, and bleeding from wounds about the head caused by the falling slates. He was removed to the Royal Infirmary suffering from severe scalp wounds and shock. Shiel received a severe strain and shock, and was attended to by a neighbouring chemist.

MR. FENWICK, contractor, has started work in connection with the construction of the bridge over the Great Western Railway to connect Small Heath and Sparkbrook, Birmingham, for which a loan of 49,000*l.* was recently sanctioned by the Local Government Board. The open lattice-work girders will be supported by steel piers and columns. The largest span is 144 feet 9 inches and the height of the biggest girder 19 feet. The flooring which carries the roadway will be built on cross girders 3 feet deep. It will be a wide carriageway, wood-paved, with footpaths on either side. A stone-pointed bridge will carry the roadway over the Warwick and Birmingham Canal. The total length of the whole viaduct will be 950 feet, including the approaches. Present operations relate to the concrete foundations, which will have to bear a weight beneath the principal piers of a ton and a half to the square foot.

AT the reading-room, Great Brington, Northants, on the 11th inst, Mr. W. H. Ducat, inspector of the Local Government Board, held an inquiry into the application of the Brixworth Rural District Council for sanction to borrow 500*l.* for sewerage and sewage-disposal works for the parish of Brington. Mr. Woodford, clerk to District Council, stated that the population of the parish of Brington, which included Little Brington, Great Brington and Nobottle, was 643, while the rateable value was 3,674*l.*, and the outstanding loans amounted to 1,192*l.* Mr. Lewis, the sanitary inspector, produced the plans of the old sewage farm and the plans for the proposed new one. He explained that there were already two small filter-beds, which were laid down in 1892, but these were not large enough, and so it was proposed to add one acre for Great Brington and another acre for Little Brington, while sixteen houses on the south side of Great Brington, which had not been included in the previous scheme, would be sewered. The new filtration-beds for this part would be 2 r. 20 p. in area. The two acres belonged to Lord Spencer, while the last-mentioned land belonged to the Brington Charity Trustees. These owners had no objection to the scheme, and the leases were being prepared. The inspector afterwards viewed the site.

At the Hanley Town Hall on the 12th inst. a meeting of representatives of local authorities was held on the subject of

the proposal to erect a joint hospital for the treatment of small-pox cases on land acquired at Bagnall, Staffs. Mr. W. O'Keeffe was voted to the chair. Letters expressing willingness to join in the scheme were received from Cheadle rural district, Fenton urban, Hanley urban, Leek urban, Stoke urban, Stoke rural, Burslem urban and Tunstall urban councils. Longton, it was stated, were considering the matter, and Mr. Elliott (Newcastle) said they were having a meeting there immediately, and he was of opinion that they would join. The town clerk of Hanley (Mr. A. Challinor) said the population of the district named was 217,929, exclusive of Newcastle and Longton; with the latter towns it would be 273,668. The chairman moved that a smallpox joint hospital board be formed, and that Mr. Challinor take all necessary steps for carrying out the resolution. This was seconded by the Mayor of Stoke. Alderman Leak (Longton) said his Council viewed with favour a united district, and they were there to gain further information. The chairman detailed the proposed scheme, and Alderman Leak said they should have an answer from Longton in a few days' time. Dr. Reid, county medical officer, expressed the opinion that other districts would also join. The motion was carried, as was a further one to the effect that the Staffordshire County Council should be represented on the board by one member, in order to enable it to contribute under section 2, subsection 1, of the Isolation Hospital Act of 1901.

THE Dean of Westminster on Thursday, the 12th inst, laid the corner-stone of the church of the Holy Trinity, now in the course of erection in Prince Consort Road, South Kensington. In pursuance of an Order in Council the present church of the Holy Trinity, Knightsbridge, will be taken down, the site sold, and the proceeds given to the purchase of the new site and towards the cost of the erection of the new church. The site on which Holy Trinity now stands has been valued by the Ecclesiastical Commissioners at between 14,000*l.* and 15,000*l.*, which sum they are empowered to advance upon the new site and the building, and this site having been acquired for 6,000*l.*, a sum of between 8,000*l.* and 9,000*l.* is left to go towards the 25,194*l.* required for the new church, leaving 17,000*l.* to be raised. The building now being erected has been designed by Mr. G. F. Bodley, A.R.A., and will accommodate about 800 people. The plans show a wide nave and chancel aisles, wide and lofty piers and arches, and traceried windows. It will be of English Gothic architecture and partake of the character of a town church in the style and manner of the fourteenth century. Stone arches of a bold character

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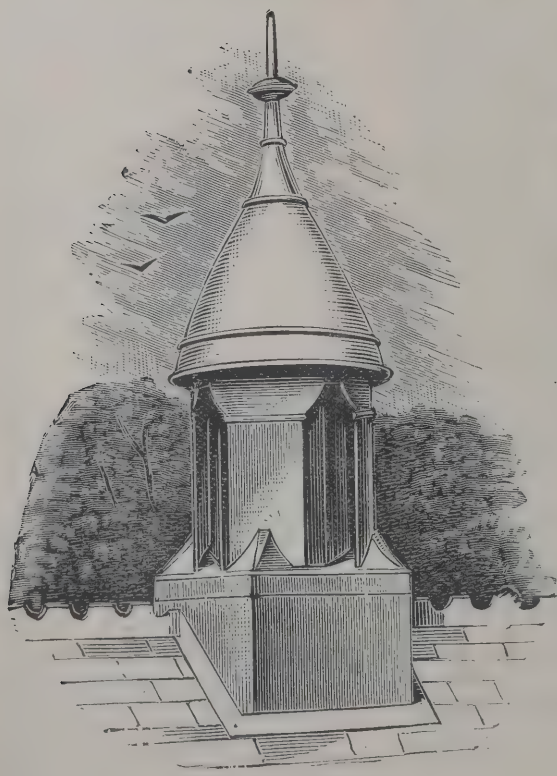
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BACK NUMBERS

Owing to the demand for the Cathedral Series, all Numbers previous to July 1, 1900, are now charged at 6d. each.

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will be thrown across the aisles, in keeping with the stone of which the church is to be built, and provision will be made for a morning chapel, spacious vestries and a parish room. The building is to be completed by September 1903, subject to the response to an appeal for financial help that has been issued.

TRADE NOTES.

MESSRS. COUSLAND & MACKAY, ventilating engineers Glasgow and Manchester, have carried out the ventilation of the Industrial school, Witton, Birmingham, by means of Mackay's patent direct-acting ventilators, of which they are the sole makers.

MESSRS. W. POTTS & SONS, clock manufacturers, Leeds and Newcastle-on-Tyne, are making and fixing a chime clock for the parish church of Marske-by-the-Sea, Yorks, for the Marquis of Zetland, in memory of the late Queen Victoria; one at Guisborough ancient parish church in the same vicinity for the Urban District Council; another at Lanchester, near Durham, for the above object, presented by Mr. Wm. Logan, J.P., chairman of the Urban District Council; and one at Saltburn-by-Sea parish church, also as a memorial to Her late Majesty the Queen.

ELECTRIC NOTES.

THE engineers of the Manchester and Liverpool Electric Express Railway Company have just deposited the plans for the new line with the Board of Trade. The plans include measurements for the permanent way and the steel superstructure of the Mono railway, together with the necessary details.

At the next meeting of the Bognor Urban Council, estimates, plans and specifications for providing electric light in the town will be considered, and a resolution will be moved in favour of making application to the Local Government Board for sanction to borrow the sum of 12,000*l.* for the purpose of the installation.

A REMARKABLE clock is now working at Schenectady. It was made by a watchmaker named J. Steiner, and has never been wound up. It was started some months ago by Steiner giving the pendulum a swing, "and will continue to go," says

he, "until the magnets lose their magnetism." The works consist of only three wheels. The clock itself is in the form of a pendulum, weighing 40 lbs. The pendulum rods are made of different kinds of metal to allow compensation in contraction and expansion. It is said that the clock is not affected by jar or vibration, and keeps perfect time, the swing of the pendulum being regulated to beat seconds.

THE Electric-Lighting Boards Company announce that their French representatives were able at three days' notice to instal the entire electric-lighting system of the numerous stalls at the great Automobile Exhibition in the Grand Palais of the Champs-Élysées, the number of lights applied in this limited time being no less than 6,000. Both the technical and daily Press of Paris consider the achievement a remarkable one and above any French time record, even including the company's rapid installation at Compiègne on the occasion of the Czar's visit.

At Sutton Coldfield, Warwickshire, on the 14th inst, the new electricity supply works, which have been erected at a cost of 26,000*l.*, were opened with considerable pomp and circumstance. They are situated upon the site of the old gasworks at the corner of Riland Road and Coleshill Road, and occupy an area of 1,000 square yards. In their structure there is no unnecessary ornamentation, but they are convenient and compact and as pleasing in external appearance as the situation of the site warranted. The buildings, which are of ordinary red bricks with Bath stone heads and sills to windows, have two Tudor roses carved upon each of the stone window and door heads, and the borough arms over the main entrance. Three engines and dynamos are at present in the building, and a space is provided for a fourth set when required. The chimney stack is octagonal, and is 150 feet high. The generating plant, &c., are of the best to be obtained, and will meet the requirements of the district for some time to come.

THE sanitary committee of the Leeds Corporation have approved of a resolution of the hospitals committee to proceed with the erection of a temporary hospital at Manston for diphtheria cases, which are becoming very numerous throughout the city.

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VARIETIES.

MR. H. T. CROFTON, clerk to the Moss Side District Council, a position which he has held for nearly a quarter of a century, has sent in his resignation, and it has been regretfully accepted by the Council.

THE Secretary of State for India has sanctioned an expenditure of 1,050 lacs of rupees on railways for next year, and of 100 lacs on irrigation works. The former includes 325 lacs for rolling stock, 180 lacs for other necessary works on open lines, 350 lacs for lines being constructed, and 174 lacs for new lines, including the Allahabad-Faizabad line with a new bridge over the Ganges.

THE cottage home at Dodleston, which has been erected by the Chester Board of Guardians, was opened on the 4th inst. This home, which was designed by Messrs. Lockwood & Sons, will accommodate twelve children. It is in two storeys, the ground floor consisting of a large day-room, entrance hall, kitchens and storerooms, while upstairs are two large dormitories, mothers' room, sick-room, bath-room, &c.

THE new entrance channel to the upper dock at Aberdeen has now been opened for traffic. To the s.s. *Spray* fell the distinction of being the first vessel to pass through, cutting the ribbon of red, white and blue that stretched across the waterway. In honour of the occasion the steamer was gaily decorated with bunting. The construction of the new Regent bridge, which has rendered this new channel necessary, is making satisfactory progress. Its total cost will be upwards of 50,000*l.*

THE decoration of the Blackpool Council Chamber has now been completed. The ceiling, with its fine cove, is decorated in a boldly-modelled plaster, and has been subjected to a very simple colour treatment so as not to compete with the rich decorations below. The walls are framed in with a high dado, and pilasters in oak left unpainted in its natural colour. The wall surfaces, left uncovered by the oak, have been formed into five panels, two of which are treated with conventional ornament and armorial bearings, while the remaining three spaces are decorated with pictures illustrating episodes in Lancashire history. Over the mayor's chair a large picture typifies the reconciliation of the Yorkists and the Lancastrians, representing as it does the marriage of King Henry VII., of Lancaster, to Princess Elizabeth, of the House of York. The wedding was solemnised in Westminster Abbey in January 1486, and

rivalled the Coronation ceremony which it followed in splendour. Care has been taken to represent as faithfully as possible the ecclesiastical and court costumes and usages of the times. The second picture over the press and public platform represents an event perhaps more closely connected with the Fylde district than is represented in the others—the "Surrender of the Rebels at Preston in 1715." The third picture to the right of the mayor's chair depicts the "Last Desperate Charge of Richard III." The doomed king is shown in full plate armour (copied from the magnificent suit in the Wallace collection), and wearing his tabard and helmet surmounted by the crown of England. These three mural pictures are well composed and strongly painted, and add greatly to the stateliness of the chamber. The internal fittings are all in oak, and are rich and imposing in character. The arrangement gives a raised platform and desks for the mayor, deputy mayor and town clerk at the north end. The aldermen and councillors' desks and seats are arranged in horseshoe form in order that each member shall face the mayor. Great attention has been given to the carving of the mayor's chair and those immediately adjoining it. The pictures were painted by Mr. J. R. Brown, the superintendent of the art department of Messrs. Goodall, Lamb & Heighway, Limited, who carried out the work under the superintendence of Messrs. Potts, Son & Hennings, the architects of the building.

HYDRAULIC MACHINES.

At the monthly meeting of the Gloucestershire Engineering Society Mr. F. J. Platt, M.I.M.E., read a paper on "Some Hydraulic Machines." He said the use of water as a natural source of power was well known to the engineers and philosophers of olden times, but it was not until the sixteenth century that the force pump was invented, by means of which water was pumped to a great height, and stored for distribution under pressure. It was interesting to find that the authorities of our ancient city were amongst some of the first to appreciate the value of a good water supply, and it is recorded that in the middle of the sixteenth century "The Mayor of Gloucester with the Dean of the Church was authorised to convey water in pipes of lead from a neighbouring hill, satisfying the owners of the ground for digging thereof." He confined his attention to machines actuated by pressure obtained by means of an "artificial" head. It was due to the inventive genius of the late Lord

CHAS. R. H. PICKARD

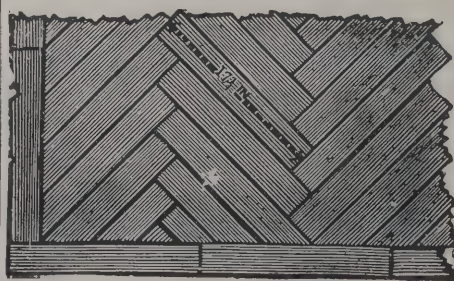
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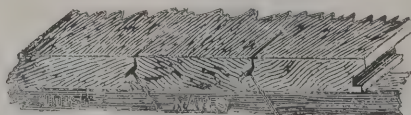
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Armstrong that they owed the "hydraulic accumulator," which produced an artificial head by weight instead of by elevation, this being about fifty years ago. The first one made was of very simple design, and consisted of a vertical hollow ram fixed into a base plate resting on the ground. The cylinder was inverted and encircled with cast-iron weights which were raised by the pumps, the static pressure being 700 lbs. The enormous value of this invention is realised when they remembered that a tank or reservoir would have to be placed at a height of 1,590 feet in order to obtain the same pressure, and also that one of the ordinary size, say, for example, having a ram 12 inches diameter by 20 feet stroke, is capable of giving off 575 horsepower at a single stroke. This system was peculiarly suitable for transmitting power over great distances, the loss by friction being only about 2 degs. per mile, and it has been almost universally adopted for the working of cranes, lifts, capstans and such-like machines in docks, railway depôts, &c. There are also hydraulic central stations for supplying power to the public in London, Liverpool, Manchester, Glasgow and Hull. As Lord Armstrong was the pioneer of general hydraulic machinery, so was the late Mr. Ralph Hart Tweddell of special hydraulic machine tools for such operations as rivetting, flanging, punching and shearing, &c. It may be of interest to some of the members to know that it was in Gloucester that Mr. Tweddell first took much interest in engineering. He was a student at Cheltenham College in 1860, and used to come here and spend many of his half-holidays in the works with the lecturer's father, who was then manager at Messrs. Savory & Son, the predecessors of Messrs. Summers & Scott. They kept up a correspondence for some years, and became intimately associated when in 1871 he concluded an arrangement with Messrs. Fielding & Platt by which they became the sole manufacturers of machines under his system. He adopted a working pressure of 1,500 lbs. to the square inch, which was considered to be too high by most engineers, but it had the advantage of reducing the size and weight of the cylinders, which is especially important for portable rivetters, and, furthermore, little trouble was experienced in keeping tight joints. There was a peculiarly stubborn prejudice to be overcome before the system became fully recognised, and this was accomplished chiefly by the high honours gained at the Paris Exhibition of 1878, where a complete rivetting plant was in daily operation. About the same time the French Government laid down a large hydraulic installation in some new shops at their Toulon Dockyard, consisting of machines

specially designed for rivetting, punching and shearing, bending and straightening angle and channel irons, and for stamping and flanging iron plates for ships. There was no shafting or gearing, all the machines taking their supply from one set of pumping engines and accumulator. Their performance was most satisfactory, the simplicity of construction and the absence of noise and vibration being most marked. This was the turning point, and at the present time the use of hydraulic machinery is extending in every direction, no important boiler shop, shipyard or girder works being considered complete without it. For the heaviest class of forgings the hydraulic press has already superseded the steam hammer, it being found that the quiet, steady and sustained pressure applied reaches the centre of the forging and gives the material time to flow naturally, while the short and sharp blow of the hammer expends itself on the surface of the forging and foundations. This is clearly seen by observing the ends of a forged shaft, that done by the press being convex, thus proving that the metal has actually flowed from the centre, whereas that done by the hammer is concave. When they considered the extreme simplicity and fewness of working parts of practically all hydraulic machines, together with the fact that they consume no power whatever except when actually doing work, and that very inexpensive foundations are required, it was only natural to expect that their field of usefulness would be still further extended as time goes on.

ELECTRICITY AT MAIDSTONE.

MAIDSTONE wore quite a festive air yesterday (Thursday) evening in anticipation, and afterwards in celebration, of the inaugural switching on of the electric light, the successful installation of which has just been completed. The question of the installation of this illuminant was first seriously discussed in 1890, and after a chequered course it was ultimately decided by the adoption of the scheme of Messrs. Stevens & Barker, electrical engineers, of Maidstone, in conjunction with a scheme prepared by the borough engineer (Mr T. F. Bunting) for a dust-destructor. The Fair Meadow was the site chosen for the station, and its close proximity to two large breweries gave rise to grave opposition to the dust-destructor, the scheme for which was abandoned at the time of the public inquiry. Sir William Preece was, on the suggestion of the Local Government Board, consulted with regard to the light, and he having reported

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most favourably upon the scheme, that authority gave its sanction to the loan. Work was commenced on December 21, 1900, nearly a year ago. The station adjoins the swimming-baths and Corporation offices, with which it is in keeping in architecture. It was designed by and has been erected under the supervision of the borough surveyor at a cost of 7,551*l.*, exclusive of extras, though inclusive of the chimney shaft, which absorbed 1,873*l.* It will be remembered that the site was in the first instance, though admittedly convenient, objected to on the ground of the danger of the flooding of the works when the Medway overflows its banks; and to safeguard against this the floors have been raised 6 inches above the abnormally high flood level of February 1900, whilst the buildings below this mark have been made proof against water. The station comprises three blocks, and provision has been made for its extension towards the river. The centre block consists of the engine-room and the pit for the condensing plant; on the right are the accumulator-room, stores, workshop, testing-room, engineers' private and general offices; and on the left is the boiler house. The main entrance opens in the engine-room; a second entrance, facing the baths, leads to the offices. The station is well lighted, large skylights running the whole length of the roofs of the three blocks; and the entire interior, with the exception of the offices, is lined with white brick. Its exterior is of Rainham red bricks, with York stone dressings, and Kentish ragstone base below the plinths. At the apex of the centre gable are the borough arms carved in brick. There is direct communication from the engine-room, with the accumulator-room on the one hand and the boiler-house on the other; and the engine-room is spanned by a powerful travelling crane. Every precaution has been taken to exclude dust and dirt from the engine-room, the floor of which is laid with Venetian marble mosaic with coloured borders. The stokers will approach the pit by way of the boiler-house, which has been built to fit the boilers, with provision for their removal and replacing. The chimney shaft adjoins the boiler-house. It is 152 feet high, with a concrete base 30 feet square and a brick foundation 22 feet 5 inches square at the foot. The shaft is square 22 feet from the surface, and thence from a stone plinth is octagonal. There are two opening flues, one allowing provision for future extension. The shaft was built entirely from the outside, 1,000 scaffold poles being brought into requisition, and a lightning conductor has been attached. The contractors for the buildings were Messrs. G. E. Wallis & Sons, of Maidstone.

Provision for contingencies has also been made in the selection of the requisite plant. Four Davey, Paxman & Co.'s multitubular boilers, with an evaporating capacity of 6,000 lbs. of water per hour, each at a working pressure of 160 lbs. per square inch, constitute the steam generating plant. An emergency pump has been placed in the boiler-room for use in the unexpected eventuality of the flooding of the condenser pit. There are five steam dynamos, four 150-kilowatt capable of developing 240 indicated horse-power at normal load and 280 at overload, at 375 revolutions per minute, and one 75-kilowatt, capable of developing 120 indicated horse-power at normal load and 168 at overload, at 420 revolutions per minute. Heavy fly-wheels have been obtained in anticipation of a traction load; and a set of balancing transformers and battery boosters have been provided. The air and circulating pumps of the condensing plant are driven by a compound engine, water being obtained from the river. The switch-board, fixed in the centre of the north wall of the engine-room, is raised from the floor and approached by steps. The necessary instruments and switches are mounted on ten panels of enamelled slate carried on a steel angle frame with polished traction mould edges. The board is surmounted by an electrically-driven clock and two illuminated dial-feeder volt-meters. The accumulator, consisting of 280 chloride cells, is capable of discharging 100 ampères for five hours or 300 ampères for one hour; the latter would supply upwards of 4,000 8 candle-power lamps without aid from the dynamos. The distribution of electric energy is on the 3-wire continuous current system, explained in these columns at the time the mains were laid. Disconnecting and fuse-boxes have been placed at various points in the distributors for the purposes of testing and isolating. Mains have been laid, a total length of five miles, in the following streets:—High Street, King Street, Ashford Road, Albion Place, Sittingbourne Road, Holland Road, Broadway, Tonbridge Road, Terrace Road, St. Michael's Road, Rocky Hill, London Road, Buckland Hill, Week Street, Earl Street, Faith Street, Mill Street, College Road, Knight-riding Street, Lower Stone Street and Gabriel's Hill. High Street, Broadway, a portion of Tonbridge Road, Week Street, Gabriel's Hill, Lower Stone Street, King Street, Ashford Road and Albion Place will be lighted by forty-four Brockie-Pell arc lamps of 1,000-candle-power each, fixed on artistic standards. Earl Street and Middle Row will be lighted by incandescent electric lamps fixed on existing lamp-posts. The total amount of the contracts, exclusive of the buildings, was 28,733*l.*

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MUNICIPALITIES AND HOUSING.

LECTURE was delivered last week by Professor Smart, of the University of Glasgow, on "The Duty of the Municipality regards Housing." The Corporation, he said, provides water, gas and cars, charging the consumers a price which covers interest, depreciation and sinking fund, so that the ratepayers feel no burden. Why not houses? Well, there is one difference. It provides all the water, gas and cars, but it cannot provide all the houses. The benefit conferred must be a sectional one provided with public money. Granting this—wanting also that the Corporation cannot "make the price" of housing as it does that of gas, that house-owning is always a risky business and that this particular kind of house-owning may show a loss—the argument is not convincing. Slums are not economical. Housing to supplant them is sectional, as the poor law is, to the recipient; to the community it may be a measure of public safety. We are mingling with the victims of the disease, drunkenness and crime. For the disease, drunkenness and crime engendered there we pay workhouse, reformatory, police-rates, hospital and law expenses. And we suffer in our labour supply, for good workers cannot be born and bred there. It would be easy to argue that, even if we lose money, it is in the purchase of a great national gain, and a municipality which dares to prove that such housing will "pay," take attention from the real point—Will municipal housing cure the evil? A second argument we are bound to face—that it will bring the municipality into competition with its ratepayers, the builders. But (1) this is a small class; it is not masons, bricklayers, &c., but their employers only; (2) the municipality is not going to take over the building trade, but only a section of it, warning the builders off this section. At any rate, in the circumstances this is not the time to dwell on abstract rights of individuals. Then, these two arguments be given up, and if the evil is as great as it seems proved to be, the municipality is not only bound to take up the problem in earnest, but if the remedy seem to involve a large scheme of building, the municipality is bound to build. For which class is it to build? For the slums contain two classes—the improvident, dissolute and criminal, and the decent poor who cannot find other houses at any price within their means. Any policy which deals with the slums deals with these two distinct classes. Hence the danger of a drift, beginning with the intention of clearing out the evil and ending in a socialistic scheme for housing everybody who

applies. If you do not take care the problem will run away with you. You feel bound to face the evil, but for want of defining what the evil is and is not, you drift into housing a class that does not need the special care of the municipality. That is why the economist deprecates those eloquent appeals to the heart that rouse impressionable people into frenzy and force municipalities into "doing something," when their first duty is to do nothing rashly. Thus it is that we have a drift when we ought to have a policy—sooner or later, of course, to be followed by a reaction and an undoing. The first step in the remedy is the clear separation in our own minds of these two classes, and of our duty to each. The second is segregation. On segregation all are agreed. But the Corporation proposes to segregate by housing the decent poor; those who think with me propose to segregate by building barracks for the dissolute. The one is ruinously costly, is beyond the strength of any Corporation, and in the end will merely shift the evil. The other will cure the evil, is a much smaller and less costly matter, can be done only by the Corporation, and yet will tax its energies to the full. The Corporation's position is not to be understood without doing justice to its history. It is naturally a great property owner, constantly acquiring ground by street improvement and building thereon. It has besides the heritage of the Improvement Trust; great slum areas cleared, then covered with paying properties. In short, the Corporation is not only already a great building speculator and property owner, but it is bound to go on. All this before it has even attempted the problem, the segregation of the decent poor. Of late, following the lead of the Workmen's Dwellings Company, which has proved that by selecting tenants and having resident caretakers such houses can pay 4 per cent., it has made a beginning. It has powers up to 100,000l., and its powers extend outside the city. With experience gained, a great staff, the experiments made, it is burning to begin. We are on the eve of another great drift. There is just time to ask the Corporation to change it into a policy, to count the cost, to tell us what they intend to do. Mr. Fyfe asks for 2,000 houses merely to relieve the overcrowding. Two thousand houses is a big order. But can it stop there? Has not the head of the municipality said that "the provision of houses for the poor has been definitely added to the work of the Improvement Trust, and is now perhaps its most important function?" Has he not, though ambiguously, spoken of a "right" of every poor man to get a Corporation house? Why



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should the 7,000 people ejected from the ticketed houses get this privilege, and all the others be refused? But if the Corporation go on to house the whole of the decent poor, it will be the most gigantic task ever attempted by any municipality. But it can be done, if reaction and alarm at the load of debt do not stop it halfway. Perhaps, if there is no other way of it, it should be done. On one condition—assumed, but now to be made explicit—that these houses pay their way. It is dangerous doctrine, only to be justified by extreme danger and by success. But if the Corporation house the whole of the class, and do not go below cost, there is no necessary conflict with private interests, no privileged class, and no expense to the ratepayers except the burden of a huge debt. But if it go below cost it is not only losing sight of its problem—which was overcrowded slums and no place else for decent folks to go to—but it is entering on the most dangerous course known to history, giving a rate in aid of wages. Let me make this clear. People crowd into towns because of certain advantages, the chief being variety of employments and high wages. The inevitable high rent is the reflection of this. On the other hand, employers are constantly balancing the advantages of remaining in towns against building their factories in the country. The latter is most desirable. The most certain way to bring back labour to the fields is to give an alternative employment to agriculture. If employers are to remain in town they must pay high wages. But if a corporation gives houses under cost, it turns the scale in favour of the town, makes possible a lower wage, and still further depopulates the country. But, indeed, the outcry for good houses at slum rents is quite fallacious. A slum rent is nominally cheap, and we easily think that a house is not cheap unless let at a slum rent. Really it is dear. Give a man a bad house, among thieves and prostitutes; he spends his evenings at the public-house, and dirt, foul air and disease soon make him not worth a wage. That he is able to pay 2s. for a slum is a proof that he can pay more for a home, because he buys health, good neighbours, quiet at night, a future for his children. One thing more. It may be said, Why assume that there is no middle course, that the Corporation will be driven on to house the whole class? Why not experimental pioneer blocks? Simply because it is an experiment which cannot be followed. No other builder can sell at cost. In face of such competition building for this class must stop. To come now to the point, Will this great costly scheme cure the evil? To bring the whole house of cards to the

ground we have only to ask, What about the unselected tenants refused, of course, at the Corporation dwelling? If the slums are pulled down, or reconstructed a let—again to selected tenants—are the unselected tenants driven out of the city? Will they not find another locality and make it a slum—a hundred times worse now than the haven of good is taken away, and only bad tenants are left? Or if they are driven out of the city, are they further away than, say, Alexandra Park, which the Corporation thinks is enough for their decent tenants? That is to say, the Corporation which started out to remove a fruitful seed-bed of evil have simply housed a decent class, and left a concentrated evil in another place, as we used to clean the Clyde by emptying the mud on the shores of Dunoon. And what about the expense? It has not, indeed, fallen on the ratepayer directly unless the decent poor refuse to occupy the houses—but it has hung a huge load of debt round his neck. Now even a city like Glasgow cannot borrow indefinitely, and it must go on borrowing for many things besides housing. Is it not probable that some day, when it wants to borrow for some other large scheme, it will find that its estate is already mortgaged up to its borrowing limit? The other scheme has already been put forward by the secretary of the Workmen's Dwelling Company, Mr. John Mann. Recognising that enough houses must be built to allow the overcrowding laws to be put in force, let the Corporation build barracks—if barracks are good enough for our soldiers, they are good enough for this class of tenants, and specially constructed for the improvident and vicious—four bare walls, with a minimum of fittings to spoil, a little plaster and wood as possible; clean shelters, in fact. The tenant can easily turn them into homes if he likes—it is never landlords who build homes: if he does not like, he will turn a place into a pigsty. Here no questions are asked as to the applicant's past; only, weekly rents must be paid and strict rules observed—another kind of Corporation lodging-house, in fact. If the tenant will not conform, out he goes without mercy. The city has no place for him. Liberty of the subject. The only liberty I know is liberty under law. Law is the first condition of liberty. But how get the tenants into these barracks? Well, put in force the overcrowding law and who will go out? The bad tenants, for the landlord's interest is all for good tenants. Rejected at all good properties there is one home that will receive them, asking no questions. Then enforce the sanitary Acts on the slums. If this is not sufficient, buy up the slums and reconstruct them. The Work-

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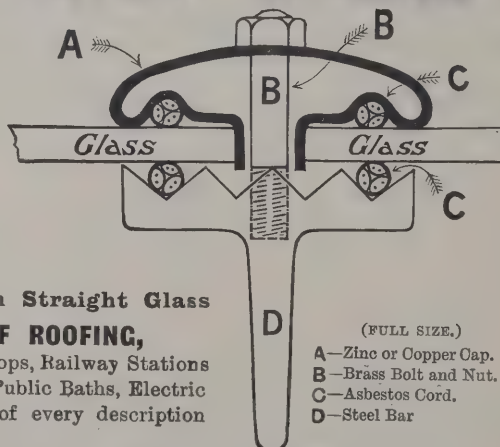
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en's Dwellings Company has done it; private citizens have ne it; the Corporation can do it. Thus you segregate the deserving; make overcrowding and sanitary laws possible of enforcement; you do it cheaply, for you deal with a limited class; you give no foothold for imaginary "rights"; you do not interfere with private enterprise—indeed, you give it a fresh start. And you remove the seed-bed of evil so far as outside machinery can. If it be replied that the first duty of the citizens is not to the improvident and vicious, but to the decent or, I say "Yes," but to protect them, not necessarily to build them. Protection and police come first among the duties of a State; it is the duty that cannot be denied, for the State alone can provide it. In short, before planting pull out your weeds.

THE TRADES TRAINING SCHOOL.

On Thursday evening of last week at Carpenters' Hall Sir Michael Foster, M.P., distributed the prizes awarded to the successful students of the Trades Training School, Great Titchfield Street, which is conducted by the various City Guilds—the Carpenters, Joiners, Painters-Stainers, Plasterers, Bricklayers, and Wheelwrights. Mr. John Willson, J.P., Master of the Worshipful Company of Carpenters, presided, and the masters of the following companies attended, Messrs. Thos. Baker (Joiners), Arthur Spurling (Plasterers), Geo. Taylor (Painters), E. Marsland (Tylers and Bricklayers) and E. J. Wilkes (Wheelwrights), in addition to Mr Alfred Weston, J.P., Mr. J. C. Preston, Principal G. Carey-Foster, Professor Roger Smith (chairman of Trades Training School), Professor Henry Robinson, Mr. Keith D. Young and Mr. Alan Leale, assistant secretary, Board of Education.

In his able introductory address, Mr. Willson congratulated the students who had been successful in the examinations, and said that the work at the Trades Training School during the year had been of unusual excellence, which spoke well of the instructors. It was gratifying also to the Carpenters' Company and the companies associated with them, that the work which they have undertaken at Titchfield Street is so well responded to by the students, as it not only reflected credit upon them, but more than satisfied the promoters of the undertaking for the expenditure incurred.

Professor Roger Smith followed by reading his interesting report on the work undertaken at the Trades Training School, when the numerous prizes were presented to the successful

students. The certificates, medals, &c., gained at the Carpenters' Company's examinations in sanitary building construction and in carpentry, as well as in the architectural and building construction evening classes at King's College, were distributed at the same time.

EDINBURGH AND LEITH MASTER BUILDERS' ASSOCIATION.

THE annual dinner of the Edinburgh and Leith Master Builders' Association was held on the 12th inst. in the Royal British Hotel, Edinburgh. About 120 gentlemen were present. Mr. Robert Lamb (president) occupied the chair, and he was supported on the right by Provost Mackie and Treasurer Yooles, Leith; Mr David M'Arthy, architect, Edinburgh; and Mr. Hugh Nelson and Mr. Wm M'Neill, representing the Glasgow masons; and on the left by Bailies Telfer and Cameron, Mr. William N. Thomson, surveyor; Mr. Robert Keir, surveyor, Edinburgh; and Mr John Swinton and Mr. George Findlay, president and vice-president respectively of the Glasgow Master Wrights' Association. The croupiers were Messrs. P. Knox, Neil M'Leod and John Lownie. Among the general company were Councillor Forrest, Edinburgh; Mr. James Millar, Mr. Brotherston, house agent; Mr. Nicoll, secretary of the Edinburgh Builders' Association.

After the toast of "The King, Queen and Royal Family" had been duly honoured, Mr. Lownie gave "The Imperial Forces," and Bailie Cameron, in replying, said he was of opinion that General Buller had never got enough credit for the handling of the North Natal Forces. From the news they had received he thought they would see some fighting at Standerton and Ermelo, where Lord Kitchener had gone. He did not think we ever need anticipate conscription in this country. South Africa was no doubt a big continent, but it was, he said, too small for two flags, and only one flag, the Union Jack, could fly there. When the Dutch farmer learned the truth as to the issue of the war, we would have, he believed, a loyal and sound ally in the Dutch in South Africa.

The Chairman gave "The Lord Provost, Magistrates and Town Councils of Edinburgh and Leith," and in doing so complimented the members of these Corporations on the work they had done. Provost Mackie, Leith, in replying for the Leith Corporation, alluded to the friendly relations that existed between the two Corporations. Referring to the tram-

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way difficulty in Edinburgh, he said he believed that one of the causes of the present lessees of the Edinburgh tramways not being able to pay their rent was in consequence of the break at Pilrig, where thousands of pounds were lost yearly to the working company. One of the first things he did when he became Provost of Leeds was to attempt to get the state of matters at Pilrig put in order, but unfortunately the Leith-owning company, because their time for selling had not arrived, wanted too much money. He hoped that after the present troubles as to Sunday running of cars had passed away, they would meet together and endeavour to come to a satisfactory arrangement with regard to the tramways between the city and the port.

Baillie Telfer, in replying on behalf of the Edinburgh Corporation, at the outset referred to the illness of the Lord Provost. Alluding to the tramway question in Edinburgh, he said for the time the less said about it the better. He agreed with Provost Mackie that owing to the situation of the two communities the tramway communication between the two towns must be continuous, or it would never be satisfactory. Adverting to the question of the amalgamation of Edinburgh and Leith, he said he had no doubt that the time was not far distant when Leith would take over Edinburgh. Having stated that the expenditure of the city had been necessary to keep the city up to date, he referred to the old custom of contractors giving conveners gifts, and stated that some people were wicked enough to say the contractors wished a return for those gifts. Now he was of opinion that the contractors' motives were as honourable, more so perhaps, than the people who indulged in those insinuations. If the insinuation was made fair and square, he was almost certain they would give those people an opportunity of proving their case.

The toast of "The Edinburgh and Leith Master Builders' Association" was proposed by Mr. M'Arthy, who spoke of the good work the Association had done. He alluded to the proposal for a national federation of employers' associations and trade unions to cement between employers and employed the feeling of common interest, and stated that if such a proposal could be carried through, he believed it would be one of the best things that could be accomplished. Councillor Forrest replied, and expressed himself in favour of national union. He was opposed to town councils, county councils and school boards doing their own work. "The Scottish Building Trades Federation" was given by Mr. Thomas Lamb, and Mr. Alexander Drysdale replied.

Other toasts followed. At intervals between the toasts songs were sung, and altogether an enjoyable evening was spent.

THE WATER SUPPLY OF JERUSALEM.

THE inhabitants of Jerusalem are now provided with a sufficient supply of spring water for drinking purposes. The works, which commenced last July, as announced by the *Standard* at that time, were completed on the birthday of the Sultan (November 27), who issued the *Irade* for carrying out the scheme on the twenty-sixth anniversary of his accession to the throne, and water flows now copiously through the taps of the twelve fountains within the enclosure of the Haram. The Mosque of Omar (the site of the Temple of Solomon) and all from the fountain erected outside the city walls on the ancient Birket-es-Sultan (the lower Pool of Gihon), situated midway between the railway station and the Jaffa Gate.

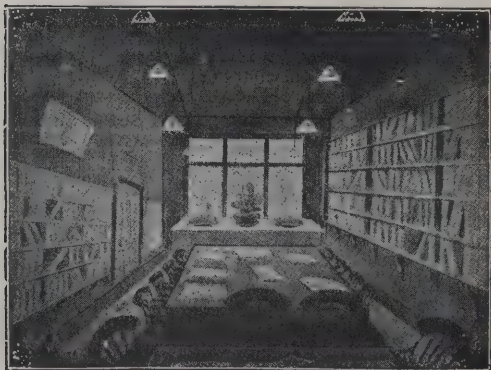
The ceremony of the opening of the water taps in the mosque was performed by Djevad Bey, Governor of Jerusalem, assisted by the commander of the garrison, Rifat Pacha, and accompanied by all the functionaries of the Government, civil and military, attired in full uniform for the auspicious occasion. Speeches were delivered and prayers were offered for the preservation of the life of Sultan Abd-ul-Hamid, followed by shouts of "Padichahim chok Yasha" (Long live the Sultan). The same ceremony was repeated in the afternoon in front of the fountain outside the city walls above referred to, which the non-Mussulman population of the city can utilise, the "Infidels" not being allowed free access to the Temple area, or to share with the "Faithful" in the water conveyed to the Haram enclosure.

The new water-supply is derived from three tributary springs in the neighbourhood of the Pools of Solomon, to the south-west of Bethlehem, and distant about three hours from Jerusalem. The output of these springs previous to the devastation of the forests in the surrounding country was considerable, but at the present time the yield does not come to more than one to two gallons of water a second during the dry season, or about 90,000 gallons every twenty-four hours. The old stone aqueduct, which formerly from the time of King Solomon brought the water to the Temple area, was 25 kilometres in length, having been made to curve round the mountains, whilst the newly-erected aqueduct covers only

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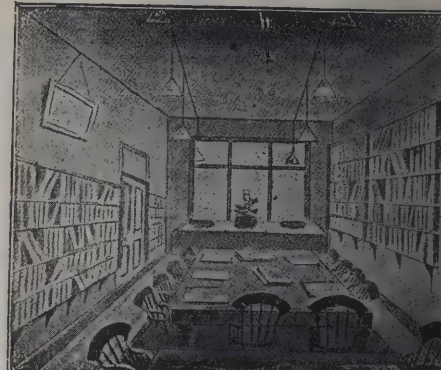
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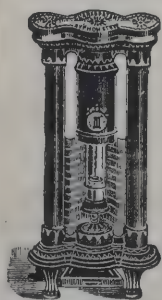
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7 kilomètres. For the first six kilomètres—from the springs to Bethlehem—the water runs through clay pipes manufactured here, of 8 inches in diameter; and for the remaining 11 kilomètres the water is conveyed through wrought-iron pipes of 4 inches diameter, imported from Belgium. Before reaching the Mosque of Omar a branch conduit carries the water to the fountain on the Birket-es-Sultan, near the British Ophthalmic Hospital, to supply the inhabitants who dwell outside the city and who are precluded from partaking of the water coming to the Great Mosque. To shorten the distance, however, from the springs to the city, it was necessary to dig up a tunnel 1,460 feet long and 30 inches wide about a mile from the city. This tunnel, which is well-ventilated throughout, has been converted into a reservoir, and serves as a regulator for the distribution of the water.

The cost of the undertaking, amounting to about 8,000 Turkish liras, has been defrayed from the funds of the Evkaf (the Administration of Religious Foundations), and the works were most skilfully executed by M. George Franghia, chief engineer and head of the Technical Department in the Ministry of Public Works at Constantinople, who held the post of Government Chief Engineer in this city for many years, and had made special studies of the Jerusalem water supply question.

His Excellency, Djavad Bey, the present Governor of Jerusalem, has shown the keenest interest in the realisation of this eminently philanthropic scheme, which will allay the sufferings of many thousands of the poorer class of the inhabitants who could not afford to buy water when the cisterns are empty, and will no doubt contribute to diminish sickness from malarial fever caused by the dirty and unwholesome rain water collected in the cisterns.

THE COST OF BUILDING.

In a letter to the *Sussex Daily News* the Rev. V. A. Boyle, of Portslade, writes:—

Sir,—Your article on the Roman Catholic cathedral provokes thought. Cardinal Vaughan is not the only person who suffers from the increased cost of building. And it is difficult to see who is the gainer by it. Neither the public nor the workmen nor the contractor seem any the better.

1. *The Public*.—As ratepayers the public, and especially the poor, suffer from the enormous increase of rates due to the

great cost in erecting absolutely necessary public buildings. The East Sussex County Council is spending more than 300,000*l.* on its new lunatic asylum, the West Sussex County Council is spending even more. The Steyning Guardians' new workhouse costs some 65,000*l.* The Brighton School Board's new school is to cost 30,000*l.* All these buildings are necessary and must be built. I have no doubt that nothing has been sanctioned by the authorities erecting them which is not unquestionably required in each case. The public suffer in another way from the difficulty of obtaining houses, since building is now hardly remunerative. The results are high rents and overcrowding. Here again the poor are the chief sufferers.

2. *The Workmen*.—The workmen in the building trades are at the present moment being made the scapegoats for this state of things. And no doubt they have to bear their share of blame for bad work and for dawdling. But I should like to point out that they do not benefit by the increased cost. In the first place, there is no work to do. No one engages in building now who can possibly avoid it. And unless the cost is reduced there will be less and less building undertaken by private persons. But the workmen suffer in another way. Wages have not increased, so far as the individual worker is concerned, in anything like the proportion in which the cost of building has increased. The stonemason and his labourer are earning now no more than they earned in the fourteenth century. You speak of labour being then "obtained as a free gift to Holy Church." But in many cases there is evidence that ecclesiastical buildings were erected by regularly paid labour. The classic instance is that of the church at Oxford which serves the double purpose of the parish church of St John and the college chapel of Merton College. Exact accounts have been preserved of the actual cost of this building. Professor Thorold Rogers, in his "History of Prices," refers frequently to these and other accounts preserved by Merton College. The tower of the chapel, one of the most beautiful in Oxford, took three years in building, from 1345 to 1348. Such a tower could not be built nowadays for less than 5,000*l.* to 6,000*l.*, and would probably cost much more. Professor Thorold Rogers reduces the Mediaeval money to its modern equivalent, and the cost works out at 1,500*l.* The masons earned what was the equivalent of from 4*s.* to 48*s.* a week; they had an eight-hours day, and about the same number of holidays as their modern representatives. They were directly employed without the intervention of a contractor.

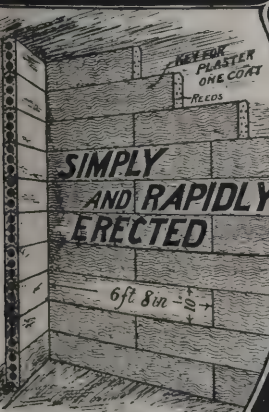
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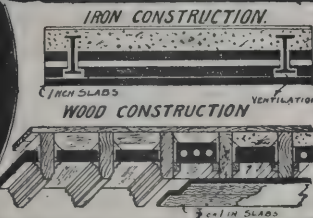
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WOOD CONSTRUCTION.

There were no architect's fees; the foreman mason probably made the working drawings from his own design or that of his employers. In reducing Mediæval prices to modern, no account is taken of what is the workman's heaviest charge, house-rent; only the amount of foodstuffs and clothing materials are considered. The workman, therefore, does not gain by the increased cost of building. In the fourteenth century he enjoyed practically the same wages as at present, was directly employed, worked an eight-hours day, and produced work of a quality and beauty that is the despair of our times.

3. *The Contractor.*—It can hardly be urged that the contractor benefits by the present high prices. Small builders complain bitterly that, after working twice as hard as their own workmen, they make scarcely a better living. Big ones fill the columns of the *Times* with their lamentations.

Now, sir, as one of the public, I should like to know why building is expensive. Contractors tell me it is because of the cost of labour. Yet workmen earn no more than they earned in the fourteenth century. Are the men less efficient, needing more supervision and control? Or what is the secret? It is no use saying that wages have increased during the nineteenth century. They have, but they had previously decreased from the sixteenth to the eighteenth-century level. What I want to know is why is it not possible now to build a tower like that of Merton College Chapel for 1,500*l.*, and why ugly workhouses and lunatic asylums and elementary schools, with no pretension to beauty, are so terribly expensive? I ask the question feelingly, since in this parish the cost of enlarging the elementary school is pressing like a nightmare upon the school managers. The cost works out at half as much again as it would have been in 1898—that is, at 3,000*l.* instead of 2,000*l.*

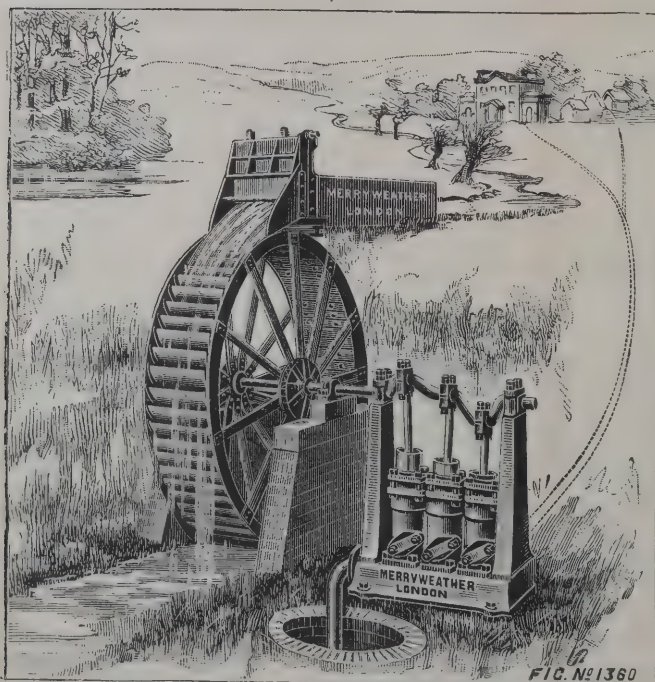
A BELFAST BUILDING CASE.

In the Irish Chancery Division, before the Master of the Rolls, the hearing of the action of M'Connell and Stevenson v. Rober Wilson was concluded. Mr. M'Connell is a rent agent in Belfast, and Mr. Stevenson is an architect. The defendant is a builder and contractor, also carrying on business in Belfast. The plaintiffs sought an injunction to restrain the defendant from interfering with certain houses and premises at Fortwilliam Park and Skepniel, in Belfast, and the defendant counterclaimed for money which, he alleged, he had spent on

their erection. The case resolved itself into a question of fact. The defendant alleged that he had made a verbal arrangement with the plaintiffs to build the houses, and that he was to receive whatever amount they realised on sale after the cost of erection had been defrayed, and he claimed specific performance of that agreement. He also alleged that he had spent 1,100*l.* of his wife's money in their erection. The plaintiffs denied the agreement, and pleaded that they had advanced the money to the defendant to defray the cost of erection. They had frequently asked the defendant for an account, but could get no satisfaction. They claimed the property as theirs, and asked that they should be quiet in possession.

The Master of the Rolls, in giving judgment, said that the defendant claimed that he was owner of the lands as well as of the houses. That was a strikingly strange circumstance having regard to the fact that the plaintiffs were the persons to whom the land belonged, and also to the fact that it was their money which had erected the houses. There was no agreement between the plaintiff and the defendant as to the conveyance of the land, and how Wilson could claim it either in law or equity it was impossible to see. It was admitted by Mr. M'Connell that some kind of arrangement was made, and in regard to that matter his lordship wished to say that when a person of education like Mr. M'Connell and a business man like Mr. Wilson entered into such an arrangement it was simply a disgrace, and could not be characterised as a mercantile transaction at all—it was a disgrace that the arrangement referred to by Mr. M'Connell had not been reduced to writing. His lordship was plainly of opinion that the defence was no answer in point of law or in point of fact to the action, that the defendant had interfered with the property under some grotesque interpretation of his rights, and therefore there must be an injunction in the terms of the statement of claim. As regarded the counterclaim the matter stood in a different way, and if it were possible to take an account between the parties and close the matter his lordship would be glad to do it, but the counterclaim was founded entirely upon the same state of facts on which the defendant rested his defence. Therefore the counterclaim must also be dismissed. There was an open account undoubtedly between these parties, and Mr. M'Connell could not refuse to give an account of these houses when called upon. If there was anything over and above the amount of cost price of the houses after taking that account that must, of course,

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long to Mr. Wilson. His lordship had nothing to do with the sums advanced by Mrs. Wilson. The injunction was accordingly granted and the counterclaim dismissed with costs.

ARCHITECTURAL SHAMS.

On the 14th inst. Mr. E. R. Taylor, head master of the Birmingham School of Art, distributed the prizes at the Nightingale School, Birkdale Park, Southport. In his address Mr. Taylor spoke of the value of drawing as a part of education. They learned to draw because it was a help to their studies, and another reason was that they might help to lessen the ugliness of to-day. Until about a century ago, he said, all things made by man, from buildings to articles for common use, had in them some element of beauty and fitness, and generally so much of rightness and beauty that the former could not be pulled down without protest, and the latter were treasured into museums. Looking at the two extremes of each, they must admit there were distinct lines of demarcation between beauty and ugliness. In architecture the manor-houses and cottages on the Cotswolds, or the half-timber work of Cheshire and Warwickshire, were things of beauty, and in contrast to most of the modern mansions and workmen's cottages. If they admitted that beauty and ugliness were not convertible terms it was worth while to inquire into the cause of so much of the present-day ugliness. When they looked at Turkey, India and Japan they would find that good work continued to be produced in these countries until recently. The work, however, was now contaminated by modern European influences, the same influences which had made our work in this country bad. Japan was the most recent and lamentable instance. It had hurried to adopt Western ideas of life, and its exhibit at the Glasgow Exhibition was the most melancholy sight there. One cause of this present-day ugliness was the attempt to revive old styles. The notion that we could bring to life dead styles was a misuse of the study of history, and yet it still prevailed. Another cause of bad work was the love of shams—not toleration only, but a love of shams. When he began work in Birmingham he found students and others on showing him their work generally checked the climax of praise by stating it was like something it was not. As an instance of this he cited the treatment of a stable wall which had a beauty of its own with its irregular

mortar joints, which gave a texture to secure which in other things great expense was often incurred. This was spoiled by ruling straight mortar joints at all angles to make it less like rubble-work. A final cause affecting all the others was the judgment by money value. This tainted all their work. In closing, he advised them in their pursuit of beauty to study simple and right construction, to study old work to see how it grew, to love nature, the source of all that was beautiful and to live simply.

ELECTRIC LIGHT IN YORK.

SINCE the York Corporation undertook the electric lighting of the city less than two years ago the results, says the *Yorkshire Herald*, of the venture have been closely followed. Doubts as to its success have been constantly expressed, and many of the critics are apparently still unconvinced of the wisdom of the Council when they decided to carry out the work themselves. The committee, of which Alderman Dodsworth is chairman, has had to face a vast amount of pessimistic criticism, due in some cases perhaps to want of faith in the new illuminant, and springing in other instances, no doubt, from a feeling that the undertaking was not likely to be of benefit to the city in the hands of the Corporation. It is not the aim of this article to prove that the critics were right or wrong, but simply to place before the public some facts from which they may draw their own conclusions. The electrical engineer (Mr. C. A. Midgley) has had charge of the work from the first, and he has supplied us with information which shows its growth since the opening of the power station on Foss Islands. To anyone who visited that station at the time of the opening ceremony the changes are sufficiently apparent. In the boiler-house a start was made with two Lancashire boilers, each capable of developing under forced conditions 400 horse-power. Since then two 500 horse-power water tube boilers have been added, so that there is now in the boiler-house a total of 1,800 horse-power. In the engine-room the original plant consisted of two small engines, each of 40 horse-power, which occupied a portion of the floor at one end of the building. To-day the whole area is covered by six high-speed engines, totalling up to 1,320 horse-power, whilst each engine can do 30 per cent. overload in an emergency. The two larger, one of which is not yet in use, are of 400 horse-power. Every inch of space is utilised, and the engine-room is a model of compactness. At the present time the evening load is about 1,000 horse-




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power, and five engines supply the demand, whilst in the daytime one of the 130 horse-power engines runs the lamps in use up to two o'clock.

Every precaution is taken to guard against a stoppage of the supply from any cause, and no breakdown has occurred since the current was first switched on. During a temporary period of darkness caused by fog or thunderstorm, when the solitary engine is running smoothly along, the number of lights may in the course of five or ten minutes be increased from 1,500 to 12,000. The staff, however, is constantly in such a state of preparedness for emergencies that more engines may be started and the requisite current supplied in about a minute and a half. A new set of storage batteries is being installed having four times the capacity of the batteries now in use and weighing 80 tons. This accumulating apparatus when complete will render a stoppage all but impossible, for should engines and boilers break down it will carry the city through the heavy evening shifts without any fear of a failure of the light. In the first instance the committee put down plant to deal with 6,000 lamps of 8 candle-power. They felt, of course, that although they were confident of success, their undertaking was to some extent an experiment. The demand for the light fulfilled their most sanguine hopes, and by the time the plant was ready to start 4,780 lamps were connected. In order to meet the demand last winter engines were put in to supply 13,000 lamps, and the plant has been since increased as already described, bringing the capacity of the engines up to 21,000 lamps of 8 candle-power. Orders have come in with satisfactory regularity, and there are now 26,000 lamps connected and 6,700 awaiting connection. Mr. Midgley estimates that by the winter of 1903 the demand will reach 43,000 lamps, and under these circumstances it is necessary that the committee should be looking ahead. Important extensions are already planned, and should be completed by August next. A second engine and boiler-house will be built at the south-eastern end of the existing works, and it is proposed to put in three boilers of 800 horse-power each and two engines of 1,000 horse-power. The new building will be 100 feet in length, and the railway sidings will then bring the coal to the furnaces direct. The expenditure on these important extensions is estimated at 50,000*l*. Increased consumption usually means a decrease in price, and it is probable that the charges will shortly be revised in favour of the consumer.

In addition to 250 private consumers and the street lighting,

electrical power is now being supplied to several local firms. The committee would no doubt be glad to increase this class of customers, because, as a rule, the demand comes in the daytime, when there is ample power to spare. The number of consumers when the supply was commenced was only thirty-two, so that there has been a steady advance, and we are informed that no customer who has had the light installed has since given it up entirely. After paying the interest on the sinking fund and the working expenses, and discharging a debt of 300*l*. incurred in obtaining the provisional order and visiting other works, the committee made a profit of 98*l*. on the first year's working, and they look forward to increasing this for the second year. Mr. Midgley is not so one-sided as to claim that the street lighting is perfect, and his views on this subject are worthy of consideration. He thinks there was, in the first instance, a tendency on the part of the Corporation to over-estimate the power of the arc-lamp, and as a consequence the earlier ones were placed too far apart. As a result, when a light unavoidably blinks or jumps a little, the fact is far more noticeable because the next light is not close at hand to cover up its momentary deficiencies. He cites the lighting of Bootham, where the lamps are better spaced, as more nearly approaching the ideal. Mr. Midgley says that the whole of the streets could be lighted by incandescent lamps with a mean guaranteed candle-power of 50, saving the city 700*l*. a year. Chester, Leyton, Barking, Worthing and other towns are, it appears, lighting the whole of their streets with electricity, and Mr. Midgley, referring to the argument that the arc lamps have been removed in Sheffield, Leeds, Bradford and other towns, says that until very recently the power stations at Leeds and Sheffield belonged to companies, and Leeds has now decided to light many of the most important thoroughfares with arc lamps, whilst Bradford is considering a complete scheme of arc lighting. Although the cost of the arc lamps at present in use in York is from 50 to 60 per cent. more than was paid for gas, Mr. Midgley thinks that the greatly superior light is well worth the extra money. On the new scale of charges he calculates that the cost of lighting the city by gas would be 4,896*l*., and he informs us that the same candle-power could be supplied by electric light for 4,000*l*. Another use for the power may be found if an electric tram system is adopted, and if necessary a thousand horse-power could be supplied. Thus far, in comparison with other towns, York's electric-lighting scheme appears to have been a successful venture.

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# The Architect.

## THE WEEK.

THE Ulster Society of Architects was only lately formed, but it has already rendered excellent service to architecture by protesting against clauses which the Corporation are introducing in a Bill which will be brought before Parliament in the coming session. The following extraordinary clauses will make it plain that a system is proposed to be set up which will be intolerable to architects and fatal to architectural effect in Belfast. The part relating to elevations of buildings is as follows:—"Every person who proposes to erect or alter the front wall of any building shall, together with and in addition to the plan, section and notice which are required by the existing local Acts of the Corporation to be lodged with the surveyor, lodge in the manner and subject in all respects to the conditions prescribed by the said local Acts, a drawing or drawings showing all the elevations of such building overlooking any street or streets in which such building is proposed to be erected or altered. There shall be specified and shown on such drawing or drawings the height, character and design of the building proposed to be erected or proposed to be altered, and the height of any buildings immediately adjoining the same, and there shall be stated on such drawing or drawings the materials of which it is proposed to construct such elevations. The surveyor may disapprove of such elevations on the ground that they are in his opinion objectionable, or that in any respect they are not in conformity with the requirements or provisions of the existing Local Acts or by-laws of the Corporation. The provisions of the said Local Acts and by-laws shall, so far as applicable for the purposes of and not varied by or inconsistent with the provisions of this section, apply *mutatis mutandis* to the matters referred to in this section. Any person aggrieved by a decision of the surveyor as to such elevations may appeal to the Recorder of the City against such decision, whose decision thereon shall be final." At the present time there is a strong feeling against the surveyors of cities and towns undertaking the practice which belongs to private architects. But the sacrifices which are imposed by surveyors intercepting commissions are less onerous than would be the subjection to the surveyors if the law constituted them the sole arbiters of taste. The proposition is so absurd, especially with the Recorder as referee, that we fancy the clown in the Belfast pantomime must have inspired it.

It is understood that the Supervising Architect, Mr. TAYLOR, will seek for amendments in the Tarsney Act, which was passed to enable architects in private practice to carry out official buildings. From the short experience of the operation of the Act it is considered that the public interests would be better served if the architect's work was restricted to preparing the design, working drawings and specifications, leaving the realisation to the Supervising Architect's Department. The Secretary of the Treasury, who is responsible for building, cannot allow the architect a free hand and permit him to carry out alterations, although it may appear to him necessary. There are Government superintendents and inspectors who must be considered as constitutional officers, and their duties relate to buildings of all classes. As a consequence it is impossible to avoid friction between them and an architect who is called in for a single building. But it is thought that in all matters relating to construction, heating, ventilating and electric appliances the permanent officers are more likely to secure excellent work than the designer of the building. In other words, the endeavour is in America to restrict an architect's work to duties which can be carried out in his office.

WE recently described the difficulty which arose in Dorking in respect of a compound building which would serve for a post office as well as for municipal offices. The Post Office authorities approved of such an arrangement, but they could not have the building erected if a part was to be utilised for local purposes. The Local Government

Board, on the other hand, declined to sanction the raising of a loan for a building which would be partly used by the post office. The case was one of those conflicts between departments which are characteristic of the Government service in this country. LILY, Duchess of Marlborough, has come forward to rescue Dorking from a difficulty which appeared to be insurmountable. Her Grace has purchased a site for 2,400 $\frac{1}{2}$ %, and offered to erect a building which will serve as a new post office as well as Council offices. The Postmaster-General has agreed to take a lease of part of the premises for thirty years on terms similar to those previously arranged with the Council. A special meeting of the Urban District Council was held on Friday night, when the offer of her Grace to lease the remainder for a like period at 80% per annum was accepted. A vote of thanks was passed to the Duchess for the public spirit she had shown in the matter.

WHEN the Imperial Institute was started it was anticipated that much could be done towards improving the relations between the Colonies and England by means of the new agency, but it cannot be said that the Institute has been a great force in politics or in trade. It has therefore been decided to surrender the property to the nation. The PRINCE OF WALES presided at a meeting on Saturday last for that purpose. Lord JAMES OF HEREFORD, as chairman of the executive council, made a full statement of the position of the Institute. He stated that its financial position was most satisfactory, and that its property was worth some half-million of money. The present policy of the management was to improve our commercial action through the Institute's commercial intelligence and scientific research departments. The Institute, however, was now acting in directly the same path and the same field as the Board of Trade. The two bodies had founded similar advisory committees, with the same objects and appealing to the same interests. Resolutions were unanimously adopted approving of transferring the Institute, with all its property, to the nation. The Chairman afterwards announced that the policy of transfer met with the entire approval of His Majesty the KING, who was its founder, and had always personally taken a most active share in the management of the Institute. There is no doubt use can be made of a special building for Colonial purposes, but it has yet to be discovered what arrangements will be mutually satisfactory to the people in British colonies as well as to the people in this country.

IN one way it is satisfactory to learn that the Hill of Tara when put up for auction last week could only attract two bidders. The amount offered was judged insufficient, for it did not reach 3,000 $\frac{1}{2}$ %, and the farm is therefore in the market, and may be acquired by the payment of the sum which represents its agricultural value. Why we have said there was some satisfaction at the failure is that a purchaser might be attracted in the expectation that archaeological objects would be found of immense value. The large Celtic brooch known as the Tara brooch, which has been so often reproduced in various forms, has excited Irish imagination, and it is generally believed a great many, at least equally beautiful, remain lying under the soil. There are supposed to be even greater treasures, for not long since some enthusiasts who had traced the Ark of the Covenant to the place endeavoured to seek for it regardless of the regulations for the preservation of antiquities which are in force in Ireland. MOORE'S song about the harp that once through Tara's halls the soul of music shed has led people to conclude there must have been an immense building in which the numerous Irish kings and their councillors used to assemble periodically. But the banqueting-hall, the council-chamber, and the other parts which bear resounding titles were little more than enclosures, of which the remains are interesting as late examples of earthwork construction rather than of building. It is possible harps sounded on Tara, speeches were delivered, and justice was administered there before an immense assemblage of men clad in raiment dyed in primary colours, but the scenes were enacted in the open air, and not in roofed buildings.



## THE GERMAN EMPEROR ON ART.

**M**ONARCHS in modern times have so much to occupy their attention, it is only on especial occasions, such as the opening of an international exhibition, that any recognition of art is vouchsafed from their lips. The address which was delivered on the 18th inst. by the German Emperor at the banquet to the sculptors who co-operated in representing the old Hohenzollern chiefs in the Avenue of Victory of Berlin is, therefore, deserving of consideration. There is no doubt the KAISER is an orator, and his speech should be judged, in the first place, by its effect on his auditors. A foreigner can hardly be able to appreciate many points or expressions which exert an influence over Germans. The continual reference to himself may, outside the German boundaries, suggest the "Alone I did it" of CORIOLANUS, or the "L'état c'est moi" of LOUIS XIV. A German, however, is able to discriminate and will accept the words as savouring of affection rather than of arrogance.

There is not any reason why the KAISER should not be inspired by pride of race. Success counts for much in this world of ours, and the Hohenzollern family have been able to advance to heights beyond all their competitors in Germany or Europe. For over a thousand years the family has existed, and to advance from a count to an emperor means the possession of extraordinary qualities in a succession of representatives. Why should not the Emperor suggest to his subjects in Berlin, and to all visitors to the capital, that he was following a line of distinguished predecessors who had won their way by manly vigour? There are wise people who consider the present should monopolise all thoughts and that the dead past should be left to bury its dead, but the German mind is retrospective, and for that reason the most laborious historians have been Germans or have been inspired by German examples. The historiographer of the Hohenzollerns, Professor KOZER, has collected abundant information about the personalities of the chiefs, as well as about those who aided them in their labours. It is never ignored that the electors of Brandenburg and kings of Prussia were well served. The great memorial of FREDERICK THE GREAT which is in Berlin does not present simply the warrior himself. His generals and men who were eminent in peaceful pursuits were introduced as part of the composition. The most characteristic statue of EMMANUEL KANT which sculpture has produced is to be found as one of those accessories. The figures which appear around the Hohenzollern chiefs in the Avenue of Victory may have less authenticity as portraits, but they are at least suggestive of the principle that in Prussia public services are always recognised. It is preferable to see imaginary portraits of men who once existed than allegorical figures of supposititious qualities like those which used to accompany the statues of French kings.

Having obtained a definite idea of his project, and finding that research was able to suggest some of the peculiarities of his ancestors, the next step of the Emperor was to have the idea realised. His description of his negotiations was characteristic. A German prince generally avoids the stand-off manner with artists and authors which is supposed to be necessary in other countries. GOETHE, at the time when he was recognised as the most illustrious writer in Europe, was not ashamed to acknowledge that he owed to the Grand Duke of WEIMAR not only affection and confidence, but fields, garden and house, and the affability of the Duke and his Duchess was known to all in Weimar who had any pretensions to art and literature. This national quality was also exhibited by the great FREDERICK, although it took a wrong direction, for his favours were bestowed mainly on French authors, French painters and French sculptors. It was for that reason SCHILLER claimed independence for German poetry, for as it was driven from FREDERICK'S throne it went to the people for support. The third German Emperor is not ambitious to become a patron of foreigners, for he believes, as he said in his speech, "that the most favourable auspices for the solution of a problem in art are not to be found in convoking commissions or in instituting all sorts of prize juries and competitions, but rather by following the old and approved methods of Classical times and also of the Middle Ages—through

direct relations between him who gives the order and the artist—a method which furnishes a guarantee for a favourable development of the work." His Majesty also considered it wise that in producing statues under a royal command the sculptors should be free from all dictation that would affect their independence as artists. General instructions were given, but in all other respects there was the fullest liberty, "not merely liberty in regard to combination and composition, but, above all, liberty to put into their work that element of themselves which every artist must contribute if he is to give his creation the stamp of his own individuality. For every work of art always implies some particle of the individual character of the artist." The Emperor is satisfied with the success of the sculptors' work, and is of opinion that the Berlin School of Sculpture could hardly have been surpassed at the time of the Renaissance.

As the new museum in Berlin containing examples of Greek sculpture acquired by recent explorations was opened on the day of the banquet, the Emperor seized the opportunity to speak of Classic art and compare it with some varieties of modern art. Every educated German can always discourse about the art of antiquity and the influence of idealism upon it. Once it was said with some truth that if England held dominion over the waves, Germany was supreme above the clouds. Now there is a belief that German warships would be able to hold the seas against all opponents, and in commerce and manufactures Germans are also prominent. But there is still a weakness remaining for the ideal, not merely in art and literature, but in politics and sociology also.

In Classic art the Emperor sees the constant sway of the law of beauty, the law of harmony, the law of æsthetics. The highest praise that can be given to a modern work of art is, he says, to describe it as "nearly as good as if it had been executed nineteen hundred years ago." Among all the arts, sculpture, according to the KAISER, is the freest from modern tendencies and movements, and is therefore exalted and sublime. It should be kept in its pure state, regardless of criticism and the variations of theories, otherwise it would become a manufacture, an industry rather than an art. Liberty in art is as objectionable to the Emperor as liberty in speculations about government. He expressed this when he said:—"With the much-misused word liberty and under its flag people often land in lawlessness and license and in overweening self-conceit. Whosoever forsakes the law of beauty, the sense of æsthetics and of harmony which appeals to the heart of every one, whether he can express it or not; whosoever regards as more important the idea of a special tendency, of a particular solution of problems which are mainly technical, that man is sinning against the well-springs of art."

If an artist can produce a figure that is superior to any natural production he is to be praised, but without exercising his liberty as an artist for that purpose by departing from nature, he would never have attained what he sought. If POLYCLETUS accepted the law of beauty as laid down in the works of his predecessors, his *Doryphorus*, or whatever other work became the "canon," would not have been created. Apparently he was as indifferent to respected laws of æsthetics as to the forms of any of the individuals he employed as models. The Greeks did not believe POLYCLETUS was to be the only law-giver, for we know that PHIDIAS and three other sculptors were brought into competition with him. If afterwards the civil authority compelled artists to adopt the canon of POLYCLETUS as the model of beauty, the figures produced would not deserve to be considered as works of art. But the Greeks allowed liberty, for they could discriminate between it and license.

Apparently the Emperor, when praising sculpture which resembles ancient Greek examples in remoteness from ordinary life, was thinking how much easier the government of a modern State would become if the poorer classes took delight in Apollos and Venuses, and avoided representations which recalled their own condition. According to the Emperor, "it is the business of art to co-operate in exercising an educative influence upon the people; it ought to aim at furnishing the lower orders as well as others with the opportunity, after hard labour and toil, of upraising themselves again by the aid of ideals. For us—for the German people—great ideals have become permanent possessions, while other nations have more or



less lost them. If art, as is often the case nowadays, does nothing but depict misery in a guise even more hideous than the reality, it is sinning against the German people."

If it could be accepted that an artist is to be deprived of liberty to reflect and to record what he sees, and in Germany especially should confine himself to the representation of myths, then, of course, all the realistic pictures of life in German cellars and garrets would be contrary to official æsthetics. But the true meaning of the word æsthetics is to perceive, and there is an end to art if men cannot express what they look upon in the way which their nature prompts. The artist, it should be remembered, is the child of his time. When people in general believed misery to be only a preparation for happiness in another world, artists were content to represent every variety of it. There were paintings and statues of martyrs, beggars and pilgrims, and we may assume that the sight of those types gave some satisfaction to the sufferers who looked upon them. But the day has passed for work of that kind to be medicine to the mind. People are now puzzled at the presence of the wretchedness which exists in the world, and although they may not be all resolved to make sacrifices to alleviate it, there is no doubt the selection of such subjects somehow interests a large class of spectators. In all such things artists and ordinary men seem to be unable to resist an influence which they cannot describe, but which prevails. It is the spirit of the time, and is not to be overcome by prohibition.

The Emperor of Germany was also severe upon those artists who endeavour in various ways to advertise themselves. We have great respect for the Emperor, and therefore we have no hesitation in saying that the KAISER himself is indebted for the unique position he occupies in the world to the peculiar and mighty power which he condemns. This is an advertising age as well as a realistic age, and a man who is indifferent to the efforts of friends and the Press to exalt him is bound to remain unknown, and in our time that means failure. To say, as the Emperor did, that in ancient Greece or in Italy in Renaissance times no great artist ever had recourse to the self-advertisement which is now practised in the Press is simply to forget that different ages have different characters, and that the condition of no country nowadays corresponds with that of Ancient Greece or Renaissance Italy. What is the Avenue of Victory but an advertisement of the great house of Hohenzollern, which it is expected will reflect credit on future Emperors? The impression which the long lines of marble warriors and legislators make upon foreigners was stated to be quite overpowering, and it was courteously added that they created respect for German sculptors. It could also have been mentioned that so many ancestral figures compelled strangers, and especially those from England, to form a higher notion of the antiquity of the rulers of Prussia than was derived from school books.

There is one satisfaction which most Germans will have in the address, and that is the suggestion it conveys that the Emperor is a student of SCHILLER. Over a century has elapsed since the poet anticipated the imperial orator by saying in figurative style that the German artist should be torn from his mother's breast and fed on the milk of a better age. He was to grow in the climate of Greece and to return to Germany like the son of AGAMEMNON, terrible in austere power, in order to purify his country. From Greece he was to take the form of his works. He was to avoid a discontented spirit and to keep away from the province of reality. The corruptions of his time were to be despised, and he was to look upwards for his dignity and his mission. When writing in that strain SCHILLER was expressing his own fervid aspirations. It is through his love of idealism that he remains the poet of young and ardent natures in Germany. But SCHILLER could not keep the world from varying as it grew older. The state of thought in our time proves that GOETHE was the better prophet, for he endeavoured to convert his friend to realism, which he with his marvellous insight perceived was impending as a motor force over human thought. In his exaltation after the completion of the Avenue of Victory the Emperor of Germany naturally adopts SCHILLER'S view of the duties of artists, but a further experience of life may convince him that figures in the Greek style are no consolation for people who are badly clothed and badly housed.

Art is not served by assigning to it an office for which it is not competent, and stone, although beautifully wrought, is no substitute for bread with the hungry.

### THE SIBYLS IN ART.

VISITORS are occasionally puzzled when, on entering the Sistine Chapel, they perceive that MICHEL ANGELO had introduced figures of sibyls as if they were of equal importance with the Hebrew prophets. In England the word "sibyl" has several acceptations. But every one does not realise from the definitions the motives which induced the Florentine artist to employ five representatives of the visionary women as elements of the most important example of church decoration which exists. In "Othello" we are able to see the Elizabethan interpretation of the word. The Moor, in describing his handkerchief, says:—

A sibyl, that had number'd in the world  
The sun to course two hundred compasses,  
In her prophetic fury sew'd the work;  
The worms were hallow'd that did breed the silk;  
And it was dyed in mummy, which the skilful  
Conserved of maidens' hearts.

The words were written about a century after MICHEL ANGELO had undertaken the commission to adorn the Sistine Chapel, and they reveal a great change in European thought. The Shakespearean Sibyl is simply a witch who produces fatefully dangerous cloth; whilst to a Roman the sibyls were precursors who prepared men's minds for the coming of the Divine Founder of Christianity, and, like the herald angels, proclaimed the festival we are now celebrating.

As far as we can judge, the ancient traditions do not uphold SHAKESPEARE'S view of the business of a sibyl. They were all believed to obtain their information through the inspiration of some deity. Long before Greeks and Romans had given attention to them they were revered as prophetesses in various part of the East. Some, indeed, retained names which indicate the region in which they acted. The number was limited. According to VARRO there were ten, viz. the Persian, the Libyan, the Delphic, the Cimmerian, the Erythrean or Babylonian, the Samian, the Cumæan, the Hellispointian, the Phrygian and the Tiburtian. At a later time it was believed there was only one sibyl who had written ten books, and, according to other accounts, all the prophecies were contained in three books. Some were supposed to be more closely connected with Christianity and Rome, and that may suggest the reason why MICHEL ANGELO introduced only five sibyls in the Sistine Chapel.

The inspired writings of the sibyls were not all forthcoming, but from time to time reference was made to some of them. In the Isle of Delos there was a hymn to APOLLO which PAUSANIAS preserved, which was believed to be the composition of the Erythrean Sibyl, who was honoured not only in Delos, but in Samos, Delphi and Claros. The inscription on her monument was copied by PAUSANIAS. It might be imagined that the same sibyl appeared under different names, for the Persian was sometimes known as the Chaldean or the Hebrew. She bore the name of SAMBETH, and was a daughter-in-law of NOE. The Cimmerian may also be identified with the Italian.

The most important in a historical sense, and without any reference to the relation with the Hebrew prophets, was the sibyl who offered prophetic writings to TARQUINIUS SUPERBUS. She brought nine books. When the king refused to buy them she destroyed three; then she asked the king an equally high price for the six; on his again declining she burnt another three. Still demanding the same price for the three as for the nine, the king's curiosity was excited and he purchased them. VALERY, the French king's librarian, visited the grotto at Cumæ where the sibyl had lived; but when he found it was necessary to have not only torch-bearers but to descend on the back of a guide into a dark and muddy cavern, his courage failed him. His experience in Paris made him believe that the transaction did occur, but he thought the sibyl should have asked for a still higher price for the three last volumes, since that was of the custom in dealing with modern book-



hunters, who were of the same character in all ages. NIEBUHR, the historian, accepts the tradition seriously, and says the Sibylline books were written in Greek, and were derived either from Ionia or from Cumæ in Campania. They were deposited in a stone chest in a vault under the Temple of Jupiter Capitolinus at Rome, and were only seen by the officers who had charge of them. NIEBUHR's conclusion, from what is said by LIVY, is that the original books were not consulted to obtain information about the future, but simply as ritualistic guides when war or plagues fell upon Rome, in order to ascertain whether all that had been ordered was observed in the service of the gods. When the temple was destroyed the books were burnt, and ambassadors were sent through Italy, Greece and other places to discover similar oracles. Probably in consequence of the mission many manuscripts or Sibylline leaves came into possession of Roman citizens, for even in such important affairs a demand always creates a supply. From their vast number the authority of the leaves as oracles declined. Owing to this cause the Emperor AUGUSTUS ordered that all the versions in private collections should be destroyed, and it is recorded that no less than 2,000 were burnt on one occasion.

The interest of the Sibylline books was not confined to the worshippers of the gods of Rome. In the earliest Christian writers there are indications which suggest their belief in the prophetic power of the women, especially when it related to the coming of CHRIST. The Cumæan Sibyl was especially privileged. Several of the ancient Fathers of the Church speak of the sibyls reverentially. CONSTANTINE, it is said, somehow obtained possession of eight books by the Erythræan Sibyl, and in one place the first letter of a series of lines when treated as an acrostic formed the words "Jesus Christ, Son of God. Redeemer. Crucified." There was much else which was believed to be mysterious, and which, however, corresponded with what took place in Bethlehem and Jerusalem. In consequence a whole literature was gradually formed in Mediæval times around the sibyls. The great philosopher, THOMAS OF AQUIN, maintained in his principal work that the possibility of believing had been offered to the heathen in the old days through the sibyls. There are references to them in hymns which were long used in most of the Christian churches, one being the familiar "Dies Iræ," which begins:—

Dies iræ, dies illa,  
Solvat seculum in favilla,  
Teste David cum Sibylla.

Some modern translators are, however, afraid to join the Hebrew king with a pagan woman, as in the following version by CLARENCE MANGAN:—

The day of wrath, the day of woe,  
Shall lay the world in ashes low:  
As David and the seers foreshow.

In many recent hymn books, DAVID, as well as the sybil, is ignored, and THOMAS OF CELANO's sequence is paraphrased out of recognition.

It is not necessary to discuss the value of any sibylline announcements which are supposed to bear upon the new era in religion. Christianity can dispense with them. But it is easy to realise the satisfaction of Renaissance artists with subjects which could bring them into connection with antiquity. It is hardly to be expected that painters and sculptors will look upon doctrines in the same way as professed theologians, and we may be sure that RAPHAEL was delighted when he was enabled in his great wall-paintings in the Vatican to introduce figures of several famous pagans. Opportunities of that kind were necessarily rare. The sibyls could, however, be considered almost as pre-Christians, whose testimonies were of incomparable importance. The story that AUGUSTUS, under the influence of the Sibylline leaves, had erected an altar in the Capitol with the inscription "Hæc est ara primogeniti Dei," was enough to make people think that reference to the sibyls in any way was not only allowable but advantageous. The circumstance also that the number of sibyls was, according to some traditions, twelve instead of ten, easily supported the theory of a connection between them and the Apostles.

It does not appear that sibyls were found in any of the paintings of the Catacombs. But their absence can be

explained by a recollection of the necessity to uphold Christian doctrine without the aid of anything which might be thought adventitious. The early believers cared little about the ordinary laws of evidence. It is, however, supposed that some of the female figures in very ancient mosaics may represent the prophetesses. The old church of Araceli in Rome is by some archæologists held to stand on the site of the Temple of Jupiter Capitolinus, and it contained a mosaic in which the LAMB was placed between figures of the Blessed VIRGIN and the Emperor AUGUSTUS, and was therefore a commemoration of the Augustan legend which we have mentioned above. It is also known that at a later time one of GIOTTO's pupils painted a fresco in the tribune of the church in which not only AUGUSTUS but the Cumæan Sibyl were introduced. The same sibyl is met with in various early illuminated manuscripts. It is also remarkable that the subject was admired by artists who lived at a distance from Italy. JOHN VAN EYCK is stated to have painted figures of the emperor and the sibyl in a picture for the church of St. Martin at Ypres. An old altar-piece in the Berlin Gallery, which is ascribed to HANS MEMLING, as well as to ROBERT OF BRUGES, also shows the emperor and sibyls as spectators of the adoration of the three kings. The combination was a favourite one in Italy, but as there were more associations with the sibyl and the emperor in Italian States than in the Low Countries, the arrangement is less surprising.

One or more sibyls can be seen in the paintings by GHIRLANDAJO in one of the chapels of the Church of the Trinity at Florence. Their figures are also in the paintings by PERUZZI in Siena. In the chamber of the Segnatura in the Vatican, PIERINO DEL VAGA introduced AUGUSTUS as well as the sibyl, and similar figures were produced by GAROFALO and PERUGINO. GHIERTI used sibyls as part of the decoration of his bronze doors in Florence. More inexplicable in one sense is the appearance of the twelve sibyls in the chapel at Loretto, where they are arranged as pendants to the Prophets.

It would now seem from figures of the sibyls forming the principal decoration of chapels that they served instead of patron saints. DIDRON, the archæologist, says that such a chapel formed part of the church of St. Jacques at Dieppe, but we believe the twelve figures were merely intended to be ornamental. There are statues of ten sibyls of white marble in the cathedral of Siena; they are superb examples, especially the Erythræan Sibyl, which is by ANTONIA FEDERICHI, who largely aided in the adornment of that most interesting building. There are nine sibyls in the cathedral of Ulm, and the figures are to be found in several of the German Mediæval churches.

When MICHEL ANGELO introduced the sibyls in the Sistine Chapel he was adopting a tradition which, as it were, received the highest official sanction from the position of his paintings in the Papal chapel. In a decorative sense they are secondary to the subject-paintings, but the single figures are declared by many competent judges to be of as much importance as any of the larger works. Whether it was owing to the arrangement of the building rather than to a selection of the most important sibyls in a doctrinal sense that restricted MICHEL ANGELO to no more than five is not determined. Those painted are the Persian, Erythræan, Delphic, Cumæan and Libyan. They differ in age and bodily vigour and are sculptural in treatment. They all are represented as engaged in earnest study of books, as if the artist wished to suggest that their testimonies to Christianity were derived from ancient traditions. All are admirably executed and well deserve the praise lavished on them by artists since the time they were first seen. RAPHAEL never showed more courage than when at the suggestion of AUGUSTINO GHIGI he painted four sibyls in the church of Santa Maria della Pace. The four selected were the Persian, Phrygian, Cumæan and Erythræan. Instead of depicting them as reading from books, RAPHAEL suggested that they were writing at the dictation of angels, and on the tablets which they bear are inscriptions relating to Christianity. MICHEL ANGELO is said to have shown not the least jealousy of his rival, and he told GHIGI that every one of the heads was worth a hundred crowns.

Among the numerous representations of the sibyls which have been produced, those by MICHEL ANGELO and RAPHAEL must always be regarded as the most important.



The attempts which were made by later artists suggest that the value of the sibyls as witnesses to the truth had declined, nor is there ever a likelihood of a revival of interest in them. The figures now selected for subjects in church decoration are of a different character, but in the present season we may be allowed to again glance at subjects which at one time were dear to artists. In our time it is possible to admire ancient art with all our power without incurring a suspicion of paganism, but in old days, when churches were not only the picture galleries of the people but the libraries also, it was necessary to be careful in dealing with subjects which could not be looked upon as entirely ecclesiastical. The sibyls were an exception, and as long as they were to be seen it could not be said that antiquity was altogether ignored. Whatever was the value of their prophecies, they seemed as a binding link between diverse elements, and on that account their interest should be enduring.

### EXCAVATIONS AT STONEHENGE.

AT the meeting of the Society of Antiquaries of London on the 19th inst., Mr. W. Gowland read a paper on "Excavations at Stonehenge." In his opening remarks he mentioned that he was employed during September last in superintending the exploratory work in connection with the leaning stone at Stonehenge. He could assure them that the stone had been made safe, he believed, for all time. After describing the operations of raising it to its perpendicular and giving in detail the composition of the different layers which were found, he said that the excavation was carried down to a depth of 8 feet 3 inches below the datum line. He then proceeded to a consideration of the objects found in the excavations. They comprised chippings and lumps of the stones, stone tools, bones, a few coins and fragments of pottery. The chippings and pieces of stone were those which had been detached from the stones during the operations of shaping and dressing, and were found in very large quantities. All the varieties of rock of which the stones consisted were represented. Nearly 100 stone implements were excavated, and Mr. Gowland divided them up into the following classes:—Axes, hammer axes, edged hammer stones, stone hammers and mauls. With regard to the uses to which they were applied, he said it was evident that they were used not only for roughly breaking the rude blocks into regular forms, but also for working down their faces to a level or curved surface. Those rough implements could, he thought, notwithstanding their rudeness, be legitimately placed in the Neolithic Age. With regard to the bones, they were only those of domestic animals, and could not afford any evidence as to the date of Stonehenge. The coins found were of a very miscellaneous character, and all were found in the superficial layers. The excavations had yielded sufficient, he said, to make clear generally the manner in which the operations of working and erecting the stones were carried out, but they threw little light as to the transport of the blocks. For the solution of that problem they had to turn to the examples of similar work in countries such as Japan. He went on to describe the supposed methods of shaping and dressing, and said that the finished surfaces of all the stones exhibited very careful tooling. He next considered the manner in which the blocks were set up and secured in their foundations. As to the most massive stones in the structure, the recumbent stone and the hitherto leaning stone, which formed the piers of the central and the greatest of the trilithons, the excavations had afforded clear and conclusive evidence. The foundations were prepared by cutting away the chalk rock in such a manner as to form a hole about 8 to 10 feet in depth, leaving an almost perpendicular face on the south-west side to form a buttress against which the back of the stone was to rest. From the bottom of the hole an inclined plane of rock sloping down from the interior of the enclosure was apparently cut. Both the rubble and chalk were also dug away for a considerable distance north-west, and to a depth of 4 feet on the south-west. The hole was then filled to a depth of 3 or 4 feet with white chalk rubble to form a layer in which to embed the pointed base of the stone and thus afford greater stability to it. The stone was then slid into the hole and gradually raised into a vertical position by means of levers and ropes. As the stone was being raised it was packed up with logs of timber, and probably with blocks of stone placed beneath it. After its upper end had reached a certain elevation, ropes were attached to it, and it was then hauled into a vertical position so that its back rested against the face of the chalk. Two blocks of sarsen were afterwards placed under the oblique side of the base; the excavation was filled in with rubble. After describing the erection of another stone

Mr. Gowland proceeded to prove that the blue stones and the sarsens, the stones of Stonehenge, were contemporaneous. He had come to the conclusion that, until some bronze implements were found, Stonehenge was erected during the latter part of the Neolithic Age, the period of transition from stone to bronze and before that metal had passed into general use. He was, he thought, fully supported by the evidence afforded by the excavations. The purpose for which Stonehenge was erected was not a sepulchre, but a place of sanctity, dedicated to the worship of the sun. The idea of the origin of megalithic structures from a common source had been advanced by many writers, but in that connection it should be borne in mind that there seemed to have been an epoch in the life of many races, widely separated from one another, during which, under varied conditions, they erected monuments of more or less rude megalithic blocks and of similar forms. From that it by no means followed that the practice or the forms were copied by one race from another, but rather that they were the outcome of a similar development of the human mind and had an independent origin in many and remotely separated regions. In Britain there was abundant evidence, in the numerous rude stone monuments distributed throughout its area, that that peculiar phase of mental development had reached a very high point. Why then should they seek in distant countries for the origin of their crowning example of megalithic art? Of its foreign origin there was, in fact, no proof, and its plan and execution alike could be ascribed to none other than our rude forefathers, the sun-worshippers of the Neolithic Age.

### THE LATE E. W. SMITH.

MR. EDMUND WILLIAM SMITH, M.R.A.S., archaeologist surveyor of the North-Western Provinces and Oudh, died of cholera at Mohinpurwa, Bahraich, while on tour there on November 21, in his forty-fourth year. According to the *Times* he joined the department as assistant architectural surveyor in 1886, and in that capacity made a detailed examination of the Mogul architecture of Fatehpur-Sikri, the ruined capital of Akhbar, the results of which were embodied in four handsome folio volumes, illustrated with photographic plates and issued under the orders of Government. A handbook based on this *magnus opus*, to be illustrated with a few selected drawings, and designed to meet the needs of travellers and others not able to give the architecture of Fatehpur-Sikri very detailed study, was one of the unfinished projects Mr. Smith had in hand at the time of his death. Another of his published works deals with the China-ka Rauza, a building to which exceptional interest and beauty are given by the exterior coating of rich tiles worked into innumerable designs. Mr. Smith succeeded Dr. Furber as the provincial head of his department and curator of Lucknow Museum in 1898. Before Lord Curzon called attention to the responsibilities of the Indian Government in respect to the ancient buildings of the country Sir Antony MacDonnell had adopted a liberal policy towards the archaeological department in the provinces he ruled; and under his directions Mr. Smith accomplished a great deal during his all too brief tenure of the appointment in the restoration and conservation of ancient buildings. The famous Taj Mahal at Agra received special attention, and in executing the delicate restorations required Mr. Smith called into activity a vein of latent indigenous talent with excellent results, many of the artificers engaged claiming to be descended from those who were employed by Akhbar and Shahjehan. The squalid surroundings of the approach to the Taj, noticed by many travellers, have been removed by the conversion of the barren ravines and huts lying between that "dream in marble" and the fort into a public park. Restoration on an extensive scale has been conducted by Mr. Smith at Fatehpur-Sikri, and the more important ancient buildings of Allahabad, Lucknow, Fyzabad and Bahraich were also repaired. A portfolio of architectural drawings, intended to influence for good Indian designs and workmanship by a return to ancient models, was in course of preparation by Mr. Smith. The North-Western Provinces are exceptionally rich in beautiful architectural memorials of the past, and it is a misfortune to the cause of archaeology in India that Mr. Smith should have passed away with so much work for their conservation unfinished.

With respect to the immense mansion in the Rue de l'urenne, recently vacated by its inhabitants, who have gone to Auteuil, it has been discovered (says the *Figaro*) that the building belongs to the Paris of the time of Louis XV., and that its original inhabitants were members of the house of Hennequin d'Ecqueville, who held the office of Grand Veneur to the King. It was built by Augustin Louis Hennequin d'Ecqueville, "capitaine général de la vénerie, des toiles, des chasses, tentes, pavillons du Roi, et de l'équipage du sanglier," who in 1741 married Mlle. de Joyeuse.

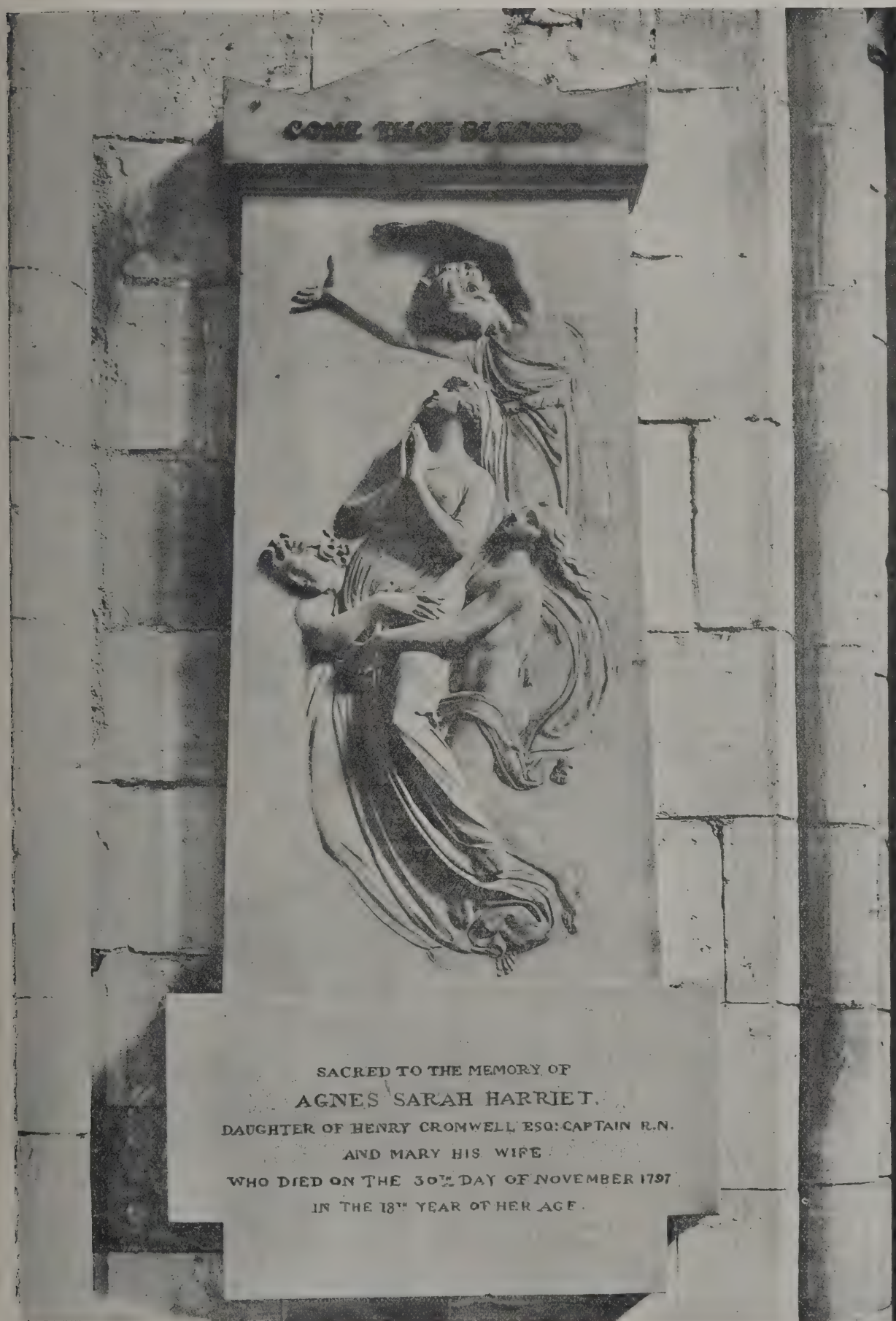




*Photographed by J. H. & Co.*

CATHEDRAL SERIES No. 376F.—CHICHESTER: SOUTH SIDE WEST PORCH.





SACRED TO THE MEMORY OF  
AGNES SARAH HARRIET.  
DAUGHTER OF HENRY CROMWELL ESQ: CAPTAIN R.N.  
AND MARY HIS WIFE  
WHO DIED ON THE 30<sup>TH</sup> DAY OF NOVEMBER 1797  
IN THE 18<sup>TH</sup> YEAR OF HER AGE.

[Photographed by S. B. Bolas & Co.]



## NOTES AND COMMENTS.

THE death of ONSLOW FORD, R.A., on Monday will cast a gloom over many studios in London. As he was born in 1852 he had barely reached his fiftieth year, and he appeared to be until very lately as active as a man of thirty. All his friends had anticipated many able works from his chisel. In his style there was a modernity which was more easily perceived than described. Originally he aspired to be a painter, but on the advice of Professor WAGMÜLLER, of Munich, he devoted himself to sculpture. Among his best known works are the statue of Sir ROWLAND HILL, Sir HENRY IRVING as Hamlet, the equestrian figure of Lord STRATHNAIRN, the SHELLEY Memorial and the seated statue of Queen VICTORIA at Manchester, which is the crowning work of his life. His statuettes are charming. One of his sons has already shown ability as a painter.

AN action which was tried last week at Leeds before Mr. Justice GRANTHAM and a special jury related to difficulties which attend the laying out of estates, and which it should be the business of all parties to overcome. Three years ago the Ravenscar Estate Company, Ltd., were engaged in developing their property as a watering-place, for it is near Robin Hood's Bay on the Yorkshire coast. Several of the plots were purchased by Mr. THOMPSON, a builder of Bradford. One of the conditions of sale was that when the plaintiffs had carried a sewer within 40 feet of the plots the purchaser was to pay 3s. per foot of frontage. Mr. THOMPSON declined to pay the charges on the ground of the inefficiency of the sewer, which was inadequate to drain the basements or cellars. The Company brought the action to recover the money. Evidence was given on both sides with regard to the character of the sewer. The defendant's counsel maintained that when the word sewer was mentioned in the conditions it was signified that the sewer would be fitted for its purpose. Mr. Justice GRANTHAM, who heard the case, said it was difficult to determine the rights of the parties with so much contradictory evidence before them. Engineers, according to his lordship, take different views about schemes of drainage. He said it was not to be expected that there should be one scheme for the whole of the estate at once, and all that was necessary was to put in a drain which would be sufficient for the people who purchased the plots. The jury after an hour's consideration were unable to agree except on one point, that there was no undertaking on the part of the vendors to provide sewers for basements. As there seemed to be no possibility of agreement, it was arranged that judgment should be given for plaintiffs on the question of false representation, and it was recorded that the jury were agreed that there was no implied contract on the part of the plaintiffs to lay sewers deep enough for the basement, but they could not agree as to whether the drain was efficient in other respects.

FIFTY years ago there were in the United Kingdom 3,244 places of worship for Congregationalists, with 1,002,567 sittings. According to the last return the number of places is now 4,607, and of sittings 1,641,692. In about two years 257,310l. has been raised for buildings, in addition to large sums to pay off church debts and increase the central fund. Owing to the freedom from precedents possessed by Congregationalists, more originality in planning and designing should be encouraged. The churches should begin to attain a more distinctive character. In poor districts architecture may have to succumb to necessity; but, as money can now be freely obtained, a start should be made in departing from stereotyped plans which were suited for a different sort of service.

THE question of electric lighting in Bognor is to be determined by means of a poll of the inhabitants. The outlay is calculated at 12,000l., and the annual expenditure at 1,750l. It is expected that the revenue will be 2,256l. The discussion on the subject before the District Council suggests that there is still a difference of opinion

in some towns about the superiority of electricity to gas when financially considered. According to the chairman, in Tunbridge Wells by adopting electric light the rates had been reduced 2d. in the £ and in Dover by 3d. The information supplied by Portsmouth, Torquay, Walthamstow and other towns was also in favour of the economy of electricity. But the opposition adduced numerous instances where the electric lighting was not a financial success. Bradford, although possessing electric power, used only 51 electric arc-lamps against 10,000 incandescent lamps. In Hastings it is found more economical to pay the gas company 5,000l. a year for public lighting. Kingston-on-Thames and Coventry have returned to gas, and a specialist called in to advise the local authority at Dalkeith estimated that electric light would cost three times the price of incandescent lamps. There may be cases where local circumstances are unfavourable to the production of electric lighting, but they are few in number. Considering the comparatively short time electricity has been used, the success of the lighting has been remarkable. A similar opposition was raised against gas, and railways were also condemned as being inferior to traction on ordinary roads. Electricity is destined to advance, and in England there is room for it as well as for gas lighting.

## ILLUSTRATIONS.

SEAFORTH CONGREGATIONAL CHURCH.

SELEHURST, SUSSEX.

THIS house, with the entrance lodges, stabling, &c., was erected a few years since for Mr. W. EGERTON HUBBARD upon a very attractive site in the heart of Sussex, a few miles from Horsham. The oak, stone, tiles and bricks were mostly obtained on the estate, and the intention of the architects, Messrs. CLAYTON & BLACK, of North Street, Brighton, was to embody all the better features of the typical old Sussex manor-house.

HOUSE AT WALTON-ON-THE-HILL, SURREY.

THE COURT HOUSE, BROADWAY, WORCESTERSHIRE.

NO. 9 CAVENDISH SQUARE.

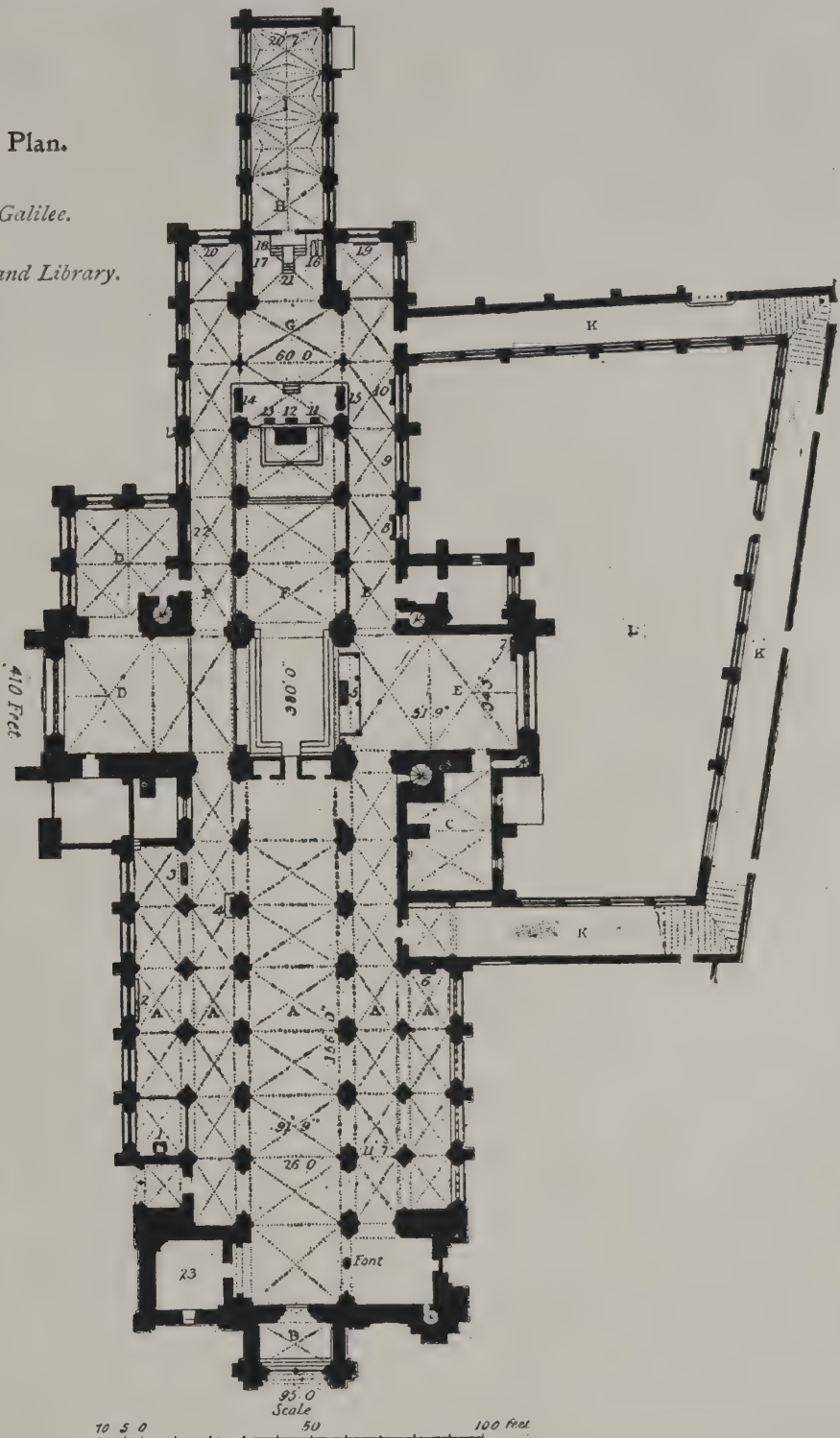
NO. 9 CAVENDISH SQUARE is a block of flats at the north-east corner of the square, and is intended to be occupied by people of the upper or upper middle class, as would be likely from the situation. The building has been erected in a first class manner by Mr. T. BOYCE, of 8 Hart Street, Bloomsbury, at a cost of over 40,000l. Both frontages are of red Ibstock bricks (which are hard-faced Leicester brick capable of resisting the weather), and of Portland stone dressings above the ground floor, the ground floor itself being entirely of Portland stone. There is an imposing entrance in the centre of the building as shown in the drawing illustrated this week, which gives a good approach to the interior, and the bay windows going up nearly the full height give the rooms inside a comfortable appearance. Some of the flats are very extensive, one of them on the first floor, for example, containing sixteen rooms in all, besides lobbies and conveniences. There is a separate entrance in Chandos Street to the suite of rooms on the ground floor occupied by a well-known London dentist, consisting of waiting-room and three operating-rooms. At the north end of the Chandos Street side of the building there is a maisonnette with separate entrance. There is a stone staircase going all the way up the building, and in the well-hole is a lift surrounded by wrought ironwork, supplied by Messrs. STARKIE GARDNER. The hot-water work and sanitary work executed by MATTHEW HALL & Co., of Wigmore Street, are of the most complete description, and the decorations throughout are very elaborate.

The architect of the building is Mr. LEWIS SOLOMON, F.R.I.B.A., of 55 New Broad Street, City, and the details have all been carried out from his full-size drawings. Mr. BOYCE's object being to make a first-class building and not merely a paying one.



Reference to Plan.

- AA Nave and Aisles.
- B West Porch and Galilee.
- C Old Sacristy.
- D North Transept and Library.
- E South Transept.
- FF Choir and Aisles.
- G Presbytery.
- K Cloisters.
- L The Paradise.
- M The Bell Tower.



CHICHESTER CATHEDRAL.—GROUND PLAN.

THE IDENTIFICATION OF WOOD.\*

THE subject upon which I have the honour of addressing you to-night is incomplete, and, as yet, quite in its infancy. As a scientific study it is by no means new, but the technical application of it may be said to be comparatively recent, as might be expected, because a certain amount of progress must be made, and sufficient methodically arranged information must be accumulated before the commercial man can employ it usefully. In short, until science has something substantial to offer, which will stand the commercial test, it is far better to continue the use of the old rule of thumb methods, which, after all, have sufficed to make the world go round till now. Whether the art of discriminating the various species of timber has arrived at that desirable stage I must leave it to your judgment to decide, but I feel that a ventilation of the subject must be productive of good, and hope that it will arouse

sufficient interest to bring recruits to this inquiry. It is a field in which the greater part of the ground is unbroken, and when nearly all other subjects have been thoroughly worked, it is something especially gratifying to an investigator to find himself in the midst of a practically unexplored area. The nearest comparison I can think of would be the case of a man set to classify the specimens of a herbarium, from which all the flowers had been removed. The material would be sufficient for the purpose, the schemes of classification would be at his disposal, but he would be compelled to invent for himself the means of discovering the relationship of his plants one to another. I may say that there is nothing extravagant about this simile, for Radlkofer and the botanists of his school, chiefly Dr. Hans Solereder, have worked out a system by which small and imperfect specimens of plants may be recognised and classified, and in some respects have made discoveries which materially aid us in the discrimination of timber. Unfortunately for us, this school of Radlkofer has confined itself to the examination of such small twigs and woody stems as are usually found along with herbarium speci-

\* A paper read by Mr. Herbert Stone before the Society of Arts on December 4.



mens, and as the secondary wood, or that produced after the first year, frequently differs from the primary wood, which is their special care, their labours are only useful by the way and in rare cases.

The chief contributions to the branch of botany have been made by students of forestry, and as forestry is little known and appreciated in England, it is to Germany that we must look for information. The two Hartigs and Franz Schwartz have dealt with the European trees in a fairly complete manner, and Mayr has made some important contributions to the anatomical characters of the conifers of North America, but foremost stands Nördlinger, who has described the structure of no less than 1,100 species of timber trees, and whose series of sections is the wonder and admiration of the few who have seen them.

J. S. Gamble's "Indian Timbers" is a fine work, and the only one which is published in the English language (saving a translation of a small brochure by Theo. Hartig). His collaborator, Sir Dietrich Brandis, who did the descriptive work for "Indian Timbers," is perhaps the chief living authority on the subject. A magnificent series of 200 sections of American woods, published by Romeyn B. Hough in the United States of America, is another substantial aid, but unfortunately his descriptions accompanying the sections show that the author is unaware of the significance and value of his own specimens.

In all these books there is nothing approaching a scheme of classification. The nearest is contained in the notes accompanying the descriptions in J. S. Gamble's "Indian Timbers," but as they are based exclusively on the local species, they are quite useless when applied to timbers of other countries. All other authors confine themselves to isolated descriptions of species, with an artificial key as a guide amongst chaos.

We can now see what our future labour is, and I must content myself with indicating it, merely repeating that the harvest is ready for anyone who will lend his assistance.

In the meantime there is no necessity to underrate the value of the old time-honoured rule of thumb method, and we shall do well to hold to everything that is good in it, and to add such precise knowledge as can be accumulated. Heretofore everything was left to individual judgment, which implies great experience, needing time and opportunity to acquire. Learners had no easy task before them and no aid, except that of teachers; still it sufficed until foreign timbers began to be imported in increasing variety, which, in proportion, restricted the possession of expert knowledge to the few. The carpenter knows the woods he works with from continually handling them, and can, perhaps, distinguish a dozen or twenty of them with ease. Beyond these he is at sea. The timber merchant dealing in hardwoods has a longer list of familiar woods, and having spent his days amongst them he becomes an authority upon them. But the process of handing a strange piece of wood round until someone is found who knows it, is a part of the daily routine even at the oldest houses. When, as often happens, a species not previously met with turns up, even the most expert are helpless, and I think they will be the first to admit that some means which will eke out their experience is desirable. I have met with cases where a wood well known and largely imported has been pronounced by various timber merchants to be something quite different, and others in which inferior woods have been palmed off upon purchasers when their superficial resemblance to the superior article has been close enough to deceive. I have also known a case where an inferior wood, selling at a low price, has obtained a much higher one by the simple expedient of changing the name to B when it has been previously known as A. Without dwelling on these doubtful practices, which are exceptional, more than to lay stress on the fact that the lack of information makes them possible, I will turn to another class of cases, those in which a consumer desires to match an unknown wood, or having tried a parcel with success, is unable to obtain a second for the reason that he does not know for what to ask.

Many hundreds of consignments of excellent timber reach our shores, and, failing sufficient information as to their name, origin and virtues, are passed by purchasers until they are finally relegated to a rummage sale, where all "unrated" timber is put up to auction for the purpose of recovering the freight and dock dues. Amongst these "unrated" woods have been many which have excited admiration for their beauty or other excellence, and in some cases have changed hands after the discovery of their value at fancy prices. But when the parcel is sold out the trade in these woods is closed, for the unfortunate sender of them is careful not to risk another loss on the same timber; thus no more comes forward, and as the consumer has no means of finding out the name and place of origin of the coveted wood, he has no opportunity of making his wants known to the person who could satisfy them. From what I have seen myself, I feel certain that there are many species of timber trees growing, may be in abundance, in many localities from which shipment might be made that are ignored because they bear a reputation of being unremunerative, and are probably put locally to base uses.

If you will look through any old list of hardwoods you will

see the names of many that were familiar years ago, but which are not now met with. Did the consumption of the timber trade of the last generation exterminate these trees? I cannot believe it, for even if a small locality were entirely stripped of a species, there are few that are confined to such small areas. Possibly, if they grow elsewhere, we may by some good chance hear of our old friends again when other forests are opened up, and I hope that with the increasing means of identification which the anatomical characters afford, we may not only discover the species, but also indicate in what other regions a fresh supply of our lost timbers may be found.

I was recently amused by receiving a circular from a hardwood merchant containing a long list of uncommon woods. I wrote asking for specimens, and was informed that though anxious to oblige the merchant could not send them, as most of the woods enumerated had not been met with for years. The old list had evidently been reprinted from time to time in the hope of supplies turning up.

There are instances already on record where the anatomical characters have been commercially useful, and unknown woods identified by their means have led to inquiries in a proper direction being made for fresh supplies, but this can only be done when the structure is put upon record in such a fashion as to be traceable when needed, a state of things which does not yet exist. The cases in point were the result of a happy recollection of the special structure and not of method. It is also necessary that the scientific name should accompany the description of the structure. If the popular or vernacular names only are known, we really are not much further ahead, because there is usually a name in every locality and sometimes several.

To base this art upon a secure foundation, it is absolutely necessary to obtain authenticated specimens. One may describe the structure of the African oak, and it may be an advantage to identify other specimens of African oak from the description, but it will be useless for a purchaser to inquire for it under that name in localities where it is called African teak. If we only knew the specific name we could point out fresh localities where any botanical explorer may have recorded its occurrence.

By the way, botanical explorers have a vexing way of omitting anything likely to be useful from their descriptions of plants. They describe the flower, leaves and habit with great precision, and I have known, as a rare case, a botanist to mention that a plant produces the fibre, gum, drug or what not of commerce, but he gives no indication whatever of the special features by which the fibre, gum or drug may be recognised. This is lost opportunity, for the information must have been in many cases within reach, and would have been precious, but as it is we must begin again at the beginning, make our own explorations, and in fact conduct a duplicate survey over precisely the same ground, but with a slightly different object. With this view I have appealed to the Colonial Office for authenticated specimens of all colonial timbers, with a view of putting their structure on record and enabling not only our home traders to recognise unfamiliar colonial timbers when they meet with them here, and to satisfy their wants by purchases from our brethren of Greater Britain, to the benefit of each other, but also to enable our colonists to recognise their own woods for their own uses. If experts are scarce in England they must be far rarer in new countries. Besides this, our settlers had a limited knowledge of English trees when they left our shores, consisting of a few names, such as oak, beech, ash, elm, pine, &c., and every tree they met with in their new home became native oak, native beech, &c., with the variation of a few simple adjectives, such as red ash or black ash. When these become exhausted the alternatives are red wood, white wood, yellow wood, iron wood, and the like; hence we must not be astonished to find that in different parts of Australia no less than five distinct species of eucalyptus pass under the name of red gum, and two or more under that of blue gum.

I am fortunate in being able to make my appeal at a time when the office of Colonial Secretary is filled by a man whose foresight and acumen are as keen as his care for the interests of the colonies is enthusiastic. In short, by his kind recommendation of my petition to the various colonial Governments, I have already obtained promises of authenticated specimens of the woods of Canada, the Cape of Good Hope, Victoria, Queensland, Western Australia, Lagos and Rhodesia, and, with one or two exceptions, I have very little doubt that a similar response will be received from those Governments which have not yet replied. In my petition I have asked for a specimen of each wood sufficiently large to provide duplicates for several public institutions.

However complete the knowledge of the colonial timbers may become in the course of the next few years, it will be a mere fraction compared with the work that will remain, and which will be left to travellers who may be persuaded to take note of the timbers as well the flowers they meet with. Perhaps if the scientific side of our study can be developed



efficiently to attract the attention of botanical explorers, we may achieve our end by their assistance.

So far the work of Solereder and others has aroused very little enthusiasm, and it has been stated that the value of the anatomical characters for the purpose of classification is trifling. With this I am inclined to agree in part, because so much stress has been laid upon the sculpture of the walls of the individual cells, failing more prominent characters. It is, no doubt, a valuable contribution to our knowledge to know that certain forms of pits are constant in a natural order; but as usually happens, they are equally constant in a score of the related orders, they afford little help in separating one from another. The primary wood dealt with by the school of Adlkofer is not enough by itself, the material is too sparing and it holds the same position in lignology as animal embryology does to anatomy. It is the study of an immature condition only. Besides this their descriptions are lacking in vividness. As a matter of fact, the diagnosis of the characters of wood depends very greatly upon precision of language, and this again upon a knowledge of the infinite variety of form which may be presented by the pores, rays and soft tissue. It must be clearly understood that the width of the annual rings, the most conspicuous feature, is rarely of any value, and I shall be glad if, when looking at the specimens I am about to show you, you will endeavour to ignore this factor altogether. A ring of oak wood may be  $\frac{1}{8}$ th of an inch wide or may reach  $\frac{3}{8}$ ths, and the difference in the appearance of a piece of wood containing sixteen rings per inch of radius and another only showing two is exceedingly difficult to reconcile. This variation is merely a question of growth, and depends upon the fertility of the soil, &c., so that the extremes may frequently be present in the same piece of wood in the closest proximity. This much may be said, that the annual ring usually makes a good start in the spring, when the tree puts forth its leaves, so that the innermost layer is usually normal; but should the supply of nourishment fail from any cause, such as the destruction of the foliage by frost or caterpillars, the later wood of summer and autumn may be reduced even to disappearing. The full character of the structure is unfortunately only brought out in broad, well-developed rings, and it is by no means rare to find a specimen with which nothing can be done, because no ring is broad enough to show the structure of the autumn wood. Search then always for the broadest ring.

The chief point then to be noticed is the presence or absence of true pores, which may be recognised by their abundance in the inner side of the ring. They are never more abundant in the autumn wood, even when uniformly occupying the whole section. If pores appear in the outer or middle part of the ring while the inner is free from them, be sure that they are resin pores, and that the wood you are dealing with is a conifer, and probably a pine or spruce. The rays are always present, even when microscopic, but they vary greatly in breadth, height, lustre, straightness, &c., each detail having its own particular value. The specimen of oak you have in your hands has extremely broad rays, which are lustrous and of considerable height on a tangential section, but in the transverse section of maple attached to the little cards they are only just visible to the naked eye. Even these are broad comparatively to those of the horse-chestnut and many conifers. As a rule, the narrower the rays in a transverse section the shorter or shallower they are in other sections—that is, the proportion of breadth to depth is remarkably constant.

The year's growth of wood is well indicated in each ring of both oak and maple, but in quite different fashion; the former has bold pore-rings of one or more rows, following on the somewhat poreless autumn wood of the previous year, whereas the latter has a very fine, perfectly distinct line of autumn wood, and the pores, instead of rapidly diminishing outwards almost to vanishing point and assuming a tree-like form, are of uniform size and somewhat sparingly scattered over the small areas formed by the regular cutting of the annual rings by the rays. A close examination of the small oaken block will reveal a number of cloudy bands running concentrically with the annual rings. These are composed of wood parenchyma, or soft tissue, as I shall call it, and are usually present in well-developed rings in all the oaks. The two examples I have selected belong to two distinct types. I choose them as being particularly suitable for the purpose of showing the very different forms the various parts of the wood can assume, but they are only two amongst hundreds of types, for the arrangement of the four elements, the rays, the pores, the annual rings and the soft tissue, is almost infinitely varied.

One of the difficulties of this study is the unending fluctuation of the size in the various parts, which is the outcome of the influence of age, soil and climate, that is to say, of the vigour of growth. The variation which most meets the eye, that of the annual rings, has already been referred to. Next to this the coarseness of the pores chiefly affects the appearance of a wood. This depends more upon age than upon nourishment, and in many

woods, such as the oak, the average size of the pores augments from year to year till the tree reaches its prime, and then becomes more or less constant. Other woods show their variation in a much less degree. This makes accurate measurement difficult; in fact, a statement that the average diameter of the pores of the oak is a certain fraction of a millimetre is really useless as a guide; therefore Nördlinger, and after him Brandis and Gamble, adopted the method of using a series of well-known woods and employing them as standards with which to compare others; each type thus shows its own limits and the measuring process becomes an estimate of the range of fluctuation in size. This is a simpler process than it seems, and in practice all that is necessary is to have a set of thin sections or shavings between two pieces of thin glass, which may be laid upon the section or even the solid wood of another specimen, and the size of the pores, &c., as ascertained by direct comparison. In all cases where the structure of a wood has to be described in words, the largest pores or rays in each ring are only regarded, and the size is expressed by figures which indicate the minimum and maximum size of these largest elements only, as found in rings of varying age. The reason of this is obvious. The pores are found to diminish in every ring, sometimes only a little, as in the maple, but more frequently to vanishing point, as in the oak.

There is considerable harmony in the variation of the characters of wood, both physical and anatomical. The weight per cubic foot, the hardness, the state of saturation, amount of ash, the elasticity, &c., vary regularly, according to age and distance from the root of the tree. Weight is found to increase from the foot to the first branches, and then to decrease from that point upwards. The size of the rays, cells and vessels, as already stated, increases with age, so that in the eightieth yearly ring of an oak, counting from the pith outwards, these parts will be much larger than in the first. It must be borne in mind that the eightieth ring was produced seventy-nine years later than the first, so that we must be careful not to confound the age of the tree with the age of its wood.

Similarly, inasmuch as the sapling oak of one year is but a fractional part of the weight of the mature tree, and as the growth in height has been caused by the superposition of additional coats of wood one upon another, like so many cones, it follows that the wood of the upper parts must be younger, and therefore the innermost ring of this upper wood must not be assumed to be old because of its position. It is natural to assume this, and many would count the rings on a piece of wood from the upper part of a trunk, and pronounce it to be of such and such an age, whereas that may not be within fifty years of the truth.

Many tropical woods show scarcely any perceptible division between the growth of one year and the next. Their growth seems free from any check, though it may vary in vigour. Hence the familiar ring-boundaries become vague or entirely lost; even the rise and fall in the size of the pores is frequently absent, and they seem to increase uninterruptedly from the pith outwards to the bark. This state of things is found in quite a number of unrelated tropical South American woods, though it is by no means confined to them. I have often wondered if any of our European evergreen trees, such as the holm oak (*Quercus ilex*), if acclimatised in a tropical region, would lose their characteristic rings, and take upon themselves this uniform structure of wood. No doubt the climate would modify it somewhat, and it has been urged that this circumstance vitiates the value of the anatomical characters for purposes of classification. True, as regards the succession and dimensions of each zone or its component parts, but their structure and arrangement remain the same, and will always stand good.

In many natural orders the soft tissue which is so prominent in concentric circles in the oak affords us great assistance. It appears in a multitude of forms, and may be found in little narrow circles or borders round the pores, which show on a vertical section as cloudy margins to them. It may expand from these circles laterally into wings forming a spindle-shaped patch, in the midst of which the pore may be embedded. These wings may widen until they meet others, and join up to form circles concentric with the rings, straggling oblique lines, or long undulating wreaths. The lines may become narrowed to microscopical fineness, making a mere network with the rays, or may be broad conspicuous bands. In fact, from mere ill-defined scraps the soft tissue can vary to elaborate tracery. It is somehow or other closely connected with the natural affinity or relationship of woods, and more often than any other character helps us to guess at the place of a species in the natural system, but (there is invariably a "but" in connection with these details) it is not rarely absent in a genus or species, where one would most expect it. Gamble relies upon this feature in his artificial classification of the Leguminosæ, and it works beautifully within the limits of the Indian species, but it fails entirely where a larger range of leguminous plants is taken, especially in respect to those of temperate climates. He relies especially



upon the width of the bands of soft tissue, but in applying it I have so often met with intermediate gradations of breadth, that I am forced to conclude that its use in this order must be restricted to small groups of species only. The extremely fine bars which may be seen crossing the rays in the ebonies, and the somewhat different bars characteristic of the lancewoods and many others, hold good over large numbers of species, so that it becomes a matter for investigation to find out in which particular form it may or may not be relied upon.

The vertical sections, *i.e.* the radial and tangential sections, will often elucidate obscurities of structure, and give one a very clear idea of the structure of wood as a whole. I think one obtains a more securely based conception of what wood is by commencing to study it in the solid instead of by macerations, or even thin sections. To study the cells first under high powers is, to my mind, beginning at the wrong end. The microscopic part of the work is one of the higher walks of the science, and is better led up to by way of the study of the wood *en bloc*. I have met but few botanists who have anything but a vague idea of what wood in general is when viewed under the microscope as an opaque object. Beautiful as the wonders revealed by the microscope notoriously are, I scarcely think anything more gorgeous can be found than that which some of our woods will afford. The preparation is so simple—a plane with a keen iron, or even a sharp pocket-knife, is all that is required, and a smooth and clean-cut surface will not only show you an unexpected play of colour, but will demonstrate the relation of cell to vessel and vessel to ray in a manner impossible in a thin section in which one endeavours to separate the desired layer from all the deeper-seated tissue. Wood is much more transparent than one would think, and the subjacent cells appear distinctly below those immediately on the surface, therefore the relations of each cell in every direction become evident. These show every variation of amber, ruby, gold, rich browns and black and bright translucent beads of resin, which flash in the light like jewels that tempt one to forget one's work for the indulgence of the eye.

With all the additional aid which the anatomical characters give, we are not a great deal further advanced until we have some system of arriving step by step at the wood we desire to identify. It would be rash to enter upon the controversy concerning the systematic value of these characters, and to attempt to bring them into harmony with orders and genera. The time for this is not yet, but for technical purposes the natural system need only be respected as far as it is useful. Therefore an artificial system will serve our turn.

The key provided by Nördlinger makes a mere commencement, and after guiding us a little way leaves us stranded in the midst of a large group of species which have to be dealt with one by one. The key to the European woods constructed by Hartig and the similar one by F. Schwartz are complete and fairly satisfactory, but are so very limited. I have used all three, and can candidly say that they are much better than nothing, but require considerable study and much practice to use. For my own use I have constructed a key on a similar principle, but use different characters for the preliminary stages. As it seems to me, amongst the woods of the broad-leaved trees the rays are the most constant character. I base my divisions upon them, first separating those woods having two kinds of rays, as many cupuliferæ, from those which have but one. I then divide the latter into those whose rays are separated by intervals greater or less than the transverse diameter of their larger pores—that is to say, the intervals between some may be equal to the pore diameter at the most, and conversely in the other class the intervals may be equal to the pore diameter, but never less. Further subdivisions, which it would be tedious to detail, are based upon the presence of soft tissue and its arrangement, followed by the arrangement of the pores, concluding with the degree of definiteness of the ring boundary. This most elusive character is one of Nördlinger's preliminary divisions, hence the difficulty of using his scheme.

The principle I have tried to follow is to start from plain or fairly obvious characters about which there can be little doubt, and to leave the more dubious ones for the end of the series, where there are fewer species to deal with and other aids come in. By this system members of the same genus having a similar arrangement of rays, pores and soft tissue, fall into the same ultimate group, which they do not when the ring-boundary is relied upon (*vide Platanus acerifolia* and *occidentalis*). When these ultimate groups are reached, physical and chemical characters may be employed in discrimination. The range of the weight per cubic foot, hardness, colour of the solution produced by boiling in water and alcohol, reaction with iron salts, capacity for absorption of water, phenomena produced during burning, character of the surface, whether dull or lustrous, and the particular elements, rays, pores or ground tissue which produce the effect, and lastly the colour.

In every description of wood, by a practical man, the elements of weight, hardness and colour come in. Sometimes

the weight per cubic foot is given, and the colour apart from its fluctuations is often accurately pictured, but the hardness is a quality which is practically left to our imagination. I have been so much impressed with the necessity of some means of measuring the degree of hardness, that I have constructed an instrument which is capable of giving a fairly accurate reading of the resistance to impact of a wood (not of its hardness pure and simple, because the resistance to impact is made up of elasticity, plus hardness), but it is a fair parallel to the impression of that which we call the hardness makes upon our sense of touch. I will not weary you with a description of this contrivance, but will merely mention that the principle is as follows:—A steel ball of a known weight falling a definite distance upon a surface at an angle of half a right angle will fly off in a horizontal direction, and describe a curve or trajectory which will be longer or shorter according to the amount of force absorbed by the wood. A self-recording arrangement and all necessary adjustments are attached to the machine. The hard and soft zones of a wood give different readings, so that a number of trials have to be made and an average struck. I take the average of ten trials, displacing the wood five millimetres between each.

The solution obtained from boiling a small quantity of shavings is of a valuable and interesting character, full of surprises, and affording many lovely colours. The reaction with iron salts is useful in cases where the change of colour is displayed in different degrees by different kinds of tissue. The burning of wood often causes various coloured resins to exude, and affords evidence by means of the aroma or by the ash. A familiar example is the smell of the well-known Chinese joss sticks, made from the sawdust of sandal wood, and the two Australian paving woods, jarrah and karri, may be known by their producing a black cinder and a white ash respectively.

## INSURANCE VALUE OF GLASGOW EXHIBITION.

A SPECIAL correspondent of the *Glasgow Herald* writes:—It is safe to assume that but a small proportion of the many thousands who thronged the beautiful art galleries in the late Glasgow exhibition fully realised the immense sum of money which was represented by the magnificent and unique collection of art and historical exhibits so carefully and artistically placed there for their inspection, and before the memory of that great display fades entirely away a few particulars of that value may even now prove interesting. For various reasons it would not have been judicious to publish actual figures during the time when the exhibition was open, but now that the collection is practically dispersed most of these objections are disposed of.

Many will be astonished to learn that the actual insurance effected with the insurance companies was almost enough to build six art galleries similar to the palatial one of which all Glasgow is so proud, the actual figures of such insurance being 1,326,997*l.* and this figure, immense as it is, does not by any means represent the actual value, because hundreds of exhibits through the apathy of their owners were not insured. Again, no money could really represent the true value of many other exhibits, such as the relics relating to Mary Queen of Scots, to Prince Charlie, to the times of the Covenanters, to Robert Burns, Walter Scott, David Livingstone, and a host of others, relics which could never be replaced if destroyed in any way.

In round figures there were 10,000 separate exhibits, divided among 1,550 lenders, to whom the public are under a great debt of gratitude; and when it is understood that these exhibits were not insured *en bloc*, as is generally understood, but that each insured article had a separate value attached to it, varying from 11*s.* 6*d.* to 14,000*l.*, in the books of the art galleries, some idea may be gathered of the great mass of details, in this department alone, which Mr. Paton, the able superintendent, and his assistants had to grapple with.

Everyone must remember the beauty of most of the sculpture in the great central court and throughout the corridors and balconies. The value attached to this sculpture was 24,909*l.*, the lowest value being 5*l.*, and the highest being two sums of 1,000*l.* on two statues which were greatly and justly admired. Entering the galleries by the south door and turning to the right, one found oneself in the least visited courts, those devoted to the "art object" section. This wing comprised five galleries—one devoted to photography, one to "black and white," and three to the art objects. Dismissing the photographs, excellent as they were, for they were only nominally insured, the value of the 400 exhibits in the "black and white" gallery was 13,426*l.*, the highest values being attached to a drawing by J. F. Millet, 600*l.*, and 4,000*l.* to eight old engravings on one of the window screens.

The chief interest financially, however, was attached to the long east gallery, known as No. III. gallery, where were gathered the bulk of the "art objects;" the total insurance of



contents of this room was 93,356*l*. The indifference displayed to the treasures here gathered together is well illustrated by the remark made by one man to his companion, "Come on, Jock, there's no much to see here." A fact—only his language was somewhat more emphatic.

A very few details regarding this room will suffice to impress on the mind the value of this unappreciated department. A room containing jewels, a casket and a silver ship (or nef) was valued at 21,480*l*; a flat case containing carved ivories, 21*l*; a case of gold and other boxes, 4,933*l*; a case containing majolica, lapis lazuli, &c., 13,775*l*; and the beautiful unique musical instruments, 3,000*l*. Then a little dark-wooded Limoges salt-cellar at 600*l*, a sardonix bowl at 5,000*l*, and an ivory triptych 3,000*l*, illustrate the values attached to such articles by their owners. No space can be allocated to describe the wonderful Rhodian and majolica wares (50*l*. for a single plate), old tapestries, Roman and German glass, wood-carvings and so on. In the court of this section the architectural drawings were valued at 3,265*l*, but a large proportion of these were not insured.

The five galleries on the west side of the central court were devoted to Scottish historical exhibits and those relating to Scottish sport, and it is safe to predict that no such collection will be gathered together for very many years. There were over 3,000 exhibits here, and the value attached was no less than 265,896*l*; but as this section comprised the relics before mentioned, even this huge sum fails to represent the value of this section. A very few details may prove of interest. The Livingstone relics were valued at 500*l*; a portrait of Claverhouse, 5,000*l*; one of Mary Queen of Scots' dresses, 200*l*; a collection of miniatures, chiefly of the Stuart family, 3,000*l*; a portrait of Charles I. by Vandyke, 7,000*l*; and Burns's manuscripts, 4,000*l*. Want of space forbids mention of the values attaching to priceless charters from William the Lion, Bruce and Queen Mary, to prehistoric relics, to guns, swords, maps, instruments of torture, &c.

Turning now to the consideration of the most popular of the sections in the galleries, namely, that devoted to the oil and water-colour pictures, the insurance upon this wonderful collection amounted to the very large sum of 896,068*l*, and if the value of the pictures in the historical section be added to this, the total of 1,000,000*l*. may be taken as the insurance value of the pictures, a sum large enough to take one's breath away, and to make the citizens of Glasgow proud of the energy of the art committee, which was able to gather together such a valuable collection of artistic gems for their education and recreation, and for that of the countless visitors to their palatial galleries.

The two royal reception-rooms were devoted entirely to the old masters, and here only were such pictures to be found. The east room possessed fourteen pictures, the insurance upon which amounted to 47,800*l*. The principal items in this sum were 10,000*l*. on a magnificent example of Rembrandt, 5,500*l*. on another picture by the same artist, 6,000*l*. on a portrait by Franz Hals, and 5,000*l*. on a fine example of Vandyke's masterly portraits. The west room contained eleven pictures, by Lorenzo, Botticelli, Perugino, &c., and the insurance was of moderate sum of 25,700*l*., the largest amount being 5,000*l*., attached to one of Botticelli's works.

Proceeding upstairs, the visitor found five galleries in each wing, all devoted to the modern school of artists, although three galleries, Nos. XI., XII. and XIII., were devoted to works by deceased British artists. Here were to be found examples by Turner, Constable, Linnell, Raeburn, Millais, Burne-Jones, Cox, Romney, Leighton, Wilkie and a host of others whose names are household words. The values attached to these galleries were as follows:—140,275*l*. on No. XI., 1,306*l*. on No. XII., and 75,855*l*. on No. XIII. Passing into the galleries devoted to works by living artists, a brief description of these may not be out of place.

The small gallery No. XIV. contained excellent works by Watts, Whistler, McWhirter, Wyke Bayliss, Waterloo, Windus, &c., and was insured for 24,694*l*; and the last room in this wing—No. XV.—was insured for 47,113*l*. Here were to be found fine examples by Alma-Tadema, Roche, Farquharson, Cameron, Noel Paton, Peter Graham, Orchardson, Henry, Guthrie, A. K. Brown, Sir George Reid and others, and this was one of the most popular galleries.

Strolling round the east corridor, the contents of which were insured for 22,285*l*., several interesting and valuable pictures were to be found—"Orchardson's "Testing the Blade," P. W. Orr's "A Bill from the Mantua Maker," Landseer's "A Fallen Monarch," Docharty's "Loch Etive," and others equally so; but the public did not sufficiently appreciate the corridors, considering that the works placed there were what might be termed the "rejected ones." This, however, was not so.

Crossing to the west wing, one found oneself first in the most frequented of the galleries, viz. No. XVI., a large room where were placed many large and popular paintings. Here were Abbey's "Trial of Queen Katherine," Macbeth's "A

Somersetshire Cider Mill," Dicksee's "Passing of Arthur," Murray's "A Fair Land is England" (purchased by the National Gallery of New South Wales), Farquharson's "A Weary Waste of Snow," Herkomer's "The Old Guards' Cheer," Fildis's "Village Wedding," a very popular picture; Gow's photographic "Diamond Jubilee," Poynter's "A Greek Dance," Colin Hunter's "London from the Tower Bridge," Lady Butler's "Scotland for Ever" (belonging to Leeds Corporation—why not to Edinburgh or Glasgow?), and many others. The insurance upon this room, containing ninety-five pictures, was only 61,400*l*. In the small gallery No. XVII. were to be found the first examples of water-colours by British artists. The insurance here was only the trifle of 10,004*l*; but R. W. Allan, Erskine Nicol, Coventry, Austen Brown, William Young, Millie Dow and others were efficiently represented.

In a newspaper article it would be utterly impossible even to mention a tithe of the lovely water-colours found in Gallery XVIII. That gallery was crowded with gems from dead and living masters—masters whose names will be household words when the many thousands who admired their works will have passed away—Turner, Bonington, Pinwell, Varley, Girtin, Muller, Hunt, Copley Fielding, Ruskin, Holland and so on through a list of distinguished names. The insurance here, although fairly large, 75,685*l*., was certainly inadequate—for instance, twenty-three examples of Turner for 22,620*l*., barely 1,000*l*. each, and only 10*l*. and 50*l*. on examples of Varley and Girtin.

The small alcove devoted to miniatures containing 110 gems of the miniature painter's art was insured for 2,079*l*. 10*s*. (included in the total of Gallery XVIII.), and here Praga, Gertrude, Massey, Collier, Comrie Smith, Miss Cotton, Haig, and others were well represented.

Gallery XIX. introduced us first to the great school of foreign artists, foreign to us in their nationality, but far from foreign to us in their art; no true art is foreign to any nationality, for such art portraying only the beautiful in nature represents that which is common to all countries, and is foreign therefore to none. The characteristics of this room were restfulness and quiet beauty, and the 25,411*l*. of insurance was no gauge of its artistic value.

When entering the last gallery, No. XX., not a fraction of the visitors realised the immense financial value of the treasures therein displayed, for the general tone of the room was of a subdued nature, and brilliance of colour (so beloved by the general public) was conspicuous by its absence; but when they are informed that no less than 253,355*l*. was the insurance value, they may realise too late the nature of the work in which so many displayed little interest. Three small pictures together in a corner of the gallery, each 9 inches by 4½ inches, 8,000*l*. is but one instance of the enormous values which might be cited, but all true admirers of nature could not but be impressed with the beauties of the three Maris, of Corot, Meissonier, Millet, Isabey, Israels, Jacques, Troyen, Bosboom and the rest, and none are likely to forget "The Bridge," "A Souvenir of Dordrecht," "Le Lac" or "The Six Windmills," four pictures alone worth coming many miles to see.

The West Corridor contained a beautiful example by Diaz, "Diane Chasseresse," De Neuville's "Defence of Rorke's Drift," Brett's "Echoes of a Distant Storm," Rosa Bonheur's "Easy Times," Peter Graham's "Crossing the Stream"—these pictures, and the insurance value of 34,185*l*., will for ever dispel the idea that the corridors were the homes of the rejected.

In the balconies round the Centre Hall were many cases filled with splendid old silver, old Derby china, Japanese ware, ivory carvings and sewed pictures; while upon the walls of the staircase were old tapestries (valued from 1,000*l*. to 1,500*l*. each), the total insurance of which was about 30,000*l*.

Much more might be written regarding what was a veritable treasure house, but the idea prompting this article, to give a general idea of the financial value apart from the artistic value, will have been finally attained by the following summary of the insurances effected:—

|                                                                             |            |
|-----------------------------------------------------------------------------|------------|
| Oil and water-colour paintings (apart from those in the Historical Section) | £896,068   |
| Sculpture                                                                   | 24,909     |
| Architecture                                                                | 3,265      |
| "Black and White"                                                           | 13,426     |
| Photographs                                                                 | —          |
| "Art Objects"                                                               | 123,433    |
| Historical Objects and Pictures                                             | 265,896    |
| Total                                                                       | £1,326,997 |

The Tender submitted by Mr. John Ashby, Lowestoft, has been accepted for the Congregational church, South Cliff, Lowestoft, and building operations have been commenced. The contract amounts to 1,698*l*. (architects' estimate amounted to 2,000*l*). The architects are Messrs. George Baines & R. Palmer Baines, 5 Clement's Inn, Strand, W.C.



## ARCHÆOLOGY IN SCOTLAND.

**H**ALF a century having elapsed since the "Proceedings" began to be issued at the opening meeting of the Society of Antiquaries of Scotland, an address was delivered by Sir Arthur Mitchell, K.C.B., at the request of the Council, on "The Pre-history of the Scottish Area: a Review of the Work of the Society for the last Fifty Years."

The first part of the address took the form of a brief description of the special features of nine different classes of prehistoric objects that were peculiar to Scotland, the collections of such of these as were portable being exhibited from the museum, along with enlarged sketches of the others.

The first class was a collection of a remarkable series of stone balls, knobbed or decorated on the projecting discs, the use of which was unknown. There were 135 in the museum, and many others were known, but the most remarkable thing about them was that all the specimens known to exist had been found in Scotland, except one, which is now in Ireland, and they have not been found in any other country of Europe, or any other part of the world, but they have been found in all parts of Scotland. Before 1851 there was only one specimen in the museum; since that time 134 have been added to it.

The next class of objects of antiquity referred to was the brochs, those great dry-built round towers of which Mousa, in Shetland, is the best preserved and best-known example. They range from Shetland to Berwickshire, forming a salient feature in the prehistoric aspect of the country, all the more remarkable that they are peculiar to Scotland, not a single example ever having been found elsewhere. Before 1851 we knew little or nothing about the broch structure; now there is no Scottish class of antiquities that has been more thoroughly investigated and described by members of the Society, the extensive list of papers in the Proceedings beginning in the first volume with one by Mr. A. H. Rhind, the founder of the Rhind Lectureship, on his excavation of a broch at Wick in 1857, and ending fitly with the account of the valuable and extensive investigations of Sir Francis Barry by Dr. Joseph Anderson in the volume for the current year.

The third class of objects to be dealt with was a series of massive armlets of bronze, of a form which is typically Celtic, with peculiar but highly effective decoration, enriched by the use of enamels. Of these thirteen specimens are known, and all but one have been found in Scotland. The exception is again one found in Ireland. None have been found in any other country. None of these objects are in the museum, and all but two have been acquired within the last half-century. Referring next to the remarkable and still unexplained symbols of the sculptured stones, he pointed out that, while they occur more than two hundred times in Scotland, not a single example has been found out of the country, while within it their area is chiefly confined to the east coast north of the Forth. A series of silver chains with massive terminal links, which in some cases bear the symbols incised upon them, was described, and of which there are five examples in the museum, all but one having been obtained since 1851. He thought the number sufficient to constitute a class of objects of antiquity which as yet belongs exclusively to Scotland. There was next a class of large oval knives of a hornblende stone, of which there was no example in the museum before 1859, since which time thirty-two specimens have been obtained, more than sufficient to show that they constitute a distinct class of relics. They have not been found out of Scotland, and within it they have only been found in one locality, Shetland, and there they have been found in apparent association with polished stone axes. Another class of stone implements which are as yet confined to a special locality are the circular discs from Culbin Sands, the precise use of which is unknown; but they form a very distinct class, and there are now seventy-two specimens in the museum. They have not been found out of Scotland or anywhere in it but in Culbin Sands.

The eighth class of relics he desired to notice was largely represented in the museum. They were extremely rude implements of five or six different varieties of form, but all made of a schistose stone by chipping, a few only having their point ends rubbed smooth. They were first found in Shetland by Dr. Hunt and himself in 1865, and since then they had been found also in Orkney and in St. Kilda; but they had not been recorded as occurring anywhere out of Scotland. Fifty years ago their existence was unknown, and now they are represented in the museum by over 250 specimens. They are so rude that many visitors look on them as palæolithic, taking their rudely chipped character to be sufficient evidence, which, of course, is an error. But their age and use or purpose have still to be determined. The last class of objects of antiquity to which he called attention were the horned cairns, great sepulchral piles of stones reaching as much as 240 feet in length, with one or more burial chambers. They are not structureless, but possess a definite external form, terminating at both ends in curvilinear projections like horns. There may be an alliance between them and the long barrows of England,

but they have distinctive characters. As yet they are confined to the county of Caithness, but they may be found in other parts of the country. Fifty years ago their existence was unknown. They are probably the oldest, or among the oldest, structural antiquities in Scotland, and they belong to Scotland only. No palæolithic remains have been found in Scotland.

The distinctiveness of the pre-history of an area may consist in the absence as well as in the presence of certain classes of relics. Other classes of objects teaching the same lessons as to the pre-history of Scotland might have been adduced, but these would suffice to make the teaching plain and to disclose the lesson that Scotland had a pre-history as well as a history of its own. Still more had they shown that the pre-history of some parts of the Scottish area differed from that of other parts. As it is with its history, so it is with the pre-history, both as regards the whole area and as regards its parts. Then, further, the facts which had been stated and the classes of relics exhibited disclosed much archæological work done by the Society during the last half-century, and made it clear that it was the work accomplished during that period which had given him the ability to speak as he had done about the proved existence of a special pre-history of the Scottish area. He had made prominent what he regarded as the true field of the Society's work—the pre-history of their own country, of which it had been the great aim of the Society during the past fifty years to discover as much as possible. He scarcely thought he would be putting it too strongly if he said that with other areas this Society had but little concern; but if this were thought too strong, he should certainly be safe in saying that everything relating to the pre-history of other areas was of secondary importance and had scarcely any other value in the studies and researches of this Society than that through comparison all histories are histories of different areas, and the pre-histories of these areas must in like manner be worked out separately. We know now that we possess a distinct pre-history. Fifty years ago that could not have been said. The Society has therefore worked with success, and that success has been largely due to a concentration of effort on this particular line. But it had also been due to the way in which the work had been done, with as much strictness in its methods and as much doubting as are demanded in other departments of science.

After a brief review of the history and work of the Society during the seventy years of its existence before 1851, Sir A. Mitchell described more fully the amount and character of the work done by the Society since that date, taking it in its different departments. Referring to the growth of the museum and library, he remarked, first of all, that the Society, in working for the enlargement of the museum, was working for the nation, and not gathering material for its own exclusive use. It is not the Museum of the Society of Antiquaries, but the National Museum of Antiquities of Scotland. The Society, however, has an intimate connection with it in being entrusted by the State with its care, and it is now housed in a splendid building given to the country by a former secretary and vice-president—the late Mr. John Ritchie Findlay. And the Society's interest in its growth has been well shown.

During the fifty years the collection has grown from 1,560 catalogued objects to 70,654. This increase has been chiefly in those classes of objects which illustrate the unwritten history and the pre-history of Scotland. Of sepulchral pottery there were eighteen urns in the museum in 1851, now the unique collection of Scottish sepulchral pottery numbers 358, and other classes have shown a similar and in some cases even a greater increase. The growth of the collection of Scottish coins has also been large, numbering now over 2,200 specimens. The library, which is national, like the museum, contains over 10,800 volumes. Both the library and the museum are national in the sense that they are the property of the nation. This makes their preservation secure. But they are also national in the sense that they are largely collections of objects and of books illustrative of the nation's history and of the pre-history of the national area. And Scotland's history and Scotland's antiquities belong to us as they belong to no other people, for no other nation can divide with us the peculiar interest we have in them. Referring next to the Society's publications, the number of papers printed in the four volumes which represent the work of the Society for the seventy years before 1851 is 231, and the number of illustrations 192. The number of papers printed since 1851 is 1,568, contributed by 477 persons, and the illustrations number 7,240. The number of the Fellows has risen from 230 in 1851 to 712 as at the present date. The growth had gone on steadily, and this was the desirable evidence of popularity of the right sort, which could be attributed to nothing but a growing recognition of the good work done by the Society, and of the successful management of its affairs.

An outstanding feature of its work during the last half century had been the earnest effort to introduce those methods into its inquiries and researches which are required in other branches of scientific work. And such an effort was and will



needed, because in archæological studies the temptations to sensationalism, baseless assumptions, credulity, ungrounded, in and superficial speculations, and half-done work are so strong and so numerous. In no field of research should the habit of legitimate scientific doubting more prevail. This doubting is not of the kind which makes the worker miss something of possible value and within sight by causing an unwillingness to go on and investigate further, but does the reverse of this, and the greatest doubter is often the most earnest worker. In all branches of scientific work there occurs another danger from the confusing of opinions with facts, but none does this occur so frequently and with such damaging results as in archæology. Conclusions are not facts; they are opinions, and science requires a rigid separation. It was a necessary result of work so done in finding out, recording and preserving everything that could in any way disclose the unwritten history and the pre-history of the Scottish area, that the value attached to curios and such things as derived their interest mainly from being said to have belonged to some famous or infamous person in history, should be lowered, and that a higher scientific value should be given to objects which, though rude, commonplace, or coarse in finish, supplied material for the scientific study of a period historic or pre-historic. There had also arisen a greater caution in regarding findings found in seeming association as necessarily contemporaneous, and in hesitating to conclude because some object has not been found, or something is not known to have occurred, that the object does not exist, or that the thing will never occur. There was also, he thought, an increasing hesitation in seeing evolution from low to high when nothing of the nature of such an evolution had really presented itself. It was not easy to explain why there seemed to be a pleasure in believing that something illustrating this kind of evolution had been discovered. The signs of a progressive degeneration or debasement did not appear to be so captivating, and yet, from scientific point of view, they might be quite as important and interesting.

Work done in the spirit he had indicated seemed to lead to the making of exhaustive investigations of definite portions of the field of archæology, such as that of the late Dr. John Alexander Smith on the animals that have become extinct in the Scottish area; of Dr. D. Christison on the native forts of Scotland; of Dr. Munro on the Scottish crannogs; of Dr. Joseph Anderson on the brochs and horned cairns of Caithness; of Mr. Brook on the Scottish Regalia and Maces; and of Mr. Richardson on the Scottish coins in the museum. Perhaps the real pioneer in this sort of work was the late Dr. John Stuart with the Sculptured Stones of Scotland. Closely akin to this kind of work were the steady pursuit of a fuller knowledge of the Roman occupation of Scotland by excavations at the charge of the Society, aided by donations from Sir Herbert Maxwell and the Hon. John Abercromby, and the examination and planning to scale of the stone circles of Scotland by Mr. F. R. Coles under the Gunning Fellowship. It came naturally that work of the high character and with the definite aims which for the last half-century the Society had encouraged should entail the disappearance of dinners, excursions, conversaciones and other festivities of the period before 1851. With its present large membership well distributed over the country, the interest in the Society ought to depend on the amount and quality of the work it does, and nothing so certainly gives strength and popularity as a well-founded reputation for earnest, hard, good successful work. Men and women desire to belong to a society with that reputation, and regard it as an honour to help on a work which is yielding valuable additions to knowledge, and which, relating closely to their own country, is gratifying to their patriotism.

Referring next to the cost of the work done during the last fifty years under the head of the Society's work proper, including the amount spent on research by way of excavation or otherwise, and on the publication and illustration of the results of research, as well as on the increase of the collections of antiquities and books, and also the amount spent by the State on the maintenance and extension of the museum and library since 1859, when they became the property of the nation, he showed that this large expenditure was of itself a sign of the great increase in the amount and quality of the work done by the Society and of the increased importance and utility of the institution in which the scientific results of this work were preserved, and are to be preserved in all time coming for the use of the public. In conclusion, he referred to the Rhind lectureship, founded in 1874 by the late Mr. Alexander Henry Rhind, a Fellow of the Society, which had since that time supplied twenty-five courses of lectures free to the public and fourteen volumes published at the charge of their authors, while it had in various other ways influenced the progress and prosperity of the Society, especially in deepening and widening the interest of Scotland in the Society's work and aims.

The president, Sir Herbert Maxwell, M.P., in moving a vote of thanks to Sir Arthur Mitchell for his address, referred

to his long connection with the Society of over forty years, his numerous contributions to its proceedings, all distinguished by his characteristic acuteness of scientific observation and originality of treatment, and the many and valuable services he had rendered in the offices of councillor, secretary, Rhind lecturer, and vice-president.

## THE INDIAN MEMORIAL TO QUEEN VICTORIA.

AT a meeting of the executive committee of the North-Western Provinces Victoria Memorial Fund, held at Allahabad last month, it was resolved that, subject to approval of the designs they may submit, the local committees of Muttra, Gorakhpur, Budaon and Etawah, in view of the large sums they have collected should be allowed to erect their own memorials to the late Queen-Empress, similar permission having been accorded at a previous meeting to the committees at Cawnpur, Bulandshahr, Moradabad and Farakabad. For each of the provincial memorials at Allahabad, Agra and Benares the sum of a lac of rupees (6,666*l.* 13*s.* 4*d.*) was allotted, 2,000*l.* of the amount in each case being earmarked for a life-size bronze statue, and the remainder for the canopy, plinth and pedestal, which are to be in the Hindu style of architecture at Allahabad and Benares and in the Indo-Mohammedan style at Agra. It was resolved to offer premiums of 200*l.* and 100*l.* for the two best designs in each of these styles of architecture reaching the hon. secretary by June 1 next. While competitors are at liberty to select their own material for the canopy, it was suggested that for the Hindu style the most suitable stone is that procurable from the Sherajpur quarries, in the Allahabad district, and that cream-coloured sandstone or white marble is the most suitable material for the Agra memorial.

## THE STEVENSON MEMORIAL.

A CIRCULAR letter has been sent by Mr. J. H. Napier, the secretary and treasurer of the Robert Louis Stevenson Memorial Fund, to the general committee in explanation of the delay which has occurred in the completion of the memorial. After detailing the steps taken for the collection of funds, he says that in May 1898 the executive were in a position to estimate the sum likely to be available for the purposes of the memorial, and as this was not of a sufficient amount to warrant any attempt to erect an open-air memorial, it was finally agreed to seek permission from the board of St. Giles High Kirk, Edinburgh, for the erection of a mural monument within its walls. It was further agreed to entrust the work to Mr. Augustus Saint Gaudens, "the only sculptor of note who had studied Mr. Stevenson from the life." Mr. Saint Gaudens accepted the commission, and after negotiations with the St. Giles Board had been brought to a satisfactory issue, visited Edinburgh in January 1899 for the purpose of studying the proposed site for the memorial. In May 1899 his design was submitted to the executive and to the St. Giles Board, and was approved. In December 1899 Mr. Saint Gaudens submitted a revised design, which was at once approved by the executive, and remitted to the St. Giles Board, who intimated approval in March 1900. By that time, however, Mr. Saint Gaudens had decided to revert to his original design, and two months were occupied in correspondence with the Board in regard to this change of plan, and also as to the terms of the epitaph to appear on the memorial. All details having been satisfactorily adjusted, Mr. Saint Gaudens completed his model for the memorial, and was just about to have it cast in bronze, when, in July 1900, he became dangerously ill, and had to leave Paris for the United States, where he has since undergone several serious surgical operations. In the earlier months of the present year, however, letters from the sculptor indicated that the materials for the erection of the monument might be expected very shortly, but in June he wrote to say that he was so anxious that the patine should be to his satisfaction that he had ordered the bronze cast to be forwarded to him in America for inspection. He wrote on November 24 that the patine did not satisfy him, and also that the completed bas-relief suggested to him the desirability of modifications which would improve its appearance. For these reasons, he intimated, he was remodelling the design, and intended to have a fresh cast made. This alteration involves a delay which, in his opinion, should now only postpone the completion of the memorial until the coming spring.

The Edinburgh School Board have received sixteen applications for the vacant post of architect to the Board.



## LONDON IMPROVEMENTS.

THE President of the Society of Architects, Mr. Silvanus Trevail, at the usual monthly meeting of that body at St. James's Hall, Piccadilly, before the ordinary business commenced, said he desired to thank the Press for the kind attention it had given to his inaugural address, especially to those portions of it which referred to the proper qualification and statutory registration of architects, and to the subject of metropolitan improvements. He was delighted to find that there was such a general consensus of opinion in favour of his proposals. But at the same time he could not help observing that there was a small minority who, from perhaps an innate conservatism of the Charles Dickens type, still hugged on to the old state of things, and would not hesitate to sacrifice the great London improvement that was about to take place between Holborn and the Strand, with all its architectural and other possibilities—one of the finest of the generation—for the mere retention of "Ye Olde Curiositie Shoppe," just as it stood in Dickens's time, which lay in the way. Sentiment in such matters was, of course, very good in its way, but there was a possibility of carrying it too far. The advancing civilisation of our time demanded that such old rookeries and purlieus should be swept away and something nobler and better put in its place, if this London of ours was to take its proper position among the great capitals of the world. As well might such sentimentality try to dam back the advancing tide as to attempt to stop such necessary development. Time prevented his replying to all the notes, comments, criticisms and poetry with which his address had been honoured, but he would merely say that, so far as he in his humble capacity could judge of the gentlemen of Fleet Street, they might be conveniently divided between those who went so far as Brighton for their summer holiday and those who went beyond—say across the Channel. The latter, the great majority, he had no difficulty whatever in convincing that his criticisms on the London streets were justified when comparison was made with the great thoroughfares of the other great capitals of the world. These gentlemen had taken it well to heart, and were doing great public and patriotic service in pointing out London's shortcomings, with a view to their gradual rectification. But for the small minority who rarely ever left their dear old haunt between the bar and the bridge, it was only natural for them to suppose that Fleet Street was the real "hub of the universe," that the street itself was quite beyond improvement, that the "Cheshire Cheese" must remain in perpetuity, that the monument that marks the position of the old bar is a pattern to be followed as a work of art for the ages yet to come, that nothing could surpass in beauty the lovely railway bridge that spans the street at the foot of Ludgate Hill, or the size and picturesqueness of the lettering in the charming advertisements that intensify the architectural merits of the buildings forming the Circus. It would, indeed, be cruel to deprive such interesting souls—fossils might we call them?—of such pleasure as they can get out of such fetishes.

## ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

THE annual general meeting of this Institute was held in the offices, 20 Lincoln Place, Dublin, on the 19th inst. There was a good attendance.

Mr. G. C. Ashlin, R.H.A., the newly-elected president, on taking the chair, thanked the members for the honour they had conferred upon him in electing him to one of the highest positions in the gift of the Institute.

Sir Thomas Drew, past-president of the Institute, wrote regretting his inability to attend the meeting, and offering his congratulations to the newly-elected president on assuming office.

The President, in the course of an address, said that coming after the long and successful presidency of Sir Thomas Drew, during which the interests of the Institute were so much advanced, he thought that his task would not be an easy one, except he could rely on the consideration of the council. Continuing, he deprecated the practice which had sprung up of late among public companies, who had their headquarters in London, in employing English architects in erecting buildings in Dublin. He recognised the difficulties in connection with ecclesiastical work which were experienced in finding artificers here with the necessary equipment for carrying out the ideas of their clients, and, to improve the present condition of affairs, help had been promised by their public departments, and especially by the technical schools, and he thought that still further assistance might be given if prizes were offered at the Cork Exhibition for specimens of the work which were now in constant demand.

The secretary, Mr. W. Kaye Parry, read the annual report, which stated the satisfaction that has been felt at the inaugura-

tion of the Ulster Society of Architects, a body affiliated their own, and formed for the purpose of organising the architects of the northern province on the same lines as their own Institute. The report detailed the work done during the year and gave the terms of the resolution of condolence passed on the death of Queen Victoria. In consequence of the refusal of the Ennis Asylum Board, in the proposed competition for the extensive additional buildings, to appoint, as assessor, an architect who should have power to amend the faulty conditions, the competition, the Council advised the members of the Institute to abstain from taking part in the competition, and they were glad to say that the members loyally supported the action of the Council in this matter. During the year they lost no members through death, while, on the other hand, they had gained a considerable number of new members, the total now standing at 101.

Mr. J. Rawson Carroll proposed the adoption of the report and pointed out the benefits which the Institute had secured for the members during the past year.

Mr. William M. Mitchell, R.H.A., seconded the adoption of the report, which he considered to be an especially satisfactory one. He looked upon the formation of the new organisation in the north as very gratifying, and had no doubt that it would be attended with the most beneficial results.

Mr. W. Kaye Parry, in supporting the resolution, said the Council had decided to publish a little book giving an authorised list of architects' charges. This book would be of great advantage, and would be supplied at the small charge of 1s per dozen.

The report was adopted.

Mr. Batchelor, in the absence of Mr. Owen, presented the finance account, which showed that there was a balance of 66*l.* 5*s.* in hand.

The report was adopted.

The following were elected on the Council:—Sir Thomas Drew, Messrs. W. M. Mitchell, J. R. Carroll, C. Geoghegan, F. Batchelor, R. C. Orpen, H. Pentland, A. E. Murray, G. Sheridan.

This concluded the business of the meeting.

## GENERAL.

The Prince of Wales has accepted the Presidency of the Society of Arts, which was vacated by the King on his accession.

The Society of Architects, at a Council meeting held December 19, unanimously resolved, "That this Society is of opinion that it would be in the best interests of the public if architects, surveyors and engineers holding official appointments be debarred from private practice."

Mr. Henry Richard Yeoville Thomason, architect, has left property valued at 1,820*l.* 19*s.* 9*d.*

Negotiations involving over four millions sterling are nearly concluded for the purchase of the entire tramway system of Vienna by the municipality.

Sir Edward Poynter (president) and Mr. F. Eaton (secretary) had an audience of the King last Saturday, and submitted to His Majesty statements respecting the business of the Royal Academy.

Mr. John B. McDonald, R.S.A., died in Edinburgh last Friday at the age of seventy-three. He went to Edinburgh in 1852, where he attended the Board of Trustees' School of Art. Afterwards he studied under Robert Scott Lauder, and received several prizes from the Royal Scottish Academy.

The American Institute of Architects propose to organise a world's congress of architects during the Louisiana Purchase Exposition at St. Louis in 1903.

Sir Alexander R. Binnie, M.Inst.C.E., announces that in future his address will be 9 Great George Street, Westminster, S.W.

The Baker Street and Waterloo Railway Company will seek in the coming session of Parliament an extension of time until August 1905 within which to complete the line. The company also ask for new borrowing powers to the extent of 333,000*l.*

The Glasgow Exhibition authorities have ordered that the machinery hall and concert hall are not to be removed until express instructions to remove them, or either of them, are given, as the Corporation have not yet decided whether or not they will retain them.

The Work of Widening London Bridge will be commenced next month, but some slight alterations have been made recently in the general plan of improvement. The new footpath, which will be railed in with an open stone balustrade, will be quite independent of the main structure, except in the matter of support, and when completed the bridge will be 65 feet in width. During the alterations wheel traffic will not be interfered with in any way, and the erection of a temporary footway will insure the comfort of the pedestrian.









HOUSE AT WALTON ON THE HILL,  
DURREY.  
E. CUY DAWDER AND WHITWELL, ARCHT.







The Architect, Dec. 27th 1901.





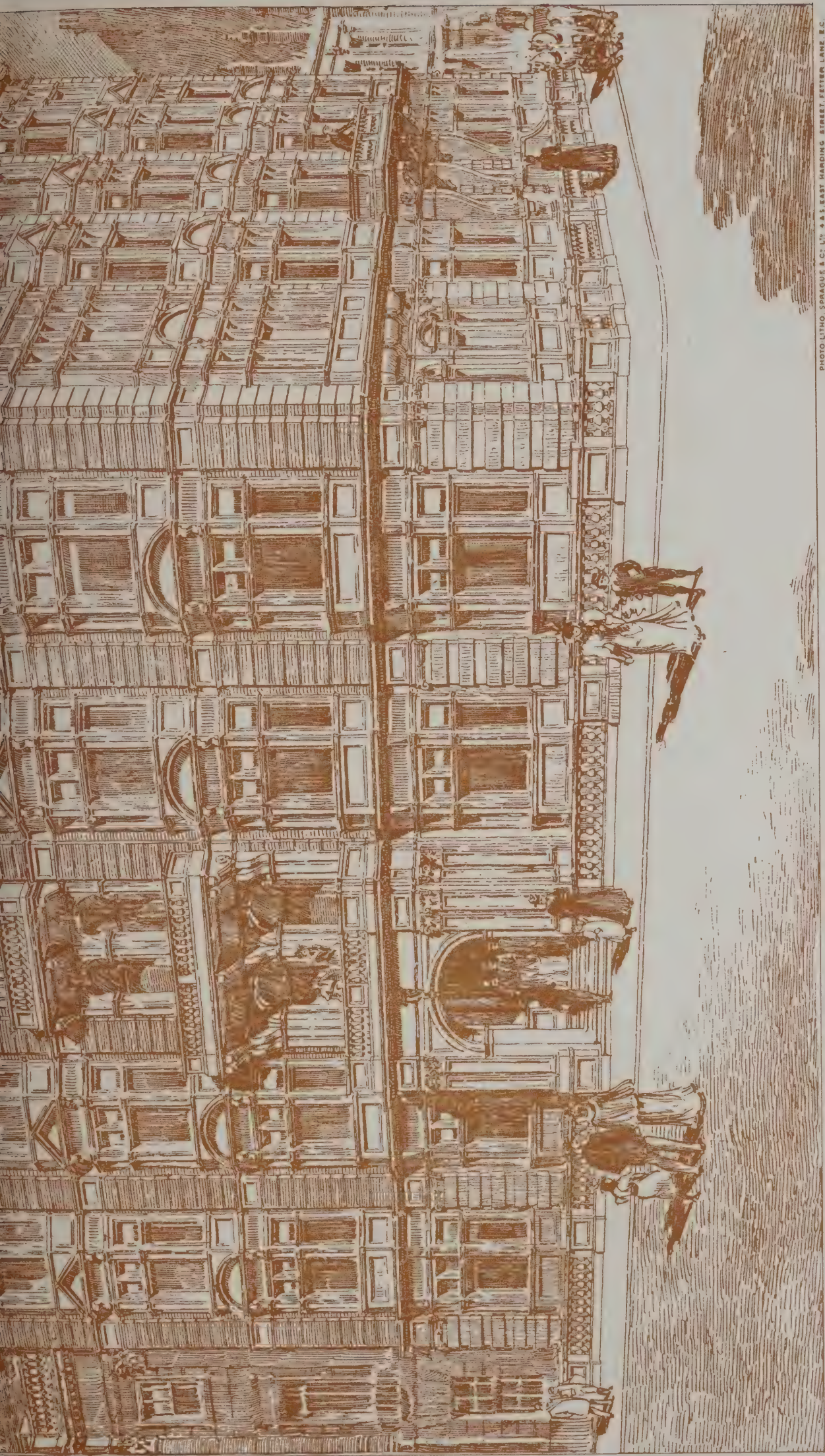


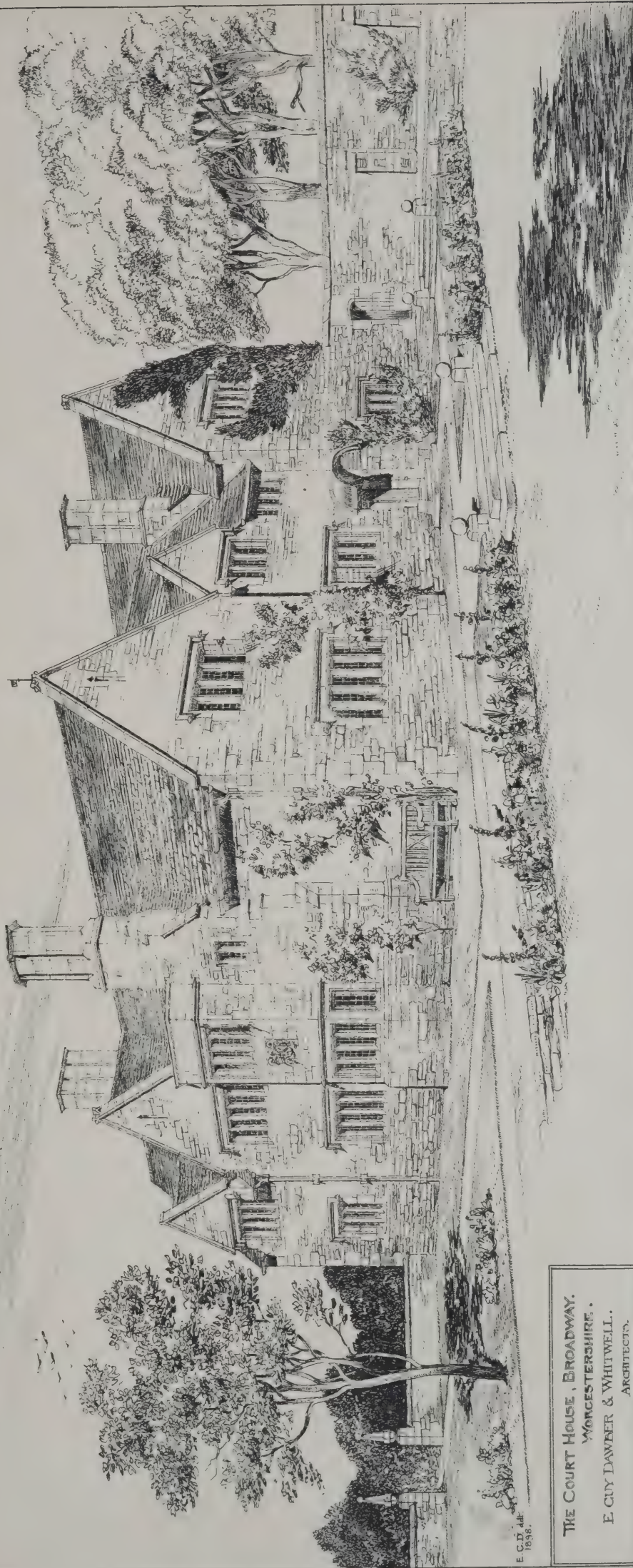
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No. 9 CAVENDISH SQUARE.  
LEWIS SOLOMON, F.R.I.B.A., Architect.









THE COURT HOUSE, BROADWAY.  
WORCESTERSHIRE.  
E. CUNY LAWNER & WHITWELL.  
ARCHITECTS.

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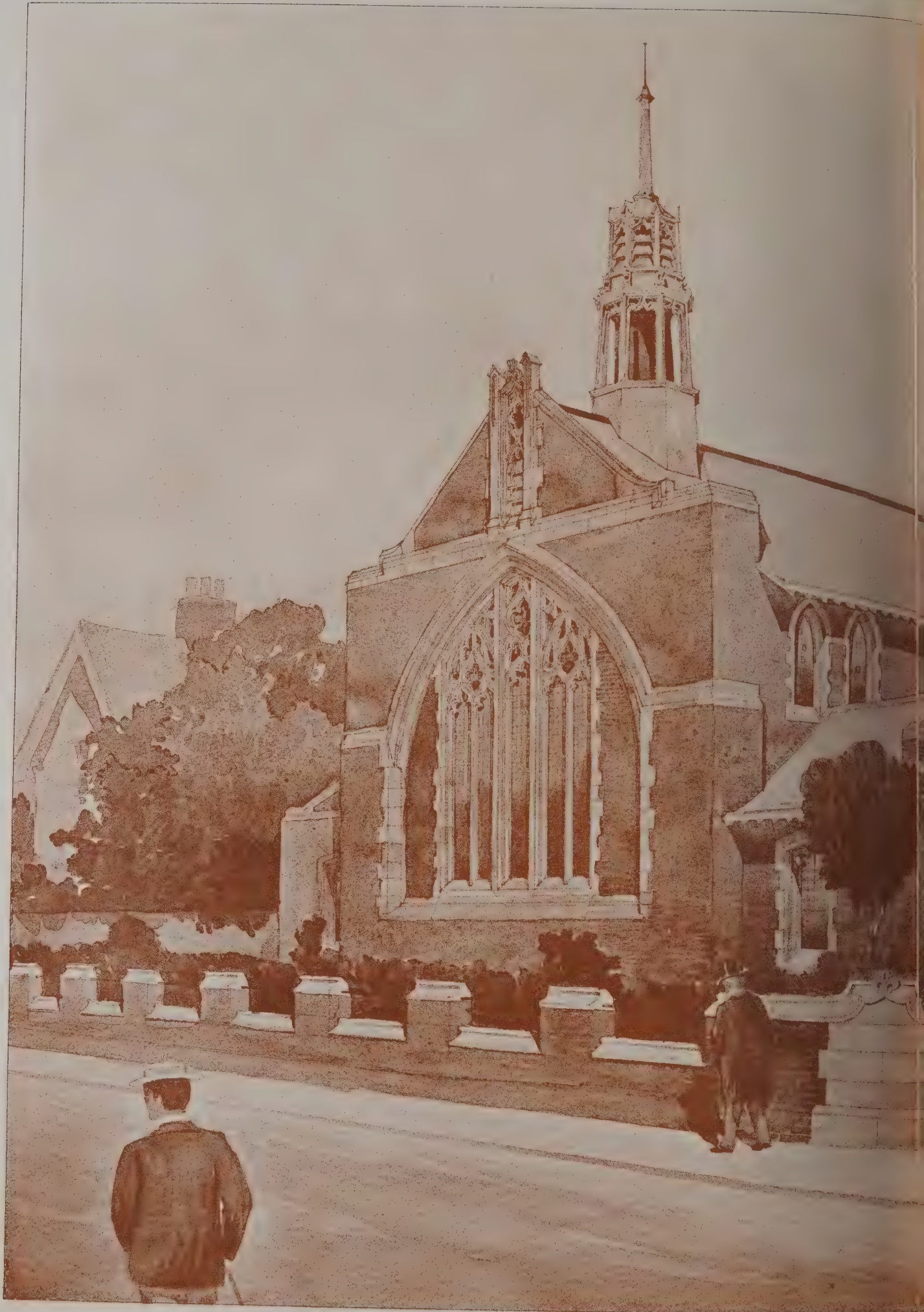
















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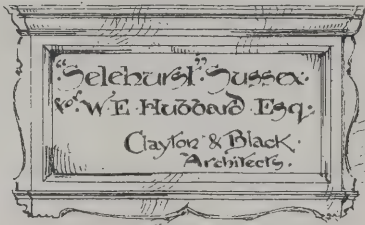












G. W. Ward. del.



1901.



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# INDEX.

## Articles:—

Abbey of Ross, 214  
Admiralty Works Department, 279  
Advertising Disfigurement, 43  
Alfred Jewel, the, 206  
Allan Fraser Art College, 28  
American Elevators, 317  
American Office Building in London, 333  
Ancient Domestic Architecture, 217  
Ancient Jewel, an, 132  
Archæological Discovery in Crete, 366  
Archæological Exploration in Turkestan, 215  
Archæology in Northamptonshire, 6  
Archæology in Scotland, 414  
Architects' Fees, 28, 254

## ARCHITECTURAL ASSOCIATION—

Class of Design, 269  
Details in Church Architecture, 364  
Early and Mediæval Cambridge, 300  
Oxford, 391  
President's Address, 249  
Sanitation of a Country House, 329

Architectural Association of Ireland, 251, 294

Architectural Craftsmen's Society, 382

Architectural Designs, 235

Architectural Draftsmen in America, 141

Art Exhibitions in Japan, 172

Ascot Racecourse, 207

Athelney, Isle of, 204

Australian Commemorative Memorials, 221

Australian Federal Capital, 252

Barnard Castle, 256

Basingwerk Abbey, 110

Bath Abbey Restoration, 13

Belfast City Hall, 238

Bexley and Crayford, 148

Birmingham Archæological Society, 96

Birmingham University, 262

Bishop of Ripon on "Taste," 278

Bloxham Church, 396

Borghese "Niobe" and "Hector," the, 213

Brechlin Cathedral, 295

British and American Engineers, 39

British Archæological Association, 53

British School at Athens, 277

Bronze Relics in Brighton, 13

Broxbourne and Hoddesdon, 230

Cave Paintings of Combarelles, 334

Cawood Castle, 176

Celtic Gold Ornaments, 367, 373

Chaddleworth Church, 279

Château de Chambord, 151

Chester New Baths, 221

Chichester Cathedral, 137

Christ's Hospital Schools, 326

Commemorative Celtic Cross, 388

Congress on Testing at Buda-Pesth, 191

Cretan Explorations, 186

Crosby Chapel, 349

Decoration Methods and Materials, 37

Derbyshire Archæological Society, 96

Discoveries in America, 102

Drew, S R T., and the National Memorial, 79

## Articles—continued.

Drew Loving Cup, the, 21  
Drury Lane Theatre, 14  
Dummer and Overton, 205  
Durban Town Hall, 252  
Durham Cathedral, 19  
Earth House in Orkney, 270  
Edinburgh Architectural Association, 61, 304, 341, 382  
Education in Architecture, 44  
Educational Buildings, Weston-super-Mare, 231  
Egyptian Exploration Fund, 315  
Engineering, the Future of, 39  
Examinations in Architecture, 117  
Explorations at Zakro, 182  
Factory Chimneys, 235  
Fine Arts Commission, a, 68  
Fortingall Church, 222  
French Exploration of Sousa, 36  
Galway Archæological Society, 144  
Glasgow Architectural Association, 255, 348  
Glasgow Exhibition, 186, 412  
Glasgow Institute of Architects, 269  
Glencorse Chapel, 247  
Government Architects in India, 128  
Hall-i'-the-Wood, 353  
Hammered Ironwork, 388  
Hampstead Road Improvement, 80  
Hanging Bridge, Manchester, 318  
Hellenic Society, the, 15  
Hertford, 231  
Hever Castle, 25  
Hollingbourne and Bearsted, 164  
Hoppper, John, R.A., 11  
House of Commons, the, 30  
Identification of Wood, 409  
Indian Memorial to Queen Victoria, 415  
Ingatstone, 105  
Institute of Junior Engineers, 287  
Institution of Civil Engineers, 254  
Jesus Chapel, Worcester Cathedral, 89  
Johnson's, Dr., Birthplace, 27  
Kent Archæological Society, 123  
Khalam-Kar, 142  
King Alfred Memorial, 23  
King Alfred's Jewel, 93  
King's College, 103  
Knossos Neolithic Settlement, 186  
Land Transfer Act, 235  
Leather for Bookbinding, 333  
Leeds Architectural Society, 347  
Lincoln and Nottingham Archæologists, 29  
Little Wenham Castle and Church, 166  
Liverpool Architectural Society, 233  
Liverpool Cathedral, 7, 48, 236, 247, 267, 278, 333, 334, 372, 393  
London and Middlesex Archæological Society, 79  
London Improvements, 416  
Lord Crawford's MSS., 156  
Lord Kelvin and the late P. Q. Tate, 379  
Lord Leighton's House, 35  
Ludlow, General Wm., 190  
Lych Gate, Bognor, 101  
Manchester Art Gallery, 279  
Manchester Society of Architects, 246, 341, 326

## Articles—continued.

Mathematics in England, 181  
Modern Architecture, 348  
National Gallery, 357  
National Physical Laboratory, 183  
National Portrait Gallery, 79  
New Government Buildings, 356  
New Public Offices, the, 151  
New Vauxhall Bridge, 367  
Norham Castle, 158  
Observatories and the New Astronomy, 283  
Ogham Writing in Ireland, 207  
Old Cloth Hall, Newbury, 53  
Organ Chambers, 349  
Ornamental Leadwork, 169  
Oxford, 69  
Paris Exhibition, 57, 72  
Parsee Temple, a, 7  
Peterborough Cathedral, 183  
Piccadilly Widening, 188  
Prehistoric Palestine, 188  
Prehistoric Tumulus at Sunningdale, 400  
Protection of Buildings from Lightning, 187  
Public Bodies and Architecture, 398  
Public Houses and the Building Act, 29  
Registration in California, 173  
Relics of Ancient Paris, 15  
Roman Art in Colchester, 4  
Roman Camp at Delvine, 206  
Roman Remains, Hayling Island, 229  
Royal Academy Schools, 380  
Royal Archæological Institute, 75, 93, 108  
Royal Hibernian Academy, 377  
Royal Infirmary Reconstruction, 7  
Royal Institute of Architects of Ireland, 416  
ROYAL INSTITUTE OF BRITISH ARCHITECTS—  
Dinner, 229  
Examinations, 14, 365  
Pictorial Mosaic, 324  
President's Address, 297  
Ruins in Zambesia, 84  
Ruskin Memorial, 157  
St. Bartholomew's and Christ's Hospitals, 285  
St. Giles, Cripplegate, 222  
St. John's Hospital, Bristol, 111  
St. Mary, Chatham, 381  
St. Mary's, Coventry, 128  
St. Mary's, Pulham, 182  
St. Patrick's Cathedral, 6, 55  
St. Paul's Cathedral, 84, 131  
St. Peter's Hospital, Bristol, 95  
St. Saviour's Chapter-house, 286  
Saxon Churches, 279  
School of Art, Weston-super-Mare, 220  
Shropshire Archæological Society, 29  
Smith, the late E. W., 405  
Society of Antiquaries, Scotland, 367  
Society of Architects, 276, 345  
Society of Arts' Conversazione, 13  
Somersetshire Churches, 139  
Stepney Church, 253  
Stevenson Memorial, 415  
Stockport Workhouse Competition, 238

## Articles—continued.

Stonehenge, 204, 234, 246, 270, 335, 405  
Streets and Traffic, 189  
Surveyors' Institute, 309  
Sussex Archæological Society, 27  
Temple Bruer, 185, 203  
Tottenham Excavations, 14  
Tunnel between Scotland and Ireland, 174  
Victor Hugo's House, 215  
Victoria Memorial, 293, 309  
Villas at Westgate, 262  
Wickham Church, 22  
Windows in Houses, 153  
Worcester Archæological Society, 381  
Wotton and the Evelyns, 52  
Yorkshire Architectural Society, 127

## Contract Reporter:—

Admiralty Contracts, Dec. 6  
All Hallows, Bristol, Nov. 15  
A New Kitchener, Sept. 6  
Apprenticeship and Technical Education, Oct. 25  
Architectural Shams, Dec. 20  
Art in Lambeth, Nov. 22  
Artisans' Dwellings in Glasgow, Oct. 25  
Auchencorth Tunnel, Sept. 13  
Auctioneers' Institute, Sept. 13, Nov. 29  
Australians Hardwoods, Aug. 23, 30, Sept. 13  
Australian Timber, Aug. 23  
Belfast Building Case, Dec. 20  
Birmingham Arcades, Nov. 8  
Birmingham Improvements, Aug. 23  
Birmingham Master Builders, Nov. 15  
Birmingham School of Art, Aug. 30  
Birmingham Waterworks, Sept. 13  
Birmingham's Electric Light, Aug. 16  
Bituminous Pavements, Nov. 8  
Blackley Housing Scheme, Dec. 6  
Board Schools in Hampstead, Nov. 15  
Borough Improvement, Oct. 11  
Brickmaking Dispute, Nov. 22  
British Association, Sept. 13  
Buffalo Exhibition, Aug. 23  
Builder's Accident, Aug. 30  
Builders' Benevolent Institution, July 26, Nov. 22  
Building, Cost of, Dec. 20  
Building in Glasgow, Oct. 11  
Building Regulations, Dec. 6  
Building Sites, Sept. 13  
Building Workmen, Nov. 29  
Bury Art Gallery, Oct. 11  
Canal-burst, Birmingham, Oct. 11  
Carnegie Scholarships, Dec. 13  
Carrara Marble, Oct. 25  
Cast-iron Pipes, Manufacture of, Aug. 16  
Cement Industry in San Francisco, Aug. 16  
Cement Industry of United States, July 19  
Century Theatre, the, Sept. 6  
Cheap Houses, Liverpool, Dec. 13  
Chubb's Architects' Safe, Aug. 16



**Contract Reporter—continued.**

Clark's Gas-Stoves at Glasgow, Aug. 16  
 Concrete for Foundations, Aug. 30  
 Construction and Insurance, Sept. 13  
 Co-operative Towns, Nov. 22  
 Cordwainers' Hall, Nov. 1  
 Council Chamber Furniture, Oct. 4  
 Councillors and Contracts, Oct. 18  
 Derwent Valley Water Scheme, Aug. 30  
 Dover New Dock, Aug. 30  
 Drury Lane Theatre, Aug. 30  
 Durham Electric Light, Aug. 30  
 Durham Miners' Homes, Nov. 8  
 Dustless and Sanitary Compressed Air-Cleaning, July 19  
 Dwellings for the Working Classes, Aug. 16  
 Edinburgh Burgh Engineer, the late, July 19  
 Edinburgh Castle, Nov. 22  
 Edinburgh Master Builders' Association, Dec. 20  
 Electricity and Railways, Dec. 6  
 Electricity at Maidstone, Dec. 20  
 Electricity in Glasgow, July 12  
 Electric Light in New York, Dec. 20  
 Electric Lighting, Cost of, Oct. 11  
 Electrolysis of Gas Pipes, Sept. 13  
 Foreshore Protection, Aug. 9  
 Furniture Trades' Concert, Nov. 29  
 "Garden City" Scheme, Oct. 11  
 German Pumicestone Brick, Aug. 30  
 German Trade, July 19  
 German Work-hops, July 19  
 Gibraltar Waterworks, July 19  
 Glasgow Exhibition, Aug. 23  
 Glasgow Water Supply, July 5  
 Gloucestershire Engineering Society, Oct. 18  
 Gosport Free Library, Oct. 11  
 Harrogate Kursaal, July 19  
 Heating and Plumbing in Germany, Nov. 8  
 Höfner, W., Dec. 27  
 Housebreaking in New York, Dec. 27  
 Houses for Labouring Classes, Sept. 13  
 Housing in Country and Town, Dec. 6  
 Housing Problem, Aug. 16, Oct. 4  
 Housing the Poor in Irish Towns, Oct. 25  
 Housing the Scottish Working Classes, Sept. 13  
 Housing the Working Classes, Dec. 6  
 Hove Parish Church, Nov. 29  
 Hydraulic Machines, Dec. 20  
 Institute of Builders, Nov. 29  
 Institute of Junior Engineers, Nov. 8  
 Institution of Civil Engineers, Nov. 15  
 Interesting Celebration, an, July 5  
 International Engineering Congress, Sept. 6  
 Irish Railways, Dec. 13  
 Iron and Steel Institute, July 19  
 Isolation Hospitals, Lancashire, Sept. 20  
 Jerusalem Water Supply, Sept. 6, Dec. 20  
 Kern Radiators, Oct. 4  
 Kesteven Asylum, Nov. 22  
 Kew Cowl Tests, Nov. 15  
 Lancashire and Cheshire Antiquarian Society, Aug. 30  
 Leeds, Electric Lighting, Sept. 13  
 Leeds, Housing Question, Sept. 6  
 Leeds New Hospital, Dec. 6  
 Leggett, W. & R., July 5  
 Leicester County Asylum, Oct. 11  
 Leighford Parish Church, Aug. 2  
 Lighting, &c., in Glasgow, Nov. 29  
 Liverpool Docks, Aug. 16  
 Liverpool Technical School, &c., Sept. 27  
 London Board School Buildings, July 26  
 London Bridge Widening, Sept. 6  
 London Fogs, Oct. 25  
 London Works Department, July 5  
 Louisiana Exposition, Dec. 27  
 Manchester Water Supply, Sept. 27  
 Marseilles, Condition of, Aug. 16  
 Master Painters and Decorators' Association, Oct. 11  
 Meltham Sewage Scheme, Oct. 25  
 Metropolitan Asylums Board, Sept. 13, Nov. 22  
 Midland Counties Asylum, Oct. 25  
 Municipal Insurance, Nov. 1  
 Municipalities and Housing, Dec. 20  
 Mutual Life Insurance, Oct. 4  
 National Association of Master Plumbers, Nov. 22  
 Nelson Hall and Library, July 26  
 New Art, South Kensington, July 12  
 Nottingham Tramways, Sept. 27  
 Nottingham Workhouse, Oct. 11  
 Oxford, the, Sept. 6  
 Patna New Church, Oct. 25  
 Persian Carpets, Nov. 8  
 Petroleum Light, Oct. 25  
 Piccadilly Widening, Oct. 11, 18, Nov. 29  
 Pietermaritzburg Town Hall, Sept. 20

**Contract Reporter—continued.**

Plumbers' Registration, Aug. 16  
 Portland Cement, Suggestions for Using, Sept. 13  
 Portobello New Baths, July 5  
 Protection of Factories, Aug. 9  
 Queensland Forest Trees, Aug. 16  
 Rainy Hall, Oct. 25  
 Red Gum Paving Blocks, Sept. 20  
 Refuse Destruction and Electricity, Birmingham, Nov. 15  
 Regent's Park, Encroachments on, Sept. 20  
 Retford Infirmary, Oct. 23  
 Reversible Casement Window, July 5  
 Roadmaking in Johannesburg, July 19  
 Rolled Steel Joists, Sept. 20  
 Ruberoid Roofing, Nov. 1  
 Rusholme Baths, Sept. 13  
 St. Agatha, Sparkbrook, Aug. 2  
 St. Benet's, Minster, Sept. 13  
 St. Helens' Gasworks, Oct. 25  
 St. Ninian's Cathedral, Aug. 9  
 St. Paul's Cathedral, Aug. 9, 16  
 St. Saviour's, Liverpool, July 26  
 Sand Bricks and Sand Stones, Aug. 23  
 Sanitary Architecture, Nov. 8  
 Sanitary Regulations of New Buildings, Sept. 13  
 Scarborough Marine Drive, Aug. 23  
 Scarborough Master Builders, Dec. 27  
 Sewage and Bacteria Beds, Sept. 20  
 Sewage Disposal, Aug. 2  
 Sewer Ventilation, Aug. 16  
 Shallow Underground Railways, Dec. 6  
 Shirley Board School, July 26  
 Shrewsbury Electric Light, Sept. 27  
 Skeleton Buildings, Steelwork in, Aug. 30  
 Society for Building and Repairing Churches, Dec. 27  
 Society of Engineers, Oct. 11, Dec. 8  
 Solignum, July 26  
 Solomon's Wells, Nov. 29  
 South Foreland Estate, July 12  
 Southwold Grand Hotel, July 12  
 Stalybridge Library, Oct. 25  
 Steam Turbines, Nov. 1  
 Sydney Streets, Sept. 3  
 Symons v. Angwin, July 5  
 Talla Waterworks, Dec. 13  
 Theatres, Safety of, Nov. 1  
 Timber, Transport of, Sept. 27  
 Trade Conciliation Courts, Dec. 27  
 Trades' Training School, Dec. 20  
 Tramways Act, Oct. 11  
 Tubular Ventilating Standards, Nov. 1  
 Tynemouth Pier, July 26  
 Underground Railways, Aug. 2  
 Underground Tramways, Nov. 8  
 Unsafe Balconies, Oct. 18  
 Ventilation of Houses, July 5  
 Victoria Embankment, Nottingham, Aug. 2  
 Victoria Stone, July 26  
 Walthamstow Electric Lighting, Oct. 11  
 Warrington Corporation Waterworks, July 12  
 Water in Concrete, July 19  
 Welsbach Incandescent, Dec. 27  
 Wesleyan Chapel, Wolverhampton, Oct. 11  
 Westminster Paving Contracts, Nov. 8  
 Winsley Sanatorium, Oct. 25  
 Wolverhampton Exhibition, July 26  
 Wolverhampton Library, Oct. 25  
 Wood Paving in America, Nov. 15  
 Wooden Pavements, Paris and London, Dec. 27  
 Workmen's Compensation, Sept. 13, Oct. 25  
 Wymondham Church Restoration, July 19  
 Yardley Municipal Offices, Aug. 23  
 York Electric Lighting, July 12  
 Ziffa Barrage, Aug. 23  
 Zuyder Zee Drainage, Oct. 11

**Correspondence:—**

Architects and Building Committees, 272  
 Broad Street Place, 304, 320  
 Brooks Memorial, 288  
 Date, the, in Roman Characters, 320  
 Ecole des Beaux-Arts, 48  
 Kew Cowl Tests, 351  
 Liverpool Cathedral, 320  
 Red Gum Paving, 2.8  
 Sir Simon Leach Monument, 256

**General:—**

16, 32, 48, 64, 80, 96, 112, 128, 144, 160,  
 176, 192, 208, 224, 240, 256, 272, 288,  
 304, 320, 336, 352, 368, 384, 400, 416

**Illustrations in Text:—**

Abbess Grange, 200  
 All Souls, Oxford, Reredos, 10  
 Ancient Jewel, 133  
 Annunciation, the, 122  
 Battle Abbey, 258, 259  
 Borghese Vase, 242  
 Bronzes found in Colchester, 5  
 Brooks, the late James, 227  
 Broxbourne Church, 233  
 Celtic Cross, 388  
 Chichester Cathedral, 342, 343, 358, 359,  
 374, 375, 391, 406, 407, 409  
 Drew Loving Cup, 20  
 Ely, Nave Roof, 123  
 Ferring Grange, Plan, 24  
 Hall Place, Bexley, 149, 150  
 Hertford Castle, 281  
 Hever Castle, 255, 26  
 Hollingbourne Church, 165  
 Hollingbourne, Godfrey House, 164  
 Holy Innocents, Gloucester, 121  
 Hymnal, a, 135  
 Ingatstone, 105, 106, 107  
 Lych Gate, Bognor, 101  
 "Niobe" and "Hector," 213  
 Oak Cabinet, 134  
 Ornamental Leadwork, 169  
 Our Lady, Edam, 212  
 Oxford Cathedral, Reredos, 10  
 Piccadilly Widening, 327  
 Queen Victoria Memorial, 310, 311  
 Rye House, 231  
 St. Augustine's, Kilburn, 362  
 St. Augustine's, Reredos, 9  
 St. Chad, Haggerston, 313  
 St. Columba, Haggerston, 314  
 St. James Less, Westminster, 363  
 St. John Evangelist, Holborn, 362  
 St. Mary, Aberdeen, 121  
 St. Michael, Shoreditch, 361  
 Saltwood Castle, 244, 245  
 Sisters' House of Mercy, Clewer, 42  
 Villas at Westgate, 263  
 Weston-super-Mare, Library, &c., 201, 202

**Leading Articles:—**

Architects' Social Position, 306  
 Battle Abbey, 259  
 Borghese Vase, the, 242  
 British Museum, the, 83  
 Brooks, the late James, 226  
 Byzantine Egyptian Art, 354  
 Celtic Art, 131  
 Chevreul and the Laws of Colour, 50  
 Chichester Cathedral, 2, 41  
 Christ Church, Dublin, 18  
 Composition in Painting, 34  
 Duality of Egyptian Art, 147  
 English Buildings, 307  
 Fine Arts, a Fiction of the, 66  
 Flowers and Decoration, 130  
 Flowing Line, the, 114  
 French Fortified Castles, 162  
 Geological Survey, Progress of the, 386  
 German Emperor, the, on Art, 402  
 Heraldry, Bibliography of, 67  
 Housing Problem, the, 210  
 Illusion in Architecture, 333  
 Invisible, the, in Architecture, 243  
 Irish Painters, 195  
 Louvre, Memories of the, 179  
 Medieval Beverley, 275  
 New Books, 291, 323  
 New York Stock Exchange, the, 98  
 Pioneers in English Archaeology, 115  
 Polythitic Sculpture, 82  
 Pulpit, the, 35  
 Queen Victoria Memorial, 274  
 Roads, the Administration of, 370  
 Saltwood Castle, 244  
 Schiller, On a Poem by, 99  
 Science in England, 178  
 Sibyle, the, in Art, 403  
 Stained Glass in England, 9, 41, 121, 135,  
 265, 313, 340, 361  
 Sydney Building Law, 163  
 Tours Cathedral, 387  
 Ugliness in Art, 290  
 Wages in the Building Trade, 326

**Legal:—**

Bacon v. Hardy & Clark, 296  
 Belcher v. Simpson, 289  
 Cheale v. De Pinto, 49  
 Crouch v. Roberts, 88  
 Hockley v. Metcalf & Greig, 161  
 Howe v. Aylsham Union, 241  
 King v. Local Government Board, 385  
 Oetzmann v. Lefever, 321  
 Ravenscar Estate Company v. Thompson,  
 408  
 Stewards & Co. v. Admiralty, 360, 369  
 Symons v. Angwin, "Contract Reporter,"  
 July 5  
 Warren v. Brown, 312

**Notes and Comments:—**

Aird, John, & Son, damages against, 72  
 American Building in the Strand, 328  
 American Engineers, 376  
 American Institute of Architects, 280  
 American Insurance Company, 360  
 Apsley House, 24  
 Architect to the French Ministry, 280  
 Architects and Anarchists, 248  
 Architects' Congress, Melbourne, 8  
 Art and American Customs, 344  
 Art Models in France, 72  
 Bacon v. Hardy and Clark, 296  
 Blackbraes Church, 8  
 Board of Education Directory, 24  
 Board of Education Syllabus, 120  
 Bookbinding, 392  
 Bremen Cathedral, 216  
 Brighton Aquarium, 184  
 Building Contracts, 136  
 Building in South Shields, 72  
 Bunhill Row Fire, 168  
 Canals, 392  
 Carthage, 104  
 Celtic Meeting, 72  
 Cement Users and Buyers' Guide, 216  
 Chevreul's Statue, 40  
 Churches, Increase of, 408  
 Cologne Improvements, 184  
 Column, the, under Central or Eccentric  
 Loads, 40  
 Contractors' Claims, 120  
 Crimean Pottery, 232  
 Crouch v. Roberts, 88  
 Crowbridge Drainage, 248  
 Crown Property, 88  
 Delphi Excavations, 136  
 Détaille, Edouard, 376  
 Dorking Municipal Offices, 120  
 Dorman, Long & Co., 136  
 Electric Lighting in Bognor, 408  
 Ferns, Diocese of, 264  
 Flatisbury and Wogan, 232  
 Foreign Designers, 264  
 Freehand Drawing of Foliage, 392  
 Garnier Memorial, 40  
 Geneva, 120  
 Geological Survey, 136  
 Géralt, Charles, 152  
 Gilbertines, the, 8  
 "Greek and Roman Orders," 168  
 Guffens, the late Godefroid, 40  
 Hamlet's Grave, 184  
 Henner, M., 216  
 "In a Minster Garden," 392  
 Jekaterinburg Sarcophagus, 184  
 Lamps and Clocks, 344  
 Landscape Gardening, 168  
 London and Westminster Bank, 360  
 London County Council Building, 344  
 London Sanitation, 116  
 Lord Mayor's Show, 296  
 Malmesbury Abbey Restoration, 40  
 Mather & Platt's Motor Cars, 24  
 Menu Cartes, 152  
 Merodack, M., 56  
 Millet, Letters of, 72  
 "Minerals," 56  
 Molino Fienzo Excavations, 312  
 Montmartre, Church at, 280  
 Moreau, Gustave, 104  
 Motor-car Sheds, 232  
 Nestor, the, of the French School, 24  
 New York Public Library, 280  
 Onslow Ford, the late, 408  
 Paris Building Law, 8  
 Paris, Cadastral Plan of, 168  
 Paris Drainage, 152  
 Pau, the Castle of, 8  
 Pavillon de Marsan, 280  
 Perrot-Chipiez, M.M., 344  
 Petit Palais, the, 376  
 Philadelphia City Hall, 88  
 Piccadilly Widening, 88, 328  
 Place Royale, 2.0  
 Ravenscar Estate Company v. Thompson,  
 408  
 Red Gum, 152



January 17, 1921

## Notes and Comments—continued.

Otherham Bridge Chapel, 264  
Royal Academy Lectures, 216  
Tapp, M., 296  
Tapp, Anne, Order of, 264  
Tapp, John's Priory, 328  
Tapp, Mary Woolnoth, 56  
Tapp, Paul's Cathedral, 104  
Tapp, Rules, 328  
Tapp, Education in, 84  
Tapp, Excavations, 200  
Tapp, Engineers, 376  
Tapp, Houses at the Salon, 392  
Tapp, Lord, and Art, 56  
Tapp, Edwards & Co. v. Admiralty, 360  
Tapp, Opening, 376  
Tapp, Ways, 360  
Tapp, Surveying and Levelling Instruments, 24  
Tapp, Act, the, 296  
Tapp, Canon Isaac, 264  
Tapp, Temple, Paris, the, 312  
Tapp, Exhibition, 392  
Tapp, Memorial, 88  
Tapp, Memorial in Calcutta, 152  
Tapp, Brown, 312  
Tapp, Areas, 232  
Tapp, Laboratories, 168  
Tapp, Workmen's Compensation, 328  
Tapp, Felix, 296

## Reviews:—

Dictionary of Architecture and Building, Biographical, Historical and Descriptive, Russel Sturgis, 51  
A Elementary History of Design in Mural Painting, Principally during the Christian Era, with an introduction on the art of the pre-Christian period, N. H. J. Westlake, F.S.A., 19  
Early Renaissance Architecture in England, a historical and descriptive account of the Tudor, Elizabethan and Jacobean periods, 1530-1625, for the use of students and others, J. Alfred Gotch, F.S.A., 227  
Wenny Priory, Monastery and Fortress, Col. J. P. Turbervill, 371  
Hints and Suggestions as to the Planning of Poor-Law Buildings, Percival Gordon Smith, late Architect to the Local Government Board, 147  
Hints to Young Valuers, a Practical Treatise on the Valuation of Property, A. R. Cragg, F.G.S., 3  
Italian Renaissance Doorways, Boston, 195  
Medieval London, William Benham, D.D., F.S.A., and Charles Welch, F.S.A., 339  
Old Dutch Towns and Villages of the Zuider Zee, W. J. Tuyn, Illustrations by W. O. J. Nieuwenkamp and J. G. Veldheer, 211  
Wolding Abbey, Jamieson B. Hurry, M.A., M.D., 355

## Tesseræ:—

Academies of Art, 367  
Anachronisms in Pictures, 287  
Ancient Porphyry Quarries, 288  
Ancient Wooden Churches in Norway, 223

## Tesseræ—continued.

Aphorisms on Art, 254  
Architect, the, and His Works, 192  
Architectonic, the, in Sculpture and Painting, 62  
Architectural Foliage, 223  
Architectural Taste, 319  
Architecture, Expression in, 383  
Architecture, Position of, 239  
Architecture, Unity in, 237  
Art in Early Rome, 144  
Art, Variety in, 287  
Beautiful, Creation of the, 368  
Beauty, the Laws of, 86  
Bellini and Titian, 143  
Boydell, Alderman, 87  
Canopies in Monumental Brasses, 383  
Cantilever Scaffolding, 272  
Cavern Temple of New Grange, 31  
Chinese Architecture, 32  
Christian Altar, the, 239  
Church Scot in England, 119  
Colonnade, the, 87  
Colour in Architecture, 159  
Coventry Cathedral, 167  
Cyclopean Walls, 239  
Cyclopean Work in Mexico, 382  
Early Church Towers, 238  
Edington Church, 160  
Embossed Wood, 119  
English Town, the, 239  
Episcopal Mitre, the, in Art, 143  
Feudal Homage, 255  
Flaxman's "Britannia Triumphant," 143  
Florentine Reliefs, 62  
Fuller, Isaac, 254  
German Glass Painting, Influence of, 142  
German Sculpture, 319  
Germans, Art of the, 350  
Ghirlandaio, Domenico del, 254  
Gothic Cathedrals, Non-Isolation of, 350  
Gothic Principle, the, 382  
Greek Art, Imitation of, 118  
Greek Temples, Revenues of, 208  
Historical Painting, 139  
Hubert le Saur, 167  
Ideal, the, in Painting, 63  
Imagination and Taste, 160  
Indian Pottery, 287  
Interlaced Ornament, 238  
Invention, Aids to, 62  
Jewish Architecture, 103  
Kant and Art, 319  
Landscape Art, 271  
Local Characteristics in Paintings, 16  
Lombard Columns, 16  
Lysistrates, Choric Monument of, 103  
Maesta, the, Siena Cathedral, 87  
Magnitude in Architecture, 368  
Maps, Wood Engravings of, 63  
Medieval Illuminators, 167  
Mezzotint Engraving, 87  
Michele-san-Micheli, 272  
Modern Medals, 86  
Old English Gardens, 208  
Oolite Limestone, 192  
Ordnance Survey, the Original, 383  
Organ Fronts, Arrangement of, 142  
Paintings in Churches, 384  
Pedestal, the, 318  
Peutingerian Road Map, the, 159  
Phonicians in Spain, 382  
Photography and Architecture, 382  
Polygnotus, the Painter, 103  
Pomerium, the, 207  
Primitive Forts, 31  
Protogenes, the Painter, 271  
Pyramids, the, 87  
Pythagorean Numbers, 144  
Quarenghi, Giacomo, 119  
Recesses in Rooms, 119  
Religion and Art in Greece, 191  
Repose in Egyptian Art, 318

## Tesseræ—continued.

Rewards of Artists, 223  
Roman Afforesting, 16  
Roman Amphitheatre, the, 224  
Roman Architecture, 159  
Roman Art, 191  
Roman Britain, 86  
Roman Methods in Building, 318  
Roman Roads, 319  
Roman Shops, 63  
Rooms, Proportions of, 350  
St. Albans Abbey, 166  
St. Sernin, Toulouse, 318  
Savoy, the, in 1691, 31  
Saxon Building, 239  
Scottish Architecture, 63  
Sixteenth-Century Architecture, 207  
Somerset House School, the, 119  
Stained Glass, 382  
Stoneworking in Egypt, 223  
Symbolical Patterns, 31  
Tattersall Windows, the, 224  
Theatrum Orbis Miraculum, 192  
Tibaldi and Michel Angelo, 62  
Triplet Lancet Windows, 223  
Uncertified Ability in Architecture, &c., 223  
Urbanity in Architecture, 254  
Venetian School, the, 103  
Vitruvian Buttresses, 167  
Whitehall Palace, 144  
Wren, the Superseding of, 143

## The Week:—

Aberdeen University, 1  
Adams, Mr. Henry, 97  
Aegina, Temple at, 65  
Albert Memorial, 225  
Alfred Commemoration, the, 241  
All Saints, Icklingham, 113  
Alvarez at the Prado Gallery, 241  
Architects' Fees, 353  
Architects' Plans, 385  
Architectural Association, 161  
Asinelli and Garisenda Towers, 65  
Babylonian Antiquities, 385  
Battle Abbey, 337  
Bazalgette Memorial, 289  
Belcher v. Simpson, 289  
Berlin Museum, 17  
Birmingham School Board, 385  
Bookbinding, 17  
Bristol and Gloucestershire Archaeological Society, 129  
Building By-laws, 113  
Building in Munich, 337  
Building Materials in Canada, 225  
Building Trades and the Conciliation Act, 273  
Cambridge University Library, 337  
Carrickmines Castle, 209  
Centurion Coppice, 81  
Cheale v. De Pinto, 49  
Cheap Houses at Leek, 257  
Christ Church, Dublin, 257  
Christ's Hospital Site, 33  
Clairvaux Abbey, 321  
Concours de Façades, 97  
Cottages at Ennis, co. Clare, 145  
Cows and Terminals, 257  
Dekorative Kunst, 129  
D'Intignano, Signor M., 145  
Dorking Public Offices, 401  
Drainage By-laws, 113  
Electrolysis in America, 1  
Engelholm, Graves at, 193  
Etruscan Museum, 209

## The Week—continued.

Exploration in Russian Armenia, 161  
Explorations at Nussar, 161  
Geneva Art Exhibition, 1  
Genoa, 97  
Glasgow Technical College, &c., Society, 225  
Gothic, 225  
Government Offices, 49, 97, 129, 353  
Grands Prix de Rome, 81  
Granite from America, 145  
Greek Maps, 1  
Guy's Hospital, 305  
Hastings, 145  
Hereford Workhouse, 145  
Hill of Tara, 401  
Hockley v. Metcalf & Greig, 161  
Houses of Parliament, Alterations, 177  
Howe & Co. v. Aylsham Union, 241  
Imperial Institute, 401  
Innocent, the late C. J., 353  
Institute of American Engineers, 17  
Irish Gold Ornaments, 65  
King v. Local Government Board, 385  
"L'Art," 1, 129, 209, 353  
"La Murette," 225  
Langres, 145  
Liverpool Cathedral, 193, 273  
Local Rates, Incidence of, 177  
L. B. and S. C. Railway Company's New Workshops, 369  
London Building Act, 273, 385  
Louvre, the, 225  
Manchester Society of Architects, 273  
Manufacture of Paints, 113  
Mexican Explorations, 305  
"Missing Duchess," the, 305  
Morpeth Bridge, 289  
Mosaic at Serdjilla, 145  
Mynydd-y-Maendy, 113  
Nebuchadnezzar's Palace, 209  
Oetzmann v. Lefever, 321  
Old Railway Carriages, 97  
Paintings at Westminster, 33  
Paris Finances, 241  
Persian Work at the Louvre, 369  
Petroleum on Roads, 177  
Posters in Paris, 321  
Prix de Rome Paintings, 113  
Queen Victoria Memorial, 17  
Rheims Cathedral, 193  
Richardson, C. J., 193  
Richmond Hill, 49  
"Rings" in Building, 241  
Royal Hibernian Academy, 369  
Rye Antiquities, 33  
Safety in Theatres, 241  
Scheffer, Ary, 193  
Seismological Movements, 177  
Sèvres China, 1  
Sewage Disposal in India, 161  
Standards Committee, the, 337  
Stevenson, Robert, 177  
Stewards & Co. v. Admiralty, 369  
Stonehenge, 289  
Strand to Holborn Street, 305  
Strasbourg Cathedral, 369  
Surveyors' Institution Examinations, 193  
Susan Antiquities, 257  
Sutton Model Dwellings, 49  
Tarsney Act, the, 401  
Taunton Castle, 81  
Thomason, Henry Yeoville, 49  
Ulster Society of Architects, 65, 401  
Vicenza Basilica, 81  
Victoria Memorial, 65  
Wagner Memorial, 353  
Waterworks Engineers, 17  
Whitehall Government Offices, 17  
Window-breaking in Dublin, 337  
Workmen's Compensation, 305, 337  
Works Department, 385  
Wymondham Abbey, 81



## INDEX OF ILLUSTRATIONS.

\*\*\* THE LITHOGRAPHED ILLUSTRATIONS WILL BE FOUND OPPOSITE TO THE PAGES QUOTED.

Alexandra Trust, 280  
 Apollo Theatre, 88  
 Beechwood, Putney, 280  
 Bethnal Green Baths, 392  
 Board Schools, Brighton, 136  
 Bosloe, 216  
 Broad Street Place, 248  
 Bush Lane House, 312  
 Castle Grove, Leeds, 8  
 Century Theatre (Frieze), 184  
 Château de Josselin, 168  
 Chichester Cathedral, 8, 24, 40, 56, 72, 88,  
 101, 120, 136, 152, 168, 184, 200, 216, 248,  
 264, 280, 312, 328, 344, 360, 376  
 Children's Home, Sidcup, 24  
 Claremont Hotel, Harrogate, 88  
 Coburg Hotel, 328

Cottages, Horndon-on-the-Hill, 152  
 Cottages, Warnham, 216  
 Court House, Worcestershire, 408  
 Deansgate Arcade, 360  
 Dixon House, 152  
 Dreadnought Hotel, 216  
 Embley Park, 8  
 "Empire," Bradford, 168  
 Ferring Grange, 24  
 Freemasons' Library, 72  
 Fountainhall Church, 312  
 Great Central Hotel, 328, 344  
 Grosvenor Restaurant, 360  
 Hartpury, Chimney-piece, 120  
 Horniman Museum, 40  
 House at Cley, 216  
 House, Cavendish Square, 408

House, Sharnon, 72  
 House, Walton-on-the-Hill, 408  
 Houses at Hampstead, &c., 200  
 Houses, Wigmore Street, 72  
 Imperial Theatre, 56, 152  
 Leicester Reading-rooms, 392  
 Linlithgow Academy, 104  
 Liverpool, New Technical School, 8  
 London and County Bank, Littlehampton,  
 72  
 London and County Bank, Petworth, 376  
 London and South-Western Bank, Ealing,  
 243, 280  
 Mutual Life Assurance Offices, 232  
 Northampton Arcade, 120  
 Park Square, Leeds, 88  
 Penley's Theatre, 120, 184

Premises, St. James's Street, 344  
 Premises, Tottenham Court Road, 216  
 Queen Victoria Memorial, 296, 312  
 Residences, Park Street, 376  
 Rowton House, 264  
 St. Columb, 56  
 St. James's, Leicester, 392  
 Salisbury House, 136, 184  
 Selehurst, 408  
 Shoreham Workhouse, 56  
 Sketches round Warwickshire, 104  
 Tewkesbury Abbey, 200  
 Unitarian Church, Birkenhead, 163, 184  
 Uplands, Brighton, 136  
 Westminster Cathedral, 104, 200  
 Worcester Cathedral, 72, 88

## ARCHITECTS AND ARTISTS.

Anderson, J. Macvicar, 232  
 Anderson, R. Rowand, 312  
 Ayling, R. S., 392  
 Beaumont, E. C., 248, 280  
 Bell, George, 360  
 Bentley, F. J., 104, 200  
 Briggs, R. A., 72, 88  
 Brooke, John, 360  
 Buck, William, 24  
 Buckell, Chas., 184  
 Butler Wilson & Oglesby, 8, 24, 88  
 Clarkson, T., 230  
 Clayton & Black, 56, 136, 408  
 Cobb, J. W., 200

Cook, J. H., 408  
 Cresswell, H. O., 8, 72  
 Davis & Emanuel, 136, 152, 184  
 Dawber, E. Guy, 120, 216  
 Dawber & Whitwell, 408  
 Dinwiddy, T. & T. N., 24  
 Drew, Sir Thos., 296  
 Edis, R. W., 328, 344  
 Elgood, Frank M., 72  
 Fairley, J. Graham, 104, 216, 312  
 Fletcher, Banister, & Sons, 200  
 Florence, Henry L., 72  
 George, Ernest, 296  
 Goddard & Co., 392

Isaacs & Florence, 323  
 Jackson, T. G., 296  
 Joseph, Delissa, 312  
 Kersey, A. H., 376  
 King & Co., 230  
 Martin, G. D., 248  
 Measures, Harry B., 264  
 Mitton, Stanley, 104  
 Mosley & Scrivener, 120  
 Mountford, E. W., 8  
 Murray, John, 120, 184  
 Norman & Burt, 8  
 Rogers, Bow & Coles, 216

Rüntz, Ernest, & Co., 152, 184  
 Sharp, Lewin, 88  
 Solomon, Lewis, 408  
 Sprague, W. G. R., 168  
 Talbot, J. J., 168, 184  
 Thornton, Edward, 56  
 Townsend, C. Harrison, 40  
 Verity, Frank, 56, 152  
 Wallen, F., 216  
 Webb, Aston, 293  
 Wheeler & Lodge, 216, 376  
 Wheeler, F., 72  
 Worley, R. J., 344



## THE

## Architect and Contract Reporter

## EDITORIAL NOTICES.

*view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.*

*The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.*

*The authors of signed articles and papers read in public must necessarily be held responsible for their contents.*

*No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.*

*Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.*

## TENDERS, ETC.

*\* As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

## COMPETITIONS OPEN.

**AUSTRALIA.**—May 1.—Designs are invited from sculptors for a memorial statue of Her late Majesty in marble or bronze. All information can be obtained at the office of the Agent-General for the State of Victoria, 15 Victoria Street, Westminster.

**BATTERSEA.**—Jan. 31.—Premiums of 50*l.*, 25*l.* and 10*l.* respectively are offered for the three best sets of designs, &c., of dwellings, as follows:—(a) A house of two storeys; (b) a house consisting of two self-contained tenements; and (c) a house consisting of three self-contained tenements. Mr. W. Marcus Wilkins, town clerk, Municipal Buildings, Lavender Hill, S.W.

**GLASGOW.**—Feb. 1.—Schemes, plans and estimates of cost are invited for erection of dwellings for the poorest classes upon ground at Alexandra Park. Premiums of 100*l.*, 50*l.* and 25*l.* respectively will be awarded to the authors placed first, second and third in order of merit. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

**HULL.**—Jan. 31.—Designs are invited in competition for the new art school. Premiums will be awarded to the designs placed first, second and third in order of merit (100*l.*, 60*l.* and 40*l.*). The architect whose plans are carried out will be paid the usual 5 per cent. commission, the premium to merge in such commission. Mr. Sidney R. J. Smith, 14 York Buildings, London, W.C.

**IRELAND.**—Jan. 20.—Plans, &c., are invited for drainage of Howth and Sutton, Dublin (and an alternative system for the latter). A premium of 50*l.* is offered. Mr. John O'Neill, clerk, board-room, North Brunswick Street, Dublin.

**ISLE OF WIGHT.**—Jan. 31.—Designs are invited for a suitable monument as a memorial to Her late Majesty, to be erected in St. James's Square, Newport, Isle of Wight. A premium of 25*l.* is offered for the accepted design. The Secretary, Isle of Wight Queen Victoria Memorial Committee, 20 Holyrood Street, Newport, Isle of Wight.

**KENT.**—Jan. 1.—Competitive designs are invited for laying-out about 16 acres of land, near Canterbury Road, Gillingham, as a recreation-ground. Premiums are offered of £20, £10 and £5. Mr. F. C. Boucher, clerk, Gardiner Street, New Brompton, Kent.

**LANGHO.**—April 4.—Competitive drawings are invited for buildings to be erected at Langho, near Blackburn, for the accommodation of the epileptics, imbeciles and idiots at present in the workhouses of the Chorlton Union and the township of Manchester. Premiums of 200*l.*, 150*l.* and 100*l.* respectively will be awarded. Lithographed plan of site, and copy of conditions and instructions, may be obtained by a written application only, addressed to the Clerk to the Joint Asylum Committee, Chorlton Union Offices, All Saints, Manchester.

**LIVERPOOL.**—June 30.—Designs are invited for a cathedral. Three hundred guineas will be paid to each competitor in the second competition, whether his design be accepted or not. The hon. secretaries to the committee are Messrs. R. Alfred Hampson, A. Earle, Os. Penrhyn, and J. W. Willink, Church House, Liverpool.

**SCOTLAND.**—Jan. 15.—The Kirkcaldy Burgh School Board invite competitive plans for a technical and science and art school to accommodate from 400 to 500 pupils, and an elementary school to accommodate about 400 pupils. Mr. Alexander Beveridge, clerk to the Board.

**WALES.**—Feb. 4.—Competitive designs are invited for municipal offices proposed to be erected by adapting, adding to and rearranging the town hall buildings at Mountain Ash. A premium of 75*l.* will be paid to the author of the design placed first in order of merit. Mr. H. P. Linton, clerk, Town Hall, Mountain Ash.

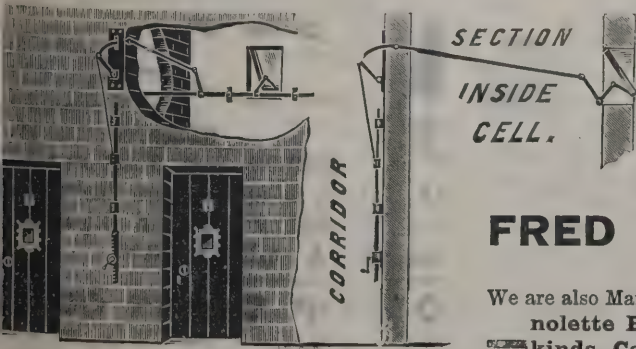
## CONTRACTS OPEN

**ASHTON-IN-MAKERFIELD.**—Jan. 8.—For supply of a steam road-roller, 12½ tons, a scarifier and a sludge and snow remover. Mr. J. W. Liversedge, surveyor, Council Offices, Ashton-in-Makerfield.

**BAKEWELL.**—Jan. 3.—For construction of a circular water-tight concrete reservoir to hold about 115,000 gallons, in the parish of Hassop, and the construction of a circular covered water-tight concrete service tank to hold about 50,000 gallons at the Headstones Head, in the parish of Ashford, and other works in connection with the proposed water-supply. Messrs. Sterling & Swann, engineers, Town Hall, Chapel-en-le-Frith.

**BARNSTAPLE.**—Jan. 16.—For supply and erection of the electric-lighting plant. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

**BIRMINGHAM.**—Dec. 30.—For erection of pavilions, boiler-house and other works at the workhouse, Erdington. Messrs. C. Whitwell & Son, architects, Temple Row, Birmingham.



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**BOURNEMOUTH.**—Jan. 6.—For supply of electric-lighting plant. Mr. F. W. Lacey, borough and tramway engineer, Municipal Offices, Bournemouth.

**BRANKSOME.**—Jan. 3.—For supply and erection of wrought-iron railing and gates, with dwarf wall to front of the Council buildings, Branksome, Dorset. Mr. W. H. Curtis, clerk to Urban District Council.

**BRATTON FLEMING.**—Jan. 6.—For constructing a tunnel about half a mile in length, in the parish of Bratton Fleming, in the county of Devon, in connection with the new water scheme. Surveyor, Town Hall, Ilfracombe.

**BROMSGROVE.**—Jan. 8.—For sinking or boring to obtain a water supply for the new Barnsley Hall asylum. Mr. George T. Hine, architect, Westminster.

**BURY.**—Jan. 20.—For construction of a central tramway depôt in Rochdale Road, Bury. Mr. Arthur W. Bradley, borough engineer, Bury.

**DEWSBURY.**—Dec. 31.—For erection of a covered market in Crackenedge Lane. Mr. G. Trevelyan Lee, town clerk, Town Hall, Dewsbury.

**EDINBURGH.**—Dec. 30.—For erection of a steel latticed girder footbridge and trussed roofs in connection with the Edinburgh and Leith works at Granton. Mr. W. R. Herring, chief engineer and manager, New Street Works, Edinburgh.

**FARNHAM.**—Jan. 1.—For supply of an all-metal power washing machine (50-shirt capacity). Mr. Ernest Crundwell, clerk to the Guardians, South Street, Farnham.

**HANLEY.**—Dec. 31.—For erection of a home for the Little Sisters of the Poor, adjoining Cobridge House, Hanley, Staffs. Messrs. R. Scrivener & Sons, architects, &c, Howard Street, Hanley, Staffs.

**HOLYHEAD.**—Jan. 7.—For erection of an infant school at Kingsland. Mr. R. E. Pritchard, clerk to School Board, Bradford House, Holyhead.

**HORNSEY.**—Jan. 15.—For supply and erection of electric-lighting plant at the municipality electricity works. Mr. F. D. Askey, clerk, Council Offices, Southwood Lane, Highgate, N.

**KING'S NORTON.**—Jan. 6.—For erection of a refuse destructor at Lifford, near King's Norton, Worcestershire. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath, near Birmingham.

**KINGSTON-UPON-THAMES.**—Jan. 1.—For construction of two filter-beds, &c., at the sewage works. Plans and specifica-

tion can be inspected at the Borough Surveyor's Office, Clattern House, Kingston-upon-Thames.

**LEEDS.**—Jan. 4.—For erection of about twenty-six blocks of buildings and the alteration of several others, together with roads, drains and all fittings, for the extension of the city hospital at Seacroft. Mr. Edwin T. Hall, architect, 54 Bedford Square, W.C.

**LITTLETON.**—Dec. 31.—For erection of a bridge in stone, brick and iron across the river Ash at Littleton, Middlesex. Mr. H. T. Wakelam, county engineer, the Guildhall, Westminster.

**LONDON.**—Dec. 30.—For adapting 288 New Cross Road for use as a postmen's sorting office. Mr. J. Wager, H.M. Office of Works, &c., Storey's Gate, Westminster.

**LONDON BRIDGE.**—Feb. 17.—For widening of London Bridge. Drawings and specification may be seen at the office of the City Surveyor, Guildhall.

**MANCHESTER.**—Jan. 7.—For laying and jointing of the southern section of the second line of pipes from Thirlmere to Manchester. Messrs. G. H. Hill & Sons, civil engineers, 3 Victoria Street, Westminster.

**MANCHESTER.**—Jan. 21.—For supply, delivery and erection at the Stuart Street generating station of the following switchboards—(a) main high-tension three-phase switchboards at generating station, (b) exciter and auxiliary switchboards at generating station, (c) high-tension three-phase switchboards at ten sub-stations, (d) low-tension switchboards at ten sub-stations. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester.

**MORPETH.**—Jan. 7.—For erection of an isolation hospital near the Low Black Close, Northumberland. Mr. Alexander Wood, surveyor, Market Place, Ashington.

**NANTWICH.**—Jan. 6.—For supply and erection of the following plant:—(Section A) boiler-house plant—one water-tube and one Lancashire boiler, fittings, steam and exhaust pipes, &c.; (B) engine-house plant—continuous-current steam dynamos, pumps, &c.; (C) switchboard, &c.; (D) underground mains, lamp-posts, &c.; (E) accumulators; (F) meters; (G) crane, &c.; (H) dust destructor. Mr. W. H. Trentham, 39 Victoria Street, Westminster, S.W.

**NEWBIGGIN-BY-SEA.**—Dec. 30.—For erection of sixteen cottages at Newbiggin. Mr. Tom Welsh, secretary, Co-operative Stores.

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**PLYMOUTH.**—Jan. 15.—For enlargement of head office at Plymouth, for the Commissioners of H.M. Works and Public Buildings. The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W.

**PRESTON.**—Dec. 31.—For construction of an underground convenience in Church Street. The Borough Surveyor, Town Hall, Preston

**ST. BUDEAUX.**—Dec. 30.—For erection of a school and boundary walls on the site between Honicknowle and Crown-hill, St. Budeaux, Cornwall. Mr. T. R. Kitsel, architect, 1 George Street, Plymouth.

**SCOTLAND.**—Jan. 6.—For erection of the Mid-Lothian County Council new buildings, Edinburgh. Mr. J. Macintyre Henry, architect, 7 South Charlotte Street, Edinburgh.

**SHEPTON MALLET.**—Jan. 8.—For providing and laying about 8½ miles of 3-inch main, and about 2 miles of 2-inch and 1½-inch branches, with the erection of a hydraulic ram for compensation supply, providing and fixing standposts, valves, services and fittings, &c. Mr. A. E. Nalder, clerk, Council Offices, Market Place, Shepton Mallet.

**SOUTHAMPTON.**—Dec. 30.—For alterations to Pear Tree Green schools. Mr. George C. Gandy, clerk to School Board, Woolston, Southampton.

**TYNEMOUTH.**—Jan. 7.—For construction of a gravitation main, consisting of 12½ miles of 18-inch cast-iron pipes, from the Font to Stannington, Northumberland. Mr. Horatio A. Adamson, town clerk, Tynemouth.

**WALES.**—Dec. 27.—For erection of Wesleyan minister's house at Coedpoeth. Mr. W. Lloyd Jones, architect, Bangor.

**WALES.**—Dec. 30.—For erection of school buildings at Rudry. Messrs. B. Lawrence & Son, architects, Newport, Mon.

**WALES.**—Jan. 1.—For alterations and improvements to the Portmadoc market hall. Mr. J. Jones, clerk to the District Council, 20 Bank Place, Portmadoc.

**WALES.**—Jan. 4.—For (1) widening the Hayes bridge, (2) widening of the North Road bridge, and (3) reconstruction of the East Wharf bridge, Cardiff. Mr. W. Harpur, borough engineer, Town Hall, Cardiff.

**WALES.**—Jan. 9.—For erection of a car dépôt at Newport Road, Roath. Mr. J. L. Wheatley, town clerk, Town Hall, Cardiff.

**WALES.**—Jan. 10.—For re-erecting the Crown Bridge over the canal at Sebastopol, near Griffithstown. Mr. D. J. Lougher, engineer, Pontypool.

**WALES.**—Jan. 13.—For erection of an infants' school, to accommodate 200 children, at Cwmcelyn, near Blaina, Mon, with out-offices, boundaries, playground, &c. Mr. R. L. Roberts, architect, Abercarn.

**WALES.**—Jan. 15.—For erection of a school at Alltwen. Mr. W. Watkin Williams, architect, 63 Wind Street, Swansea.

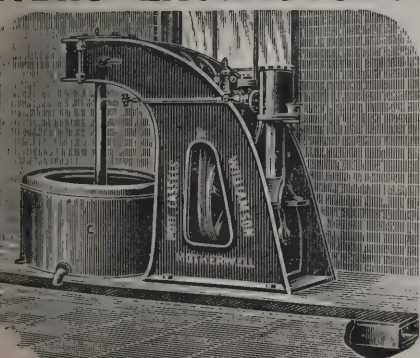
**WALSALL.**—Jan. 18.—For construction of a sewage tank 85 feet long by 21 feet 6 inches wide by 9 feet deep. Mr. John R. Cooper, town clerk, Borough Offices, Walsall.

**WEST HAM.**—Jan. 14.—For supply of four sets of surface-condensing plant, each to deal with 40,000 lbs. of steam per hour, complete with electrically-driven air and circulating pumps, and one travelling crane to carry 30 tons, span 67 feet. Mr. Fred. E. Hilleary, town clerk, Town Hall, West Ham.

MR. BORUP, of the Church Missionary Society, has sent home some interesting details of a church of brick which is being built under his direction by the Baganda. Fifty-six bricklayers are employed, most of whom have been trained since last year. They are, Mr. Borup reports, working willingly, and he does not think there will again be any difficulty in getting bricklayers in the country. The length of the church is 266 feet, the width is 50 feet. The roof will be thatched with grass. In addition to the bricklayers several hundred other workmen are engaged, and are receiving weekly wages.

THE rolling-mills department of the Moor Ironworks, Stockton, belonging to the South Durham Iron and Steel Co., Ltd., was laid idle on the 16th inst. by the strike of a number of men because of their objection to one of the chief rollers put over them by the firm. The management are not treating with the men, but have closed the whole of the rolling mills for the next six weeks or two months. They state they had decided to close the works early in the new year in order to lay down new rolling-plant, and that they will now proceed with the work. About 150 men are thrown out of work as a consequence.

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| J. Mears                   | 162 | 0 | 0 |
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G. Thornton, South Shields (*accepted*) . . . . . 235 0 0

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For additions to Netherfield Works, Kendal. Mr. ROBERT WALKER, architect, Windermere.  
*Accepted tenders.*  
J. W. Howie, walling, &c.  
G. F. Martindale, joiner.  
W. Jackson, plumbing, painting, &c.  
Steel & Co., plastering.

KING'S LYNN.

For construction of a wooden floor at the Corn Exchange.  
Bardell Bros. . . . . £349 0 0  
J. Medwell . . . . . 305 10 0  
A. F. Foreman . . . . . 304 0 0  
H. W. Barnes & Co. . . . . 299 0 0  
R. Melton . . . . . 279 10 0  
Renant Bros. . . . . 250 0 0  
W. F. SMITH, Albert Street (*accepted*) . . . . . 249 0 0

LEAVESDEN.

For converting convalescent home at Leavesden Asylum into officers' residences.  
Vigor & Co. . . . . £289 0 0  
Tyler & White . . . . . 210 0 0  
R. Seed . . . . . 179 0 0  
R. L. Tonge . . . . . 145 0 0  
CLARK BROS., Watford (*accepted*) . . . . . 137 10 0

LONDON.

For enlargement of the southern outfall sewer at Crossness Fall.  
J. Cochrane & Sons . . . . . £124,949 10 0  
W. Jones & Sons . . . . . 115,699 9 0  
B. Cooke & Co. . . . . 96,826 14 3  
Bentley & Loch . . . . . 82,597 4  
Kirk & Randall . . . . . 79,912 5 4  
W. B. Squire & Co.\* . . . . . 73,980 2 7  
\* Recommended for acceptance.

For erection of eight houses and shop on the Ealing Park estate. Mr. J. HUME, architect, High Road, Chiswick.  
J. H. JOHNSON, Ealing Park (*amended tender*) £2,890 0 0

LONDON SCHOOL BOARD.

For sanitary and drainage work, Reddins Road school, Peckham.  
Martin, Wells & Co., Ltd. . . . . £3,024 0 0  
Rice & Son . . . . . 2,972 0 0  
Maxwell Bros., Ltd. . . . . 2,896 3 5  
W. Downs . . . . . 2,697 0 0  
J. & C. Bowyer . . . . . 2,667 0 0  
W. Johnson & Co., Ltd. . . . . 2,584 0 0  
J. W. Falkner & Sons . . . . . 2,577 0 0  
G. Parker\* . . . . . 2,491 0 0  
\* Recommended for acceptance.

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## LONDON SCHOOL BOARD—continued.

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|
| For hall and other improvements, Winstanley Road infants' school, Battersea.                                                                                 |        |     |
| J. Marsland & Sons . . . . .                                                                                                                                 | £2,978 | 0 0 |
| Holloway Bros. . . . .                                                                                                                                       | 2,911  | 0 0 |
| W. Downs . . . . .                                                                                                                                           | 2,905  | 0 0 |
| Lathey Bros. . . . .                                                                                                                                         | 2,837  | 0 0 |
| E. P. Bulled & Co. . . . .                                                                                                                                   | 2,749  | 0 0 |
| J. Garrett & Son . . . . .                                                                                                                                   | 2,730  | 0 0 |
| J. Carmichael . . . . .                                                                                                                                      | 2,680  | 0 0 |
| E. Triggs . . . . .                                                                                                                                          | 2,622  | 0 0 |
| Stimpson & Co. . . . .                                                                                                                                       | 2,600  | 0 0 |
| J. & M. Patrick . . . . .                                                                                                                                    | 2,499  | 0 0 |
| F. & H. F. Higgs . . . . .                                                                                                                                   | 2,481  | 0 0 |
| W. Johnson & Co., Ltd. . . . .                                                                                                                               | 2,450  | 0 0 |
| W. H. Lorden & Son* . . . . .                                                                                                                                | 2,388  | 0 0 |
| For re-erecting iron buildings to be removed from the Santley Street site, Brixton, to Greening Street site, Abbey Wood (Greenwich S).                       |        |     |
| T. J. Hawkins & Co. . . . .                                                                                                                                  | £1,850 | 0 0 |
| W. Harbrow . . . . .                                                                                                                                         | 1,768  | 0 0 |
| Mitson & Harrison . . . . .                                                                                                                                  | 1,630  | 0 0 |
| F. Smith & Co.* . . . .                                                                                                                                      | 1,535  | 0 0 |
| For re-erection of iron buildings on Mitcham Lane site (West Lambeth), to be removed from the Fulham Palace Road site.                                       |        |     |
| Humphreys, Ltd. . . . .                                                                                                                                      | £1,810 | 0 0 |
| T. Cruwys . . . . .                                                                                                                                          | 1,780  | 0 0 |
| Mitson & Harrison . . . . .                                                                                                                                  | 1,649  | 0 0 |
| J. & W. T. Hunter . . . . .                                                                                                                                  | 1,620  | 0 0 |
| J. McManus . . . . .                                                                                                                                         | 1,598  | 0 0 |
| F. Smith & Co. . . . .                                                                                                                                       | 1,456  | 0 0 |
| T. J. Hawkins & Co. . . . .                                                                                                                                  | 1,450  | 0 0 |
| C. Leather & Sons* . . . . .                                                                                                                                 | 1,338  | 0 0 |
| For providing two new iron buildings and for re-erecting one iron building to be removed from the Trafalgar Square site to Timbercroft Road site, Plumstead. |        |     |
| D. Rowell & Co. . . . .                                                                                                                                      | £3,872 | 0 0 |
| T. Cruwys . . . . .                                                                                                                                          | 2,200  | 0 0 |
| T. J. Hawkins & Co. . . . .                                                                                                                                  | 1,950  | 0 0 |
| Humphreys, Ltd. . . . .                                                                                                                                      | 1,900  | 0 0 |
| W. Harbrow . . . . .                                                                                                                                         | 1,850  | 0 c |
| F. Smith & Co.* . . . .                                                                                                                                      | 1,830  | 0 0 |

\* Recommended for acceptance.

## LONDON SCHOOL BOARD—continued

|                                                                              |        |      |
|------------------------------------------------------------------------------|--------|------|
| For office inside building, High Street school, Plumstead.                   |        |      |
| W. J. Howie . . . . .                                                        | £132   | 0 0  |
| G. Parker . . . . .                                                          | 130    | 0 0  |
| Baylis & Francis . . . . .                                                   | 120    | 0 0  |
| H. Groves . . . . .                                                          | 95     | 0 0  |
| G. Kemp . . . . .                                                            | 78     | 0 0  |
| E. Proctor* . . . . .                                                        | 49     | 10 0 |
| For refitting girls and infants' offices, Settles Street school, Stepney.    |        |      |
| Martin, Wells & Co., Ltd. . . . .                                            | £749   | 0 0  |
| J. W. Falkner & Sons . . . . .                                               | 633    | 0 0  |
| R. P. Beattie . . . . .                                                      | 589    | 6 5  |
| G. Neal . . . . .                                                            | 540    | 0 0  |
| F. & F. J. Wood . . . . .                                                    | 499    | 0 0  |
| J. T. Robey . . . . .                                                        | 489    | 10 0 |
| D. Gibb & Co.* . . . .                                                       | 440    | 0 0  |
| For stepped flooring, partitions, &c, Townsend Street school, Old Kent Road. |        |      |
| London School Furniture Co. . . . .                                          | £1,125 | 0 0  |
| E. Spencer & Co. . . . .                                                     | 834    | 0 0  |
| Wake & Dean, Ltd. . . . .                                                    | 680    | 0 0  |
| J. Marsland & Sons . . . . .                                                 | 660    | 0 0  |
| Rice & Son . . . . .                                                         | 619    | 0 0  |
| J. Garrett & Son . . . . .                                                   | 609    | 0 0  |
| E. TRIGGS (accepted) . . . . .                                               | 572    | 0 0  |
| For new lavatories for boys and girls' departments, Haverstock Hill school.  |        |      |
| T. Cruwys . . . . .                                                          | £636   | 0 0  |
| G. S. S. Williams & Son . . . . .                                            | 626    | 0 0  |
| Stevens Bros. . . . .                                                        | 596    | 0 0  |
| C. W. Killingback & Co. . . . .                                              | 420    | 0 0  |
| Marchant & Hirst* . . . .                                                    | 415    | 0 0  |
| For executing repairs to furniture, Everington Street school, Fulham.        |        |      |
| Galbraith Bros. . . . .                                                      | £111   | 16 3 |
| G. M. Hammer & Co., Ltd. . . . .                                             | 109    | 19 0 |
| H. Bouneau . . . . .                                                         | 87     | 5 0  |
| General Builders, Ltd. . . . .                                               | 86     | 7 5  |
| London School Furniture Co. . . . .                                          | 79     | 1 1  |
| T. Cruwys . . . . .                                                          | 73     | 11 0 |
| H. J. Williams* . . . . .                                                    | 63     | 6 2  |

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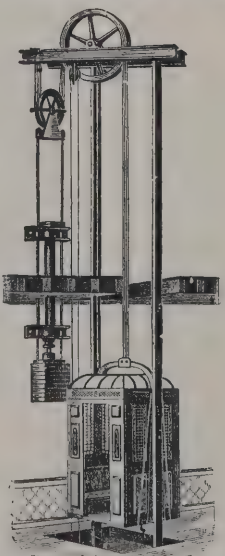
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For refitting boys and girls' lavatories, Adys Road school, East Dulwich.

|                                |      |   |   |
|--------------------------------|------|---|---|
| E. Lawrance & Sons . . . . .   | £145 | 0 | 0 |
| G. Parker . . . . .            | 130  | 0 | 0 |
| H. Groves . . . . .            | 125  | 0 | 0 |
| Baylis & Francis . . . . .     | 100  | 0 | 0 |
| G. Kemp . . . . .              | 97   | 0 | 0 |
| J. W. Falkner & Sons * . . . . | 91   | 0 | 0 |

For electric-light pendants in the evening continuation schools department, Head Offices of the Board.

|                                 |     |    |   |
|---------------------------------|-----|----|---|
| Peto & Radford, Ltd. . . . .    | £45 | 0  | 0 |
| Rashleigh, Phipps & Co. . . . . | 44  | 0  | 0 |
| J. C. Christie . . . . .        | 39  | 15 | 0 |
| Lund Bros. & Co.* . . . .       | 34  | 13 | 0 |

\* Recommended for acceptance.

For interior cleaning, High Street.

|                                |      |    |   |
|--------------------------------|------|----|---|
| A. W. Derby . . . . .          | £244 | 0  | 0 |
| J. Dolman & Co. . . . .        | 221  | 0  | 0 |
| D. Gibb & Co. . . . .          | 218  | 0  | 0 |
| A. J. Sheffield . . . . .      | 204  | 0  | 0 |
| J. T. ROBEY (accepted) . . . . | 203  | 10 | 0 |

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For forming and making a new road about 300 yards in length, with stone parapet kerb and iron railings, and other contingent works in continuation of the Promenade at Whitley. Mr. J. P. SPENCER, surveyor, 30 Howard Street, North Shields.

|                                                 |        |   |   |
|-------------------------------------------------|--------|---|---|
| J. Wardlaw . . . . .                            | £2,600 | 0 | 0 |
| G. Thornton & Co. . . . .                       | 1,334  | 0 | 0 |
| J. & R. JOHNSON, Whitley Bay (accepted) . . . . | 1,217  | 0 | 0 |

## OTLEY.

For construction of a reservoir, &c., at Otley, Yorks. Mr. JOHN WAUGH, engineer, Sundridge Chambers, Bradford.

|                                            |         |    |   |
|--------------------------------------------|---------|----|---|
| Wilson & Son . . . . .                     | £74,661 | 0  | 0 |
| T. Smith . . . . .                         | 56,750  | 13 | 7 |
| P. Drake . . . . .                         | 54,378  | 0  | 0 |
| ARNOLD & SON, Doncaster (accepted) . . . . | 49,500  | 0  | 0 |
| W. Binns . . . . .                         | 47,500  | 0  | 0 |
| T. Egan & Sons . . . . .                   | 45,092  | 8  | 6 |
| W. Brigg . . . . .                         | 44,500  | 0  | 0 |

## ROCHDALE.

For supply of three Lancashire boilers, economiser and mechanical stokers, and for two ejector condensers and circulating pumps, one feed-pump, one grease-extractor, and the extensions to the present steam, exhaust, condenser and feed-pipes at the electrical works.

YATES & THOM, Blackburn (accepted).

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For constructing a storage reservoir, with relative works, on the Pinnacher Burn, and for providing and laying about 1½ miles of cast-iron piping between Glendrishaig and Pinnacher reservoirs. Messrs. J. & H. V. EAGLESHAM, C.E., engineers, Wellington Chambers, Ayr.

|                                              |         |    |    |
|----------------------------------------------|---------|----|----|
| R. C. Brebner & Co. . . . .                  | £11,886 | 3  | 5  |
| A. McLachlan & Son . . . . .                 | 11,302  | 12 | 6  |
| J. Urquhart . . . . .                        | 11,065  | 10 | 4  |
| R. Stevenson . . . . .                       | 10,831  | 6  | 2  |
| W. Clarke . . . . .                          | 10,298  | 4  | 9  |
| Grisenthwaite & Newton . . . . .             | 10,125  | 0  | 0  |
| G. Reid & Son . . . . .                      | 9,979   | 7  | 9  |
| W. S. Osborne . . . . .                      | 9,642   | 2  | 9  |
| H. Hastie . . . . .                          | 9,513   | 8  | 11 |
| T. Christie . . . . .                        | 9,121   | 2  | 3  |
| J. OSBORNE, Hawkhill, Ayr (accepted) . . . . | 9,113   | 2  | 7  |

For construction of pipe sewers in M'Donald Road, Inverleith Lane and Portobello Road, Edinburgh.

Accepted tenders.

|                                                           |      |   |   |
|-----------------------------------------------------------|------|---|---|
| R. Wallace, Hope Crescent, M'Donald Road . . . .          | £328 | 0 | 0 |
| W. Morris, Duff Street, Inverleith Lane . . . .           | 220  | 5 | 0 |
| A. Waddell & Son, Freer Street, Portobello Road . . . . . | 204  | 9 | 9 |

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For supply of a new pump barrel at the main pump. T. SHORE & SONS, Hanley (accepted).

For mechanical engineering work at Milford pumping station. Mr. W. BLACKSHAW, borough engineer.

T. SHORE & SONS, Hanley (accepted) . . . . £122 0 0

For alterations to boiler at Milford pumping station.

J. THOMPSON, Wolverhampton (accepted).

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A. HAUGHTON & SON, Godley (*accepted*) . . . £445 0 0

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For erection of two shops in Heygate Avenue. Messrs. GREENHALGH & BROCKBANK, architects, Bank Chambers, Southend.

Baker & Wiseman . . . . . £1,793 0 0

E. West . . . . . 1,695 0 0

Golding . . . . . 1,658 18 9

Ardley & Elvey . . . . . 1,584 0 0

Moss . . . . . 1,512 0 0

Shelbourne & Co. . . . . 1,492 0 0

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W. E. Davey . . . . . 1,442 10 0

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Binks Bros., Wakefield, builder . . . . . £510 0 0

Blakeley & Thackeray, Leeds, joiner . . . . . 321 0 0

Watson & Worsnop, Leeds, slater . . . . . 39 0 0

J. Platts, Wakefield, plasterer . . . . . 18 19 0

W. Scott, Ltd., Leeds, steel joists 6½ 15s. per ton, compound steel girders 9½ 5s.

## WALES.

For supply of twenty-two cast-iron lamp-pillars, height about 11 feet 9 inches over all; twenty-two wrought-iron cradles for same; twenty-two copper lanterns for same; twenty-two 25 candle-power oil lamps, with globes complete, at Pencoed station, Great Western Railway.

J. Edwards . . . . . £91 10 0

J. D. Young & Son, Ltd. . . . . 79 15 0

Cross Bros. . . . . 75 18 0

J. Cowdy & Co. . . . . 70 8 0

Coalbrookdale Co., Ltd. . . . . 70 0 0

Bull & Co. . . . . 69 6 0

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M. Duffield & Son . . . . . 66 18 4

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For erection of intermediate school buildings, Swaffield Road.

Messrs. LANSDELL & HARRISON, architects, 65 Basinghall Street, E.C. Quantities by Mr. FREDERICK HINGSTON, Portland House, Basinghall Street, E.C.

W. WALLIS, Balham, S.W. (*accepted*) . . . . . £15,997 0 0

## WOLVERHAMPTON.

For erection of buildings in connection with cold stores and ice-manufacturing plant.

R. SPEAKE & SONS (*accepted*) . . . . . £3,258 7 0

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**THE LONDON AND GENERAL WATER PURIFYING CO., LIMITED.**

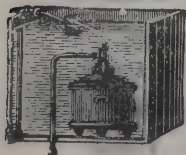
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For street works. Group 1—Chandler Avenue, Waghorn Road, Tunmarsh Lane; Group 2—Kelly Road, Ravenscroft Road, Carson Road, Douglas Road. Mr. JOHN G. MORLEY borough engineer.

## Group 1.

|                                 |        |    |   |
|---------------------------------|--------|----|---|
| W. Griffiths & Co., Ltd.        | £2,858 | 0  | 2 |
| T. Adams                        | 2,637  | 4  | 9 |
| J. JACKSON, Plaistow (accepted) | 2,610  | 7  | 3 |
| D. T. Jackson                   | 1,749  | 17 | 2 |

## Group 2.

|                          |       |    |   |
|--------------------------|-------|----|---|
| D. T. Jackson            | 3,502 | 11 | 0 |
| W. Griffiths & Co., Ltd. | 3,491 | 5  | 6 |
| W. H. Wheeler            | 3,442 | 7  | 7 |
| T. Adams                 | 3,311 | 19 | 2 |
| E. Beech                 | 3,254 | 9  | 4 |
| J. JACKSON (accepted)    | 3,082 | 0  | 8 |

## WINDERMERE.

For erection of a residence. Mr. ROBERT WALKER, architect, Windermere.

## Accepted tenders.

T. Tatham, joiner.  
W. Atkinson, walling, &c.  
J. Keighley, plastering.  
J. A. Pattinson, plumbing.  
J. Moore, painting, &c.

## WINCHFIELD.

For alterations and additions to the workhouse infirmary, Winchfield, Hants. Mr. H. TOWNLEY SUGDEN, architect, Eversley, Winchfield.

|                    |        |    |   |
|--------------------|--------|----|---|
| W. Smith           | £1,362 | 0  | 0 |
| Newland & Higgs    | 1,320  | 0  | 0 |
| Poulter Bros.      | 1,267  | 6  | 3 |
| McC. E. Fitt       | 1,165  | 0  | 0 |
| Spear & King       | 1,123  | 0  | 0 |
| G. Hooker          | 1,095  | 0  | 0 |
| Pool & Sons        | 1,075  | 0  | 0 |
| Mussellwhite & Son | 1,064  | 0  | 0 |
| J. Harris          | 1,032  | 16 | 9 |

## Received too late for Classification.

## LONDON.

For wiring and fittings for electric-light installations at the Manchester Square, Bishopsgate, and Brompton stations.

## Manchester Square station.

|                                    |      |    |   |
|------------------------------------|------|----|---|
| J. Sperati                         | £378 | 0  | 0 |
| F. J. Coleby & Co.                 | 295  | 10 | 0 |
| C. Peacock & Co.                   | 280  | 0  | 0 |
| C. Esson (informal)                | 259  | 0  | 0 |
| Barlow Bros. & Co.                 | 257  | 10 | 0 |
| G. Weston & Co.                    | 247  | 14 | 4 |
| Graham & Biddle                    | 240  | 0  | 0 |
| J. H. Rake                         | 226  | 10 | 0 |
| National Electric Wiring Co., Ltd. | 221  | 9  | 0 |
| G. W. Clarke                       | 197  | 9  | 4 |
| Jackson Bros.                      | 177  | 8  | 6 |
| Ellis, Potten & Co.*               | 170  | 0  | 0 |

## Bishopsgate Station.

|                                    |     |    |   |
|------------------------------------|-----|----|---|
| J. Sperati                         | 313 | 0  | 0 |
| F. J. Coleby & Co.                 | 273 | 0  | 0 |
| J. H. Rake                         | 256 | 10 | 0 |
| C. Peacock & Co.                   | 247 | 0  | 0 |
| Barlow Bros. & Co.                 | 247 | 0  | 0 |
| G. Weston & Co.                    | 221 | 18 | 3 |
| C. Esson (informal)                | 215 | 0  | 0 |
| National Electric Wiring Co., Ltd. | 193 | 12 | 0 |
| G. W. Clarke                       | 168 | 7  | 6 |
| Jackson Bros.                      | 159 | 7  | 0 |
| Ellis, Potten & Co.*               | 150 | 0  | 0 |

## Brompton Station.

|                                    |     |    |   |
|------------------------------------|-----|----|---|
| J. Sperati                         | 186 | 0  | 0 |
| Barlow Bros. & Co.                 | 170 | 0  | 0 |
| F. J. Coleby & Co.                 | 165 | 0  | 0 |
| G. Weston & Co.                    | 148 | 14 | 0 |
| C. Peacock & Co.                   | 145 | 11 | 0 |
| J. H. Rake                         | 136 | 10 | 0 |
| C. Esson (informal)                | 125 | 10 | 0 |
| Graham & Biddle                    | 120 | 0  | 0 |
| National Electric Wiring Co., Ltd. | 115 | 8  | 0 |
| Ellis, Potten & Co.                | 104 | 0  | 0 |
| Jackson Bros.*                     | 98  | 2  | 6 |

\* Recommended for acceptance.

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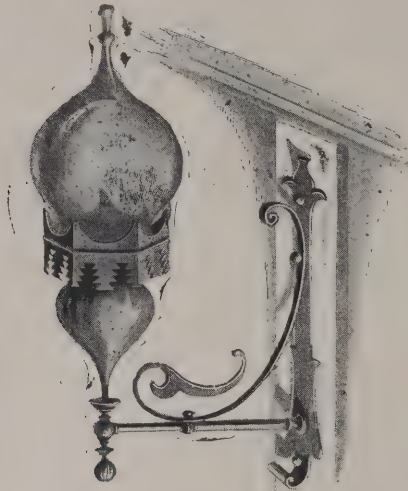
**PLUMPTON.**

For repair and alterations to house and premises at Sedgebrook, Plumpton, Sussex. Mr. A. R. PANNETT, architect, Hayward's Heath.

W. WELLS, Plumpton (*accepted*) . . . £510 0 0

**W. HOFER & CO.**

At No. 25 Soho Square, one of the charming old mansions which aforetime abounded in the neighbourhood, but which are now daily giving place to more modern and pretentious but immeasurably less interesting examples of what a builder can do, Messrs. W. Höfer have artistically installed themselves; and here in the nobly proportioned rooms whose tapestried



walls serve to show them off to the best advantage may be seen an extensive array of ancient and modern art metalwork, including clocks and garnitures de cheminée, bronzes, panels, door furniture, grilles, handrails and balusters, hanging lamps, brackets, &c., for oil, gas and electricity, candelabra, &c.

While modern art is by no means neglected, and even some admirable if in some cases bizarre samples of the "new art" are shown, we think we are right in stating that the greater part of the specimens on view are wonderfully careful reproductions of the finest examples of old work, principally of the



best periods of French and German art. M. Höfer receives valuable assistance in his business from Mdme. Höfer, who evidently takes an artist's delight in the many beautiful things by which she is surrounded, and in expatiating on their manifold features of excellence or interest.

THE installation of the electric light in the York prison now in the hands of the military authorities is almost completed, and it is said that this will be the first prison so lighted. Messrs. A. J. Beaumont & Co., of York, have carried out the work from the city supply, and the installation comprises 375 lamps. Each cell is provided with a 5 candle-power lamp, 8 candle-power lamps are used in the corridors, whilst in the chapel and other larger parts of the building 16 candle-power lamps are put in. The chapel will have two brass electroliers, each with fifteen lights. In addition to the lighting, the prison has been fitted with electric bells and telephones.

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**Dr. ANDREW WILSON writes as follows:**—"The filters sold by the Berkefeld Filter Co. Limited, London, W., remove all germs from water. They therefore represent ideal filter giving pure (*i.e.* germless) water, and thus prevent typhoid fever and many other diseases."

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# ILLUSTRATIONS.

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SELEHURST, SUSSEX.

HOUSE AT WALTON-ON-THE-HILL, SURREY.

THE COURT HOUSE, BROADWAY, WORCESTERSHIRE.

NO. 9 CAVENDISH SQUARE.

## INCORPORATED SOCIETY FOR PROMOTING THE ENLARGEMENT, BUILDING AND REPAIRING OF CHURCHES AND CHAPELS.

THIS Society held its usual monthly meeting on the 18th inst. at the Society's House, 7 Dean's Yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. There were also present the Right Hon. J. G. Talbot, M.P.; the Revs. Canon J. Allen, D.D., A. G. Ingram and G. Miller; Lieut.-Col. the Hon. G. H. W. Windsor-Clive; Messrs. E. Lee-Warner, J. E. Ollivant, Basil E. Richardson, W. E. M. Tomlinson, M.P., and the Rev. W. B. L. Hopkins, secretary.

Grants of money were made in aid of the following objects, viz.:—Building new churches at Pockthorpe (Emmanuel) near Norwich, 70*l.*; St. Marylebone (St. Cyprian) Middlesex, 250*l.*; and Sandiway (St. John the Evangelist) near Northwich, Chester, 65*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Ashton (St. John the Evangelist) near Chudleigh, Devon, 25*l.*; Milford Haven (St. Catherine) Pembroke, 60*l.*; St. Columb Major (St. Columba) Cornwall, 35*l.*; Wembworthy (St. Michael) Devon, 15*l.*; and Radley (St. James) near Abingdon, Berks, 30*l.*, in lieu of former grant of 20*l.*

Grants were also made from the special mission buildings fund towards building mission churches at Preston (St. Matthias) near Brighton, 20*l.*; and West Bromwich (The Good Shepherd), Staffordshire, 25*l.*

The following grants were also paid for works completed:—Forest Gate (St. Edmund), Essex, 150*l.* on account of a grant of 250*l.*; Cardiff (St. Teilo), 300*l.*; Hoo (All Hallows), near Rochester, 10*l.*; Eastcombe mission church, near Stroud, Gloucestershire, 15*l.*; Churwell mission church, near Dewsbury, 25*l.*; Cowper Quay mission church, near Blyth,

Northumberland, 20*l.*; and Steelworks mission church, near Ebbw Vale, Monmouth, 20*l.* In addition to this the sum of 257*l.* was paid towards the repairs of twelve churches from trust funds held by the Society.

At the present season it cannot be out of place to call the especial attention of Church people to the valuable work undertaken by this Society, and to invite a larger and more substantial support in aid of its funds.

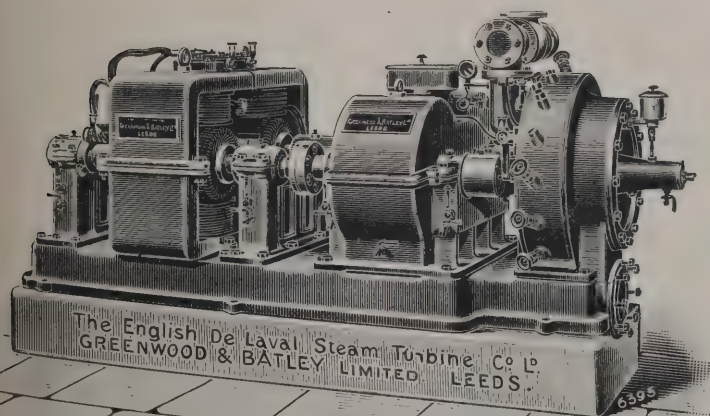
## SCARBOROUGH MASTER BUILDERS.

THE members of the Scarborough Master Builders' Association held their fourth annual dinner at the Albemarle Hotel, in that town, on the 14th inst., the president (Mr. A. W. Sinclair) being in the chair. There were forty members and friends present, including Councillor Mansfield, of York (president-elect of the Yorkshire Federation of Building Trade Employers), Councillor D. Maynard, Councillor Stephenson, Mr. A. Moore, Mr. R. H. Carr, hon. secretary, and others. An excellent menu was provided, which reflected the greatest credit on the manager, Mr. G. Thwaites. After dinner "The King" was proposed from the chair, the toast being received with musical honours. Mr. F. Horner gave "Our Trades," Mr. W. Malton responding. "The Master Builders' Association" was proposed by Mr. Moore, who dwelt at some length on the importance of such an association, and the President, in response, pointed out the work which had been done since the Scarborough Association was established. Mr. M. H. Fell then submitted "The Yorkshire Federation of Building Trade Employers," to which Councillor Mansfield (York), who is on Thursday to be elected President of the Federation, replied in a weighty and well-considered speech. Owing to the unavoidable absence of Councillor Bland, the toast of "The Architects and Surveyors" was proposed by Mr. Woodhouse, Mr. H. A. Chapman, A.R.I.B.A., responding. In a most humorous speech Mr. C. Peckit submitted "The Municipality and Borough and Trade of Scarborough," Councillors Maynard and Stephenson responding. "Our Guests" was proposed by Mr. H. Pickup, and replied to by Mr. E. Horsman and Mr. G. Cail. During the evening the Westborough Press Quartette (Messrs. Morley, Barrett, Judge and Ditchburn), Mr. T. B. Jowsey and Mr. E. Judge contributed vocal selections, which were greatly appreciated, Mr. R. H. Carr accompanying.

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## VARIETIES.

THE parish church of Hacconby, South Lincolnshire, has been reopened after a thorough and much-needed restoration, at a cost of nearly 2,300*l*.

THE Ramsgate Town Council have decided to appoint Mr. E. B. Sharpley town clerk, the appointment to date from June next. Mr. Sharpley has been for some months assistant clerk to the Corporation.

THE new cottage-homes built by the Stoke-on-Trent Board of Guardians at Penkhill were formally opened on the 19th inst. by the Right Hon. Henry Chaplin, M.P., late President of the Local Government Board.

EXETER Cathedral's famous bells are being rehung for the Coronation at a cost of 1,400*l*. The great tenor—which is not called "Tom," like his confrères at Oxford, York and Lincoln, but "Peter"—is considered by expert campanologists to be the most melodious bell in existence.

THE new public room which has been erected at Threlkeld at a cost of over 500*l*. was formally opened on the 18th inst. The structure is of local stone covered with cement, and stands in the centre of the village. It is plain in form, but well suited for the purposes it will have to serve. These will include meeting-place for the Parish Council, friendly societies, reading and billiard-rooms, &c.

THE Westminster City Council having agreed to maintain the roadway after the widening of Piccadilly, London County Council workmen began to peg out the ground in the Green Park, from the Wellington Arch to Down Street, on Friday morning. The Chairman, the engineer and several members of the Council were present, and the Office of Works was represented by Colonel Wheatley, R.E.

At the monthly meeting of the Glasgow Archaeological Society, held at 207 Bath Street, a brief paper by Mr. John Bruce, F.S.A., was read, descriptive of the crannog recently discovered near Langbank Ferry, on the Clyde, and various articles found in course of the investigations were exhibited. Other papers submitted had reference to three carved slabs on Loch Lomond, and M'Ure's "History of Glasgow."

THE Edinburgh School Board have under consideration the applications for the post of architect to the Board, vacant through the death of Mr. Robert Wilson. There were sixteen candidates for the office, and they were reduced to the following five:—R. M. Cameron, 24 George Street, Edin-

burgh; A. Lorne Campbell, 44 Queen Street, Edinburgh; John A. Carfrae, 3 Queen Street, Edinburgh; Henry F. Keir, 36 Hanover Street, Edinburgh; and H. Ramsay Taylor, 7A Young Street, Edinburgh.

At a special meeting of the Bangor City Council Mr. Henry Lewis (mayor) presiding, the chief business was the appointment of a town clerk. The Mayor read a letter from Mr. Thornton Jones, a local solicitor, acknowledging the Council's intimation that the office was vacant, but stating that he had no intention of applying, as he considered the salary offered—150*l*—was wholly inadequate and sure to result in an early application for an increase, which was undesirable in every way. The Mayor then read applications from the other three applicants, viz. Messrs. J. A. Rodway, deputy town clerk, J. Glynne Jones, registrar of the County Court, and W. Huw Rowland, all solicitors of Bangor, the latter an ex-member of the Council who had resigned in order to become a candidate. Mr. Huw Rowland was elected by a final vote of eleven votes to eight.

THE tenth and last meeting of the session for 1901 of the Historic Society of Lancashire and Cheshire took place on the 19th inst., Mr. J. Paul Rylands presiding over the meeting. After the usual business Dr. J. W. Ellis delivered a lantern lecture on "The Mediæval Baptismal Fonts in the Hundred of West Derby and Wirral." Dr. Ellis commenced with a brief history of his subject, and put on the screen nearly forty views of the fonts dating from the Saxon to the sixteenth century, explaining the detail, devices and symbols of each. A long and interesting discussion took place, in which the chairman, Messrs. Peet, Price, Powell, May, Robinson and others took part, much new and interesting information being elicited. A vote of thanks, proposed by Mr. A. M. Robinson and seconded by Mr. W. F. Price, was heartily accorded to Dr. Ellis for his lecture.

A NEW market hall has been erected by the Bury (Lancashire) Corporation at a cost of 14,500*l*., and has now been formally opened by the mayor of the borough (Mr. J. Battersby). The hall is situated at the junction of Market Street and Moss Lane, and is designed to supersede an old market which has stood for over sixty years on an adjoining site. This old market has been a familiar object to two generations of Bury people. It was built in 1839 by the then Earl of Derby, and existed without a roof until 1867. The roof which was provided in that year has latterly threatened to become a danger

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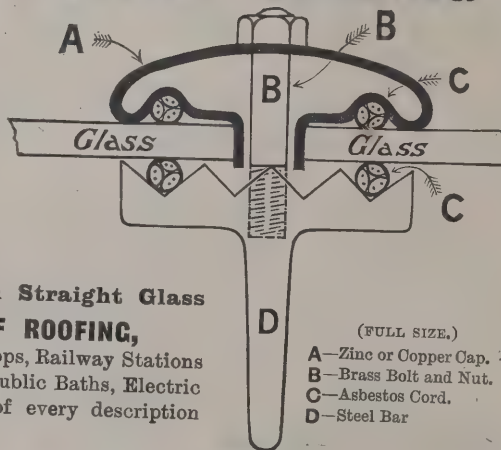
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to the stallholders and their customers. This fact, coupled with the necessity of providing further accommodation, led the Corporation to undertake the work of constructing a more modern and commodious building. The new market covers a superficial area of about 30,000 feet, and is so planned as to be capable of easy extension by the addition of bays to the south. There are provided 100 stalls, nineteen shops and five fish shops. The shops are placed round three sides of the building; at the Market Street side is the fish market, containing five large shops, and connected with the general market by swing doors. The central hall extends across the angle formed by the junction of Market Street and Moss Lane, and is approached by a wide central entrance and by two side entrances. Behind the hall is a covered space for the reception and storage of packages and cases belonging to the tenants. The interior walls are glazed to a height of 6 feet, and above this are of plastic brick. The roof is of iron construction, and is covered with varnished pitch-pine boards and Welsh slates. The fronts are Classic in character, and the central entrance, with its columns and heavily keyed arch, is surmounted by a large octagon dome. The hall is well lighted by intensified gas, which is understood to be more economical than the electric light.

### ELECTRIC NOTES.

A SPECIAL meeting of the Norwich Town Council was held on the 17th inst. to confirm the resolution of the Council in favour of applying for Parliamentary powers to purchase the Norwich Electric Lighting Company, Ltd. Mr. Alderman W. H. Dakin presided.

THE electricity generating station in Garden Square, Hebdon Bridge, is nearing completion. The site adjoins Hanging Royd Lane and the Hole-in-the-Corner public-house. In future no person is to be allowed to place any electric line above ground across any street in the borough without the consent in writing of the Corporation. Exceptions are made of the postal telegraph system, the National Telephone Company and the railway companies.

THE Glasgow and South-Western Railway Company have intimated to the Glasgow Corporation that they are prepared to enter into a special agreement to take a supply of current for St. Enoch station and certain other premises belonging to them within the city to an estimated extent of at least 660,000

units per annum for three years from June 1 last, and therefrom from year to year, until the agreement is terminated by either party on twelve months' previous notice, at 1½d. per unit. The electricity committee approve of this.

### BUILDING AND BUILDERS.

THE competitive designs submitted by Messrs. G. Baines & R. P. Baines, 5 Clement's Inn, Strand, W.C., for the Baptist church and schools, Blackhorse Road, Walthamstow, have been adopted. The accommodation provided in church is for 812 adults. The estimated cost, including tower, is 4,471/.

THE designs of Messrs. G. & R. P. Baines have been accepted for the new Congregational church, Bury Park, Luton, Beds. The estimated cost is 3,590/., inclusive of a bold tower. The seating accommodation is 533 adults. The facings are of red brick, and dressings of Bath stone.

OWING to the great increase in the population of Walney Island, it has been decided to enlarge the present church so that it will accommodate 600 persons. The cost is estimated at 5,000/., in addition to which 300/ is required for a new parish-room.

At a meeting of the Brownhills Urban District Council on the 18th inst., Mr. J. Poxon presiding, the surveyor reported the completion of the plans of the proposed bacteria beds at the sewage farm, and he hoped to put the work in hand shortly.

THE Wolverhampton Town Council have accepted the tender of Messrs. H. Wilcock & Co. for the proposed alterations and additions to the Town Hall, its amount being 14,550/., and it is estimated that additional work for panelling the Council chamber, &c., will cost about 1,375/.

THE public health committee of St. Pancras have received a communication from the Local Government Board, stating that they have now sealed the order sanctioning, with certain conditions and modifications, the schemes made under Part II. of the Housing of the Working Classes Act, 1890, known as the Brantome Place and Prospect Terrace Improvement Schemes. Copies of the order will be forthwith served upon the owners or occupiers of the land and tenements affected.

AT Dunfermline last week a meeting of the committee charged with the erection of the new baths and gymnasium was held. The architect (Mr. Hippolyte J. Blanc) was present,

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and submitted final plans and sections. Some dissatisfaction was expressed at the delay which had occurred, and it was hoped that good progress would be made as soon as the weather permitted. The architect stated that the schedules for the tradesmen were now completed, and it was resolved to advertise for estimates for the various works.

LORD BEAUCHAMP, presiding at a meeting held at Malvern in furtherance of the scheme for erecting in Worcestershire a sanatorium where consumptives may be treated by the new open-air system, said it behoved them to see what could be done to stay the ravages of this most terrible of diseases. The success that had attended sanatoria in Germany and other places abroad, as well as in some of our counties, justified the belief that a like sanatorium would be of great service in that county, and he would be glad to give it his support. Dr. Braine Hartnell, principal of the sanatorium on the Cotswold Hills, read an exhaustive paper upon the subject, following which Dr. Dixey made a statement with regard to what was proposed. The sanatorium would provide for forty-eight beds at a cost of 12,500*l.*, and patients would pay from 25*s.* to 30*s.* per week.

At a meeting of the Edinburgh and District Lunacy Board, Mr. Richard Clark presiding, the Clerk gave a report as to the expenditure on and position of the works with regard to Bangour Asylum, and a report by the Lunacy Board on the present plans. From this it appeared that the total amount paid to date was 85,674*l.* 19*s.* 10*d.* Further, it appeared that the total approximate estimate of the asylum for 600 patients was 263,230*l.*, and for 1,000, 376,840*l.* Included in this total was a sum of 16,600*l.* for architects' fees, and 10,000*l.* for measurers' fees, &c. Attached to the report was a memorandum by the Medical Commissioners on the plans of the asylum. This memorandum stated that it appeared to the Commissioners that the plans showed throughout unnecessary costliness in matters of detail. Instances of this were too numerous to be individually specified, but examples were given, such as mullioned windows, crow-stepped gables, string-courses, expensive mouldings and stone balustrades serving no purpose. These seemed out of place in the buildings of a village asylum erected for poor people, and would add nothing to their efficiency as a means of caring for or curing the insane. Special attention was directed to the question of whether such buildings as the homes and supervision homes (of which there would be many) could not be so planned as to provide all the necessary accommodation at less cost. The various depart-

ments were criticised individually, and in dealing with the home for thirty-six quiet, chronic or industrial patients (estimated to cost 6,470*l.*, or 180*l.* per bed), the Commissioners said it was to be regretted that the home for patients who needed the simplest arrangements for their care and comfort should be so expensive. Mr. Currie moved and Mr. Williamson seconded that no more expenditure be incurred until the Board had fully considered the statement now submitted. After considerable discussion it was resolved to convene a special meeting to discuss the report next week.

MAJOR C. E. NORTON, R.E., held on the 19th inst. an inquiry at Wolverhampton into the application of the Town Council for sanction to borrow 5,232*l.* for the provision of houses for the working classes. The town clerk said the Corporation had provisionally purchased 4,000 square yards of land for 550*l.*, and it was proposed to erect fifty cottage tenements at an estimated cost of 4,682*l.* Since the latter amount had been decided upon the Local Government Board had suggested several alterations and additions which would involve a supplementary estimate, and would doubtless have the effect of slightly increasing the rentals unless the Local Government extended the period for the repayment of the loan. The site was considered to be suitable; it was near manufactories, was in easy distance of the town and in measurable distance of the new tramway system. It was anticipated that there would not be any charge upon the rates in respect of the particular movement. The Corporation did not propose to enter into competition with builders, and the scheme was meant for the accommodation of persons who were cleared away from slum property. Mr. George Green (borough engineer) gave evidence in support of the scheme, which met with considerable opposition. It was, however, supported by the Mayor, and on his motion a vote of thanks was accorded the inspector, who expressed his intention of visiting that afternoon any property fit or unfit for human habitation that might be shown him.

#### TRADE NOTES.

THE White Oak Schools, Swanley, are being ventilated by means of Shorlands' patent concealed exhaust roof ventilators, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

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THE Farnley Iron Company, Ltd., have obtained in the Chancery Division an injunction against Messrs. Warrington & Son, of Stoke-on-Trent, restraining the latter firm from printing and publishing any catalogues, &c., containing any plates, or illustrations, or tabulated lists of bricks copied from or being a colourable imitation of those in the plaintiffs' book called "Farnley Price List: Glazed Brick Section." Mr. Manby, for the defendants, said his clients had undoubtedly copied the catalogue unwittingly, and they submitted to the injunction.

MR. CHARLES D. PHILLIPS, M.I.M.E., of Emlyn Works, Newport, Mon., has issued a very attractive little brochure entitled, "Where the Emlyn Specialties come from," containing an interesting and copiously illustrated descriptive account of his extensive works. The views, of which there are about thirty, are from photographs, and, being excellently reproduced, convey an admirably clear conception of the amount of space and costly machinery required to successfully carry on Mr. Phillips's important business.

### WELSBACH INCANDESCENT COMPANY.

IT looks as though the directors of the Welsbach Incandescent Gaslight Company are in for some troublous times. The report of the advisory committee appointed many months ago to inquire into the affairs of the company, is on the point of issue, and it appears that it entirely confirms all the reasonable criticisms that have been passed upon the company. It is, in fact, a stinging report, recommending changes of the most drastic nature. After discussing the formation of the company, the committee state that it has been enormously over-capitalised, and that the properties transferred were transferred at a grossly exaggerated value. They are of opinion that the real responsibility for the excessive over-capitalisation of the company must be shared in a great measure by the original board of the Welsbach Company, and more especially by the chairman, who occupied a position of financial repute, and was naturally regarded as the sponsor for the value of the properties which the company acquired. After pointing out that the directors had better means of gauging the value of the properties than the public, and without desiring to say anything that might unduly cast the whole onus of blame on any one person or group of persons, the committee find "that the undue inflation of capital has been one of the contributing causes of the difficulties into which the company has fallen." In the matter of

the reduction and readjustment of capital, this, it appears, did not fall within the terms of the reference to the committee, and they do not, therefore, submit any definite proposals in the present report, but they suggest that in any definite plan of reorganisation there should be provision for additional working capital, and urge that that should be one of the earliest duties of the board of management. It is a well-known fact that an undue amount of money has been spent in patent litigation, and upon this point the committee urge that the costly litigation should be speedily brought to a close. "The benefit to the company," say the committee, "has not been commensurate with this large expenditure." Regarding the commercial policy of the company and the reduction in the price of burners, the committee are of opinion that this is undoubtedly a step in the right direction, and they go further and express the belief that it will be necessary "to revise the present unbusinesslike selling arrangements in certain important respects." It is desirable, say the committee, that a general manager should be appointed. The purchase of the Kern burner for 80,000*l.* in cash is regarded as "rash and hazardous in the extreme," seeing that it was "for a hitherto untried patent." The committee are unable to find any reasonable ground for the purchase of the Sunlight Company. It is alleged by the Hon Philip Stanhope and his colleagues that the accounts have been badly kept in the past, and that in some instances pluralised salaries are enjoyed by the officials of the company in respect of different duties, and that in many cases the duties of officials overlap. "In almost every department there is room for far-reaching economy and increased efficiency." Regarding the board of management, "in view of past dissensions and errors, the present board," say the committee, "are incapable of conducting the affairs of the company with success," and it is recommended that all the members of the present board be called upon to retire and a new board of five appointed."

### HOUSE-BREAKING IN NEW YORK.

AT a hearing which took place recently in a downtown law office, says the *New York Tribune*, a witness was asked, "What is your business?" "I am a wrecker." "Banks or vessels?" asked the funny lawyer.

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"Buildings," coolly answered the witness.

The building wrecking business is a comparatively new one in New York, and is the direct outgrowth of the extensive architectural improvements which have transformed the city of New York in the last two decades. When a piece of property is purchased nowadays for the purpose of erecting on it a new business building or apartment house the owner is usually anxious to have the plot cleared for the builder, and in most instances even the foundations are taken out, so that new and more massive masonry may be constructed. It was the custom before the days of the wrecking concerns to give the builder the contract to take down the old structure on the site on which the new one was to be erected, and while some of the material was saved the greater part of it was carted away as fuel, junk or rubbish. The wrecking concerns to whom the demolition of buildings is now entrusted know the value of old building material, and usually find a market for the heaps of débris which look valueless to the layman.

"One must be an all around mechanic, a builder and a judge of values," said a man who makes his living by tearing down buildings, "to be a successful wrecker. It's nothing to pull down a house and save the big pieces, such as stone steps, sills and lintels, carved mantelpieces and inside fittings. That was enough in the days when there was no competition, but nowadays we must save every foot of pipe, the ordinary wood-work and even the nails out of the floors to get even on close bargains."

Much of the material which comes from the wrecked buildings is sold on the spot and carted away by the purchasers, but large quantities of all kinds of building material are stored in yards where they are easy of access when the customer who wants ready-made doorsteps or well-seasoned bricks may come to buy. Sheds are provided for the storage of doors, counters, wainscoting, window frames, flooring and trim, and racks and bins contain iron and lead pipe, gas and water fixtures, and nearly every item in the line of builders' hardware.

One of the largest wrecking contracts of the year is the one which is now under way on the block bounded by Fifty-first and Fifty-second Streets and Park and Madison avenues. The building which is being demolished was until recently occupied as a Roman Catholic orphan asylum. The concern having charge of the demolition of the building gave a round sum for the privilege, and agreed to have the block cleared in fifty working days. The Madison Avenue front shows that the work of destruction is progressing rapidly, but one must go

into the court, behind the scenes, to get an idea of the work that is being done. There one sees great piles of all kinds of building material, which at first glance appear to be piled indiscriminately into shapeless stacks. On closer inspection one sees, however, that the flooring has a place for itself, that doors, sashes, columns, beams and other parts of the vanishing structure have places set aside for their temporary storage; that men are at work cleaning the brick and stones, and that waggons are taking away great quantities of metal from the east side of the enclosure, where men weigh the bent and twisted pieces that have outlived their usefulness and are valuable now only as junk.

One of the wreckers, when asked whether the amount paid for the old building would be realised from the wreckage, said, "It would be a bad job if we did not get that back. In addition to what we paid for the building it will cost us more than 15,000 dols. to take it down, and although the work has just begun, we are already getting much of our money back. The rapid transit people bought all the timber. We get 11 dols. a ton for the junk iron, 4 cents a pound for the lead and 13 cents a pound for copper. Bricks are worth 7 dols. a thousand, and as the bricks from a building like this are as good as new, we have no difficulty in realising 3 dols. 75 cents and 4 dols. for them, cleaned and delivered. This building contains about six million bricks. Of this amount about one million will be lost in breakage and count, but even then at 3 dols. 75 cents a thousand we would realise 18,750 dols. on the one item of bricks."

Among the persons employed on the work there are, in addition to the unskilled labourers, "bar men," who work on high places displacing the stones to be preserved; carpenters, gas and steam fitters and plumbers. On some contracts portable elevators are put in the buildings, in which the material is lowered to the ground, but a more popular method is to take up a part of the floor on each storey and chute the material. This process is being employed on the orphan asylum work.

The man who buys "old things" regardless of what they are or where they come from is a good customer of the wreckers. He buys mantelpieces and doors, for which he usually has no use, and stores them in lofts and back yards, in order to have them when he builds a new house—some day. Many persons called at the orphan asylum when the work of demolition began and asked for pieces of wood from the chapel, and the cross which stood on the roof was sold to a

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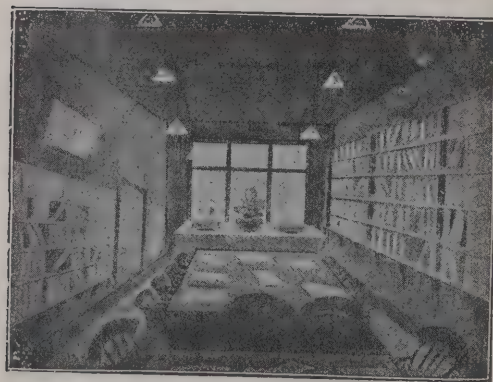
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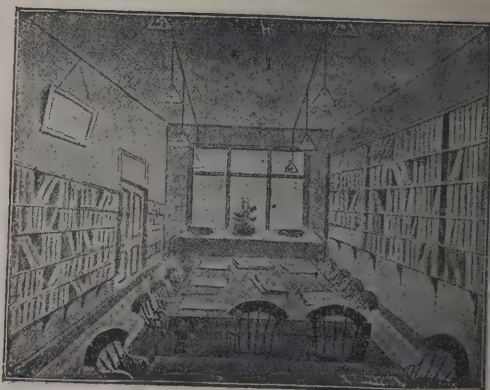
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priest who had been connected with the institution. There have been many inquiries as to the corner-stone, and a neat sum awaits the wrecker for that relic when he finds it.

### WOODEN PAVEMENTS IN PARIS AND LONDON.\*

THE history of wooden pavements abroad is a long one, and within the limits of this paper can only be briefly treated. The two most important cities abroad being London and Paris, perhaps we may as well confine ourselves to those points, although many other cities in England and on the Continent, as well as in Australia, use wood in large quantities. In Germany, however, wood is not so popular as elsewhere on the Continent. In Paris the wooden blocks are all manufactured and laid by the city authorities, the various plants having a capacity of 47,000 blocks per day, or about 1,000 square yards. These blocks are of two depths, 15 centimetres or about 6 inches for the softer varieties of wood, and 10 centimetres or about 4 inches for the harder woods. The amount of wooden paving in that city is somewhat over one and one-half million square yards. The woods used have about the following relative wear:—1, teak; 2, karri; 3, pitch-pine; 4, native pines. The last are generally used.

The traffic on the principal streets is enormous. On the Rue de Rivoli it is over 65,000 teams per day, or 3,400 per yard of width, and over 66,000 teams per day on the Avenue de la Opéra, or about 2,000 per yard of width. Fifth Avenue, as counted for the Barber Asphalte Company some few years ago, showed 8,400 teams per day, and Madison Avenue 7,000, about one-eighth of the Paris traffic. Under this traffic the native woods wear on the average 1 centimetre or 0.4 inch per year, and are allowed to wear down until 10 centimetres of the total depth of 15 centimetres have been worn off. They are then removed. This gives under the heaviest traffic in the world, with inferior woods, a life of ten years. The horses are not allowed to have calks on their shoes, which probably makes the wear a little less severe than in this country, but this is counterbalanced many times by the enormously greater volume of the traffic. On the other hand, the absence of the calks proves that the pavements are not slippery, an argument which is sometimes advanced against wood pavement.

\* Extracts from a paper by Mr. F. A. Kummer, read before the American Society of Municipal Improvements.

It may possibly be said that the wear above noted per year is considerable, although taken in connection with the volume of traffic this is not so. In Paris it is found that the rate of wear under the heaviest traffic for wood, namely, one centimetre per year, is exactly the same as the rate of wear for granite throughout the entire city.

In constructing the streets in Paris the concrete is brought to a true surface by floating it with a grout composed of Portland cement and fine sand. No sand cushion is used. The blocks are laid directly on the smooth concrete surface, and are laid perpendicular to the line of the kerb. Laths, afterwards removed, are introduced between the blocks, making a joint of about  $\frac{3}{8}$  inch, which is grouted with sand and Portland cement. About twelve days suffice to complete any particular portion of a street, from the date of closing it to the date of opening it again to traffic.

Owing to the fact that soft woods are generally used in Paris, the surface of the wood is to some extent spongy, and the practice of spreading a thin layer of sand and fine gravel over the streets every few days is followed, the gravel being crushed and ground into the fibre of the wood, giving the roadway a sandy surface. This, of course, reduces the slipperiness of the pavement. In London, however, this is not frequently done.

Labour employed by the Paris city authorities costs from 80 to 90 cents per day, and the completed pavements cost for wood about 3.10 dols., for granite about 3.40 dols., and for asphalt about 3.12 dols.

A large proportion of the woods used in Paris are treated, creosote being generally employed, but a large quantity of the preservative is not used, generally from 8 to 10 lbs. per cubic foot.

In London there was laid from 1874 to 1884 about 1,000,000 square yards of wood. There is now about four times as much in that city. The earlier pavements were untreated wood, generally Swedish deal, a wood of fairly good quality. Later it was "pickled," as they call it, by dipping in hot creosote oil after thorough seasoning. About ten years ago the Australian woods, karri and jarrah, came into favour, but are not now generally regarded as being so satisfactory as creosoted deal, and pavements laid with them are being taken up and replaced with creosoted Swedish deal. Most of the pavements now being laid consist of Swedish deal on concrete, either creosoted under pressure or dipped, although untreated wood is used in some sections. The Swedish deal used in

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Wood on concrete has been used for paving in London for some twenty-seven years, its use having been begun about 1874, although the first London wooden pavements were laid in 1839. The average life, of course, depends upon the nature and volume of the traffic. In the Kensington district, where they use principally creosoted Swedish yellow deal, the average life of the pavement throughout the district is shown by the following extract from the forty-fourth annual report of the surveyor of the parish of St. Mary Abbots, Kensington, for 1900:—

"Kensington High Street was paved with dipped blocks laid by the Improved Wood Paving Company in November 1891, under their maintenance contract, which was then expiring. These dipped blocks had, therefore, lasted a little under eight years. The wood creosoted under pressure had lasted in the other roads about twelve years, with the exception of the section of Kensington Road marked (c), which had been down 9½ years. The wood was not worn out, but it had been very much cut up and damaged by the operations of the National Telephone Company, and as the consequent reparation would have involved the making good of a considerable proportion of the entire area, it was deemed advisable to repave the whole surface, and thus prevent the necessity of twice interfering with the traffic on this important road."

It should always be borne in mind that figures for wear are entirely relative. The traffic over the streets in London is very heavy, far heavier than on the streets of any of our largest cities, and the constant and very heavy omnibus traffic is particularly damaging to the pavements. Therefore the same class of street pavement in this country would beyond question have a much longer life. If, further, we can lay a class of timber much harder and better able to resist wear than the Swedish deal, and add to this a treatment that will make the wood still harder and completely waterproof, we should under lighter traffic at least succeed in obtaining double the life obtained on the heavily travelled streets of London, or say 24 years.

A section of long-leaf Georgia pine, known abroad as pitch-pine, 756 square yards in area, was laid with cement joints on

King's Road, London, some years ago. On the same road were laid sections of plain and creosoted deal, about the same time. The annual wear in the case of the plain deal averaged in depth during five years 0.139 inch, as against 0.055 of an inch for the pitch (Georgia) pine, or about two and one-half times as great. In the case of the creosoted deal on the same street, the average depth of wear was 0.111, or about twice that of the pitch-pine. The results of the trial of pitch-pine, as summarised in a paper read before the Institute of Civil Engineers in 1883, were to the effect that "practically the plain pitch-pine pavement is cheaper than yellow deal, and the ascertained vertical wear promises admirable results." The use of yellow pine, however, in London, in spite of this opinion, has not extended because of the great cost of the best qualities of lumber delivered there.

The dimensions of the blocks used in London are almost invariably 3 by 9 inches on the wearing surface, and 4 to 5 inches in depth. The blocks are often worn in some places to little more than an inch in depth before being removed. Such excessive wear would only be secured in the case of pitch-pine in a period approximately two and one-half times as great as that required for equal wear with the Swedish deal.

With regard to a guarantee for maintenance, the conditions of contract vary in every district. In some districts the authorities employ their own labour, and in such cases the timber merchant simply supplies the blocks under the inspection of the surveyor of the district, and their liability ends with the delivery of the blocks. In other districts, where the work is contracted for in its entirety, the contractor has to supply and lay the wood-paving to the satisfaction of the surveyor, and his liability ends as soon as the work is completed. In other districts the practice is for the contractor to keep the roadway in perfect condition for a given period, varying from six months to three or more years, either free or at a price per year included in the original bid. Prices thus vary considerably. Throughout the district of Kensington 43,476 square yards of pavement laid during the year ending March 1900, all creosoted deal, part 4 and part 5 inches in depth, cost an average price of about 2.25 dols. per square yard. This embraces no cost for maintenance.

With reference to creosoted blocks, the report of Mr. Weaver, surveyor, Kensington district, quoted above, says:—"The superiority of creosoted blocks over plain wood is demonstrated by the fact that creosoted 5-inch blocks in High Street, Notting Hill, and Fulham Road, lasted twelve years,

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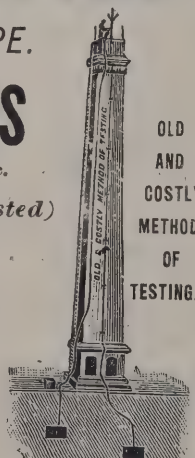
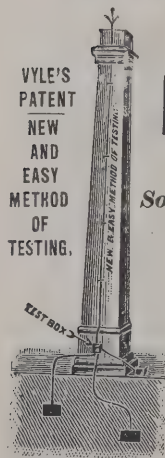
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whereas the previous paving, consisting of 6-inch plain deal blocks, lasted less than nine years under much lighter traffic."

The renewals are made necessary generally by the traffic at the principal points of stoppage for omnibuses, for instance, where the continuous heavy pounding of the horses when starting necessarily wears the pavement away at that one spot more rapidly than at other parts of the street.

Wooden pavements abroad are often sprinkled with sand, as before mentioned, to reduce the tendency to slip. Soft wood blocks, especially those creosoted, have a rather slimy surface, making them probably more slippery when wet than harder blocks having a surface unaffected by moisture. Also there are no calks on the horses' shoes, which renders such sprinkling more necessary. It is an advantage that wood pavements may be so sprinkled and slipping thereby reduced. Asphalte, more slippery than wood in the start, cannot be so sprinkled without injury to its surface.

It has been claimed, against the use of wooden blocks particularly when untreated, that some of the blocks are softer than others and more porous, and consequently wear more quickly; but this is remedied by the treatment of the block especially where the mixture of creosote and rosin, called the creo-resinate process, is adopted, owing to the fact that the softer and more porous blocks take up just that much more of the preservative and hardening mixture, and are therefore all brought to the same degree of resistance. At the same time, where only heart wood is used, with no sap whatever, the difference in density of the wood is very small.

### LOUISIANA PURCHASE EXPOSITION.

THE Louisiana Purchase Exposition in St. Louis in 1903 will be the first in which hills enter into the composition of the main exposition "picture." The natural topography of the site, says the *Engineering Record*, prompted this radical departure. This main picture is to be located entirely within Forest Park, the second largest public park in the United States. The use of the unfinished half of the park was granted to the exposition company by the city as an exposition site. This part contains a level tract of about 400 acres, which formerly supplied space for golf links and a race track. From this level the ground rises on a slope of about 60 degrees to an average height of 60 feet. The main exhibit buildings, the big

towers, the lagoons, basins, canals and statuary groups occupy the lower level. The Art Gallery and its by-buildings, the architectural chef d'œuvre of the exposition, designed by Mr. Cass Gilbert, and the United States Government Building, designed by Mr. J. Knox Taylor, are to be built on the elevated tract. In the treatment of the intervening slope the commission of architects had scope for originality. The difference of elevation constituted the chief problem with which they had to contend. They solved it by means of hanging gardens and a series of cascades.

The main picture of the exposition is roughly in the shape of a gigantic fan, the ribs of which are the avenues of the exposition. At the apex of this composition stands the Art Building on an eminence. Three great cascades, that issue from the sides of three hills in the form of a crescent, are to course down the hillsides and empty into a large basin. The water effects of the picture, radiating from these three cascades, offer a mile of continuous water circuit. From the roughly semicircular basin into which the cascades plunge, two streams in imitation of a natural river branch to right and left. As they traverse the avenues their banks assume a regular geometrical outline to their debouchure into the grand basin at its lower end. The beautifully wooded areas on the highest levels of Forest Park are to be occupied by the State and foreign buildings.

### TRADE CONCILIATION COURTS IN NEW ZEALAND.

THE main features of the Industrial Conciliation and Arbitration Act now in force in New Zealand are as follows:—

Any society, whether of employers or workmen, may register, under conditions which are fully set forth in the Act, and which are too long to repeat here.

Provision is made to prevent the needless multiplication of unions, and the effect of registration renders the union which is registered and all persons who are members of it subject to the jurisdiction of the Court appointed by the Act.

The Act appoints a Board of Conciliation, consisting of an unequal number of persons, who are elected by the registered unions for a period of three years.

The country is cut up into districts, each of which has a Board, and no member may sit on more than one Board.

When a dispute arises between employers and workmen, it

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may be referred for settlement to the District Board, who must carefully and expeditiously inquire into the dispute, and has power to summon witnesses and administer oaths. The Board may make what suggestions it deems right for inducing the parties to come to a fair and amicable settlement of the dispute, and may adjourn the proceedings to allow the parties to agree upon some terms of settlement, or it may refer the dispute to a committee of its members, consisting of an equal number of the representatives of employers and workers, with a view to facilitating and promoting an amicable settlement of the dispute, and if a settlement is arrived at, it shall be set forth in an industrial agreement which shall be executed by the parties and filed with the Board. If no industrial agreement is arrived at, the Board may make a recommendation for the settlement of the dispute, and upon receipt of the Board's recommendation all parties to the dispute may have free access to it, and if they accept the Board's recommendation they may bind it by an industrial agreement, but if the Conciliation Board is unable to bring the parties together, the matter is referred to the Court of Arbitration, which is one Court appointed for the whole colony for the settlement of industrial disputes. The Court consists of three members appointed by the Governor, one being appointed on the recommendation of the employers' unions, and the other on the recommendation of the workmen's unions, the third member being a judge of the Supreme Court, and he is president of the Court. The members of the Court hold office for three years.

If a dispute goes to the Arbitration Court from the Conciliation Board the parties may appear personally or by agent, and may produce all the evidence they think proper.

There are elaborate provisions for insuring the proper hearing of all disputes, and the decision of a majority of the members of the Court is the decision of the Court.

The Court has power to dismiss frivolous cases, to award costs, and to decide generally upon all questions of dispute between employers and workmen who belong to the unions. The Court has to frame its award in such a way as to best express its decision, avoiding all technicalities, and the award has to specify all the persons on whom it is binding, being in every case each industrial union or employer who is party to the proceedings at the time when the award is made. It must also specify the industry to which it applies and the industrial district to which it relates, as well as the currency of the award, which, however, cannot exceed three years from its date.

The award of the Court of Arbitration must also state in clear terms what is or is not to be done by each party on whom the award is binding, or by the workers affected by the award, and may provide for an alternative course to be taken by any party.

The award once made then extends to every industrial union or employer who is at any time, whilst the award is in force, connected with or engaged in the industry to which the award applies, within the industrial district affected, and the Court has power to amend its own award for the purpose of remedying any defect in it, and to extend the award so as to join and bind as party to it any specified industrial union or employer in the colony not theretofore bound by it, but connected with or engaged in the industry affected, and all these powers are exercisable upon the application of either party bound by the award.

The Court in its award, or by order afterwards made, may determine what shall constitute a breach of the award, and what sum, not exceeding 500*l.*, shall be the maximum penalty payable by any party who contravenes it, and the Court may also, at any time whilst the award is in force, prescribe a minimum rate of wages, with special provision for a lower rate being fixed in the case of any worker who is unable to earn the prescribed minimum.

For the purpose of enforcing the Court's decision, elaborate provisions are made, which compel all persons to obey the award under various penalties, which are all provided by the law.

The Court has full and exclusive jurisdiction to deal with all offences.

The general provisions of the Act go on to provide that an industrial dispute shall not be referred to a conciliation board, nor shall any application be made to the arbitration court for the enforcement of any industrial agreement or award, unless such a step be authorised by a resolution passed at a special meeting of the union and confirmed by subsequent ballot of the members, and this is to be done at a special meeting.

Either the board of conciliation or the court of arbitration has power to direct that two experts nominated by the parties shall sit as experts, and in that case they become assessors.

The Act brings the Government railways under its operation, and provides that the Amalgamated Society of Railway Servants shall be deemed to be an industrial union registered under the Act, so that railway servants are given the full benefits of the Act.



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